

Middlesex University Research Repository:

an open access repository of
Middlesex University research

<http://eprints.mdx.ac.uk>

Gallear, David Nicholas, 1999.
Developing a theory of total quality management - using the delphi
technique.
Available from Middlesex University's Research Repository.

Copyright:

Middlesex University Research Repository makes the University's research available electronically.

Copyright and moral rights to this thesis/research project are retained by the author and/or other copyright owners. The work is supplied on the understanding that any use for commercial gain is strictly forbidden. A copy may be downloaded for personal, non-commercial, research or study without prior permission and without charge. Any use of the thesis/research project for private study or research must be properly acknowledged with reference to the work's full bibliographic details.

This thesis/research project may not be reproduced in any format or medium, or extensive quotations taken from it, or its content changed in any way, without first obtaining permission in writing from the copyright holder(s).

If you believe that any material held in the repository infringes copyright law, please contact the Repository Team at Middlesex University via the following email address:
eprints@mdx.ac.uk

The item will be removed from the repository while any claim is being investigated.

**DEVELOPING A THEORY OF TOTAL
QUALITY MANAGEMENT - USING THE
DELPHI TECHNIQUE**

**A thesis submitted in part fulfilment of the requirements
for the degree of Doctor of Philosophy**

DAVID NICHOLAS GALLEAR

Middlesex University Business School

JUNE 1999

EXECUTIVE SUMMARY

DEVELOPING A THEORY OF TOTAL QUALITY MANAGEMENT - USING THE DELPHI TECHNIQUE

Submitted by David Nicholas Gallear for the Degree of Doctor of Philosophy

Quality has become an important determinant of competitiveness, to the point that it is now widely considered to be the foundation upon which other factors that contribute to competitive advantage, such as cost, speed of delivery, reliability of delivery and flexibility, must be built. Total Quality Management (TQM) has emerged as a prominent tool for organisations in pursuit of lasting improvements in quality, business performance and, for introducing change. A large and increasing number of organisations are starting to adopt TQM in recognition of its strategic importance. The importance of quality is also recognised by governments and industrialists throughout the developed world. The increasing number of awards expounding the value of TQM is a manifestation of the importance placed on the concept. All the signs indicate that the adoption of TQM is unlikely to diminish.

Despite the interest, and the attention of many researchers and writers, TQM remains an imprecise subject. Examination of the large volume of TQM related publications revealed that the literature is dominated by prescription and anecdote and highlights a lack of empirical work. A number of broad areas can be identified where it would appear that the literature has remained irreconcilable or under-developed. Moreover, it appears that the domination of TQM's development by practitioners has resulted in the absence of a theoretical grounding for TQM. These findings pointed to the need for substantive research to extend the current knowledge and understanding of TQM and to support its future development.

The aim of this study was to address these broad areas and to fill an important gap in the existing knowledge and understanding of TQM. More specifically, the aim was *to develop an inductive theory of TQM based on the expert opinion of practitioners in the leading organisations*. For the purpose of this study "theory" is defined as comprising three components: **concepts, relationships and underlying logic**.

The study achieves this aim through the explication of the views of a sample of best practice TQM organisations representing a wide range of industry sectors. The *design* of the research was motivated by the distinctive shortfalls in the domain and strategy of previous TQM research. After evaluating the methodological options available, the *Delphi method* was identified as the most

relevant and practical research technique. A modified Delphi survey comprising four planned rounds of postal questionnaires was used to collect the study's primary data. Conversion of this primary data into the proposed theory involved a profound process of interpretation and refinement which centred around explaining the logic underlying the salient TQM variables that were identified. Exploratory factor analysis was used to aid the interpretive processes. The salient variables were heuristically organised into a set of TQM concepts and the *interrelationship digraph* technique was used to facilitate the extraction of the salient relationships between the concepts from the core body of underlying logic.

The study identifies nine key concepts of the TQM approach and puts forward seven key propositions that explain the important relationships between them. The three core concepts are Customer Focus, Internal Collaboration and Dynamic/Energetic Leadership. The study corroborates the belief evident in the more recent TQM literature that TQM is a management philosophy. The idea that TQM is a "management fad" is refuted. The study provides strong evidence that TQM is universally applicable to 'for profit' organisations. It is also shown that the impact of TQM goes beyond management practice. TQM is undeniably concerned with the attitude, the values and the behaviour of all of the members of an organisation.

The primary data in this study came from a sample that comprised 'for profit' organisations only. The proposed theory has therefore been derived in this context. This represents the main boundary to which generalisation can be taken. An objective of the study was to test the proposed concepts in order to refine the proposed theory. This objective was only partially met due to unexpected diversity in some of the qualitative primary data.

This study has expanded understanding by contributing an inductively developed theory of TQM to the present knowledge. This interpretation of TQM, which identifies the logic underlying the relevance of the important TQM variables, transcends a description of TQM which is specified purely in terms of the relevant variables. The study also contributes an understanding of TQM that explicitly distinguishes its purpose from its mechanics. The core practical contribution of the study is that it can act as a conduit to improve practitioner understanding. Practitioners seeking to improve the performance of their organisation to a position of sustainable competitive advantage through the introduction of a TQM approach can have an understanding of TQM that is based on proven practice. The study also contributes a set of TQM concepts and an interrelationship digraph that can act as a base-line from which existing TQM approaches may be critically examined. Furthermore, the study contributes a theory of TQM to the development of a sound theoretical framework that can systematically and appropriately guide future research.

ACKNOWLEDGEMENTS

As with any major undertaking the completion of this study has only been made possible through the help, support and guidance I have received from a large number of people.

I would like to thank the individuals from all the organisations that participated in this research. Without their willingness to invest time in sharing information with me, this study could not have been undertaken.

I owe a huge debt of thanks to Professor Abby Ghobadian for the key role he has played in keeping me on course to complete this work. I value and appreciate the wise counsel and considered feedback that he has shared with me. This helped me enormously to keep focused on the task in hand.

During the course of this project I have also received much support and encouragement from my colleagues at the Management Development Unit (MDU) and the Centre for Interdisciplinary Strategic Management Research (CISMR) - Jonathan, Howard, Hong, Tibor, Stam, Debbie and Eileen, and more recently Nick and Paul. I would like to express my thanks to them all.

Finally, I would like to recognise the huge, unwavering support that I have received from my family and close friends. Throughout what has undoubtedly been a lengthy process they have kept faith in me and provided me the inspiration to keep going. In particular I need to thank my parents Derek and Gill and, Joanna. It is their belief in me and their unselfishness and understanding that has underpinned and sustained my application to this work.

TABLE OF CONTENTS

Executive Summary	i
Acknowledgements	iii
Contents	iv
List of Tables	xi
List of Figures	xiii
Glossary of Abbreviations	xiv

CHAPTER 1: INTRODUCTION

1.1	Critique of the TQM Literature	1
1.2	Importance of the Study	5
1.3	Aim and Objectives of the Study	6
1.4	The Study's Contribution to Knowledge	9
1.5	Outline of Research Methodology	10
1.6	Scope and Limitations of the Study	12
1.7	Structure of the Report	16

CHAPTER 2: LITERATURE REVIEW

2.1	Introduction	17
2.1.1	<i>Framework of literature review</i>	17
2.2	Origins and Historical Development of TQM	21
2.2.1	<i>Review of contribution of quality "gurus"</i>	25
2.2.1.1	Who are the "gurus" of quality and why are their contributions treated so significantly?	26
2.2.1.2	Summary examination of the teachings of the quality gurus	27
2.3	Importance of "Quality"	33
2.3.1	<i>Perceived importance of "quality"</i>	34
2.3.2	<i>Perceived importance of "quality" in practice</i>	36
2.3.3	<i>Demonstrated importance of "quality"</i>	38
2.4	Importance of "TQM"	41
2.4.1	<i>Perceived importance of "TQM"</i>	41
2.4.2	<i>Perceived importance of "TQM" in practice</i>	42
2.4.3	<i>Demonstrated importance of "TQM"</i>	47
2.4.4	<i>Summary of findings - importance of "TQM"</i>	55
2.5	Broad Suggestions/Definitions of TQM	56
2.5.1	<i>The 'philosophy' perspective</i>	56
2.5.2	<i>The 'management system' perspective</i>	58
2.5.3	<i>The 'strategy' perspective</i>	59
2.5.4	<i>The other definitions/suggestions</i>	59
2.5.5	<i>Summary of findings</i>	61
2.6	What is Involved (TQM Components/Elements)	63
2.6.1	<i>Review of the non-prescriptive contributions</i>	63
2.6.1.1	Empirical or structured interview derivation	63
2.6.1.2	Questionnaire survey derivation	68
2.6.1.3	Literature survey derivation	74
2.6.2	<i>Summary of non-prescriptive contribution findings</i>	77
2.6.2.1	Review of case study evidence	80
2.6.3	<i>Review of the prescriptive contributions</i>	82

2.6.4	<i>Summary of examination of the prescriptive contributions</i>	82
2.6.5	<i>Examination of quality award frameworks</i>	91
2.7	Process of TQM Implementation	94
2.7.1	<i>Review of the non-prescriptive contributions</i>	95
2.7.1.1	Empirical or structured interview examinations	95
2.7.1.2	Questionnaire survey examinations	98
2.7.1.3	Conclusions about implementation process drawn by other non-prescriptive contributions	98
2.7.1.4	Case study examinations	99
2.7.2	<i>Summary of examination of the non-prescriptive contribution findings</i>	104
2.7.3	<i>Review of the prescriptive contributions</i>	105
2.7.4	<i>Summary of examination of the prescriptively based contributions</i>	106
2.8	Reasons for Failure of TQM / TQM Implementation Process	112
2.8.1	<i>Review of the non-prescriptive contributions</i>	113
2.8.1.1	Empirical or structured interview study evidence	113
2.8.1.2	Questionnaire survey derived evidence	116
2.8.1.3	Case study evidence	119
2.8.2	<i>Summary of examination of the non-prescriptive contribution evidence</i>	120
2.8.3	<i>Review of the prescriptive contributions</i>	122
2.8.4	<i>Summary of an examination of the prescriptive contributions</i>	123
2.9	Contributions That Have Attempted to Understand Why Failure in TQM Occurs and How it Might Be Overcome	130
2.9.1	<i>The systems perspective</i>	132
2.9.2	<i>Contingency perspectives</i>	133
2.10	Other Important Issues in the TQM Domain	136
2.10.1	<i>Practical guidance for designing the appropriate TQM approach</i>	137
2.10.1.1	Summary of findings	141
2.10.2	<i>Issues relating to the effect of TQM on facets of organisational behaviour</i>	142
2.10.2.1	Organisation structure	142
2.10.2.2	Management style	145
2.10.2.3	Organisational culture	148
2.10.2.4	Strategic level processes and considerations	153
2.10.2.5	Top leadership role	155
2.10.3	<i>Issues relating to the effect or impact of various interventions on TQM</i>	160
2.10.3.1	Use and role of external consultants	160
2.10.3.2	Relevance of BS EN ISO9000 to TQM approach	162
2.10.4	<i>External range of applicability of TQM</i>	165
2.10.4.1	SME applicability	166
2.10.4.2	Service industry applicability	169

CHAPTER 3: METHODOLOGY - RESEARCH DESIGN

3.1	Introduction	175
3.1.1	<i>Structure of chapter</i>	179
3.2	A Theory of TQM	179
3.2.1	<i>Constituents of theory</i>	180
3.2.2	<i>How a theory differs from other forms of output</i>	181
3.2.3	<i>The value of a theoretical contribution</i>	182
3.2.4	<i>Structure of theory adopted for this investigation</i>	183
3.2.5	<i>Some views on the theory building process</i>	183
3.2.6	<i>Evaluation of a theoretical contribution</i>	185
3.3	Mode(s) of Research	186

3.3.1	<i>Theory building - induction</i>	186
3.3.2	<i>Enhancing the theory - deduction</i>	187
3.4	Research Strategy, Research Domain and Research Method/Technique	188
3.4.1	<i>Research strategy and domain</i>	188
3.4.2	<i>Research method/technique</i>	191
3.4.3	<i>Delphi technique</i>	193
3.4.4	<i>Purpose and attributes of the Delphi technique</i>	194
3.4.5	<i>The Delphi process</i>	196
3.4.6	<i>Concerns about Delphi and corresponding recommendations</i>	197
3.5	Summary of the Research Design	202

CHAPTER 4: METHODOLOGY - THE RESEARCH PROCESS

4.1	Introduction and Structure of the Chapter	204
4.2	The Sample	204
4.2.1	<i>Unit of analysis and specification of participant</i>	204
4.2.2	<i>Target sample size</i>	207
4.2.3	<i>Criteria for selection of organisations and the panel assembly process</i>	209
4.2.4	<i>Resultant participant group and its demographics</i>	212
4.2.5	<i>Characteristics of the participant group</i>	214
4.3	The Information Gathering Plan	216
4.3.1	<i>Modification of the conventional Delphi format</i>	216
4.3.2	<i>Structure of the information gathering plan - A four round Delphi survey</i>	217
4.3.3	<i>Analysis and development stages in the research process</i>	222
4.3.4	<i>Time schedule of the research process</i>	223
4.3.5	<i>Pre-testing the questionnaires</i>	225
4.3.6	<i>Use and construction of feedback reports</i>	228
4.4	Statistical Analysis	230
4.4.1	<i>Use of significance testing</i>	230
4.4.2	<i>Use of exploratory factor analysis</i>	231
4.4.3	<i>Use of cross-tabulation</i>	232
4.4.4	<i>Cut-off points applied to the interpretation of mean scores</i>	233

CHAPTER 5: STIMULUS FOR THE INTRODUCTION OF TQM

5.1	Introduction	234
5.2	Reasons for Introducing TQM	235
5.2.1	<i>Defensive strategic response</i>	237
5.2.2	<i>Change strategic response</i>	238
5.2.3	<i>Reactive strategic response</i>	238
5.2.4	<i>Cooperative strategic response</i>	239
5.2.5	<i>Strategic response summary</i>	239
5.2.6	<i>Differences in reasons according to size and class of organisation</i>	240
5.3	Sources Resulting in Identification of TQM	240
5.3.1	<i>Identification channels</i>	241
5.3.2	<i>Summary</i>	243
5.4	Organisational Changes Resulting From the Introduction of TQM	244
5.4.1	<i>Pre-TQM organisation structures</i>	246
5.4.2	<i>Profile of changes in organisation structure</i>	246
5.4.3	<i>Differences in the profile of changes in organisation structure according to size or class of organisation</i>	247
5.4.4	<i>Pre-TQM and present day management styles</i>	248

5.4.4.1	Findings for dimension (a) <i>passive / directive / participative</i> and dimension (b) <i>proactive / reactive</i>	249
5.4.4.2	Findings for pre-TQM dimension (c) specific management style	250
5.4.4.3	Findings for post-TQM introduction dimension (c) <i>devolved / centralised</i>	251
5.4.5	<i>Profile of changes in management style</i>	251
5.4.5.1	Summary of management style change profile	256
5.4.6	<i>Differences in the profile of changes in management style according to size or class of organisation</i>	257
5.4.7	<i>TQM quality practices</i>	258
5.4.8	<i>Pre-TQM quality practices</i>	259
5.4.8.1	Nature of pre-TQM quality practices	260
5.4.8.2	Responsibility for quality prior to the introduction of TQM	260
5.4.8.3	Variations in attitude towards quality practices according to location within organisation	260
5.4.9	<i>Present (TQM) quality practices</i>	263
5.4.9.1	Nature of quality practices following the introduction of TQM	263
5.4.9.2	Responsibility for quality after the introduction of TQM	269
5.4.10	<i>Summary and profile of changes in quality practices</i>	271
5.4.11	<i>Differences in the profile of changes in quality practices according to size or class of organisation</i>	273
5.5	Chapter Summary	275

CHAPTER 6: ORGANISATIONAL ROLE AND SPAN OF APPLICATION OF TQM

6.1	Introduction	277
6.2	Method of Investigation	278
6.3	Findings - Organisational Role and Span of Application of TQM	280
6.3.1	<i>Purposes of TQM</i>	280
6.3.2	<i>Methodological foundations</i>	286
6.3.3	<i>General characteristics</i>	295
6.4	Influence of <i>Size and Class</i> of Organisation on Organisational Role of TQM	298
6.5	Factor Analysis Applied to Organisational Role of TQM	299
6.5.1	<i>Stage 1 and stage 2 factor analysis findings - purposes of TQM</i>	300
6.5.2	<i>Stage 1 and stage 2 factor analysis findings - methodological foundations of TQM</i>	303
6.5.3	<i>Stage 1 and stage 2 factor analysis findings - general characteristics of TQM</i>	308
6.5.4	<i>Summary and further observations of factor analysis of the organisational role of TQM</i>	311

CHAPTER 7: STRATEGIC ROLE OF TQM

7.1	Introduction	313
7.2	Method of Investigation	314
7.3	Conceptual Focus	314
7.3.1	<i>Conceptual relationships (statements) between strategy and TQM</i>	315
7.3.2	<i>Product, process and service quality as a generic business strategy</i>	323
7.3.3	<i>TQM as a generic strategy underpinning/supporting other efforts of the organisation</i>	324
7.4	Operational Focus	325
7.4.1	<i>Further observations</i>	337

7.5	Influence of <i>Size</i> and <i>Class</i> of Organisation on Strategic Role of TQM	338
7.6	Factor Analysis Applied to Strategic Role of TQM	339
7.6.1	<i>Stage 1 and stage 2 factor analysis findings - conceptual strategic role of TQM</i>	339
7.6.2	<i>Stage 1 and stage 2 factor analysis findings - operational strategic role of TQM</i>	342

CHAPTER 8: MAIN ELEMENTS AND SUB-ELEMENTS OF TQM

8.1	Introduction	346
8.1.1	<i>Method of investigation</i>	346
8.2	The Main Elements of TQM	348
8.2.1	<i>Sub-elements of TQM concerned with management process</i>	348
8.2.2	<i>Sub-elements of TQM concerned with market focus</i>	354
8.2.3	<i>Sub-elements of TQM concerned with process focus</i>	358
8.2.4	<i>Sub-elements of TQM concerned with people focus</i>	362
8.2.5	<i>Sub-elements of TQM concerned with communication and measurement</i>	367
8.3	Influence of <i>Size</i> and <i>Class</i> of Organisation on Sub-Elements of TQM	376
8.4	Factor Analysis Applied to the Sub-Elements of TQM	379
8.4.1	<i>Stage 1 and stage 2 factor analysis findings: sub-elements concerned with management process</i>	380
8.4.2	<i>Stage 1 and stage 2 factor analysis findings: sub-elements concerned with market focus</i>	383
8.4.3	<i>Stage 1 and stage 2 factor analysis findings: sub-elements concerned with process focus</i>	386
8.4.4	<i>Stage 1 and stage 2 factor analysis findings: sub-elements concerned with people focus</i>	387
8.4.5	<i>Stage 1 and stage 2 factor analysis findings: sub-elements concerned with communication and measurement</i>	391

CHAPTER 9: CONDITIONS FOR TOTAL QUALITY

9.1	Introduction	397
9.1.1	<i>A definition of "culture"</i>	397
9.1.2	<i>The importance of culture</i>	398
9.1.3	<i>The need for an appropriate method of investigation</i>	399
9.1.4	<i>Method of investigation</i>	399
9.2	Findings - 'Necessary Conditions' Underpinning A TQM Culture	401
9.3	Influence of <i>Size</i> and <i>Class</i> of Organisation on Necessary Conditions	416
9.4	Factor Analysis Applied to the Necessary Conditions	417

CHAPTER 10: A PRELIMINARY PROPOSED THEORY OF TQM

10.1	Introduction	421
10.2	Inputs to the Preliminary Conceptual Map	422
10.3	Description of Concept Structure and Concept Formation Procedure	428
10.3.1	<i>Development of concept structure</i>	428
10.3.2	<i>Concept formation procedure</i>	430
10.3.3	<i>Importance index</i>	432
10.4	Prevalent Concepts - Preliminary Conceptual Map of TQM	433
10.5	Development of the Conceptual Relationships	438
10.6	Prevalent Relationships Between the Nine TQM Concepts	441

CHAPTER 11: PARTIAL TESTING OF PROPOSED THEORY OF TQM

11.1	Introduction	446
11.2	Scope of the Testing	447
11.3	Testing Approach and Procedure	449
11.4	Findings	451
11.4.1	<i>Customer Focus</i>	452
11.4.2	<i>Internal Collaboration</i>	455
11.4.3	<i>Dynamic/Energetic Leadership</i>	460
11.4.4	<i>Findings for the four other partially tested concepts</i>	464
11.4.4.1	Participative Management	464
11.4.4.2	Process Architecture and Management	466
11.4.4.3	People Realisation	468
11.4.4.4	Strategic Framework	471
11.5	Summary of Partial Theory Testing Findings	472

CHAPTER 12: CONCLUSIONS AND RECOMMENDATIONS

12.1	The Aim and Objectives and Extent That They Were Met	474
12.2	Summary of Key Findings	475
12.3	Conclusions	477
12.3.1	<i>Critical evaluation of research methodology and use of modified Delphi technique</i>	478
12.3.2	<i>Range of applicability of TQM</i>	479
12.3.3	<i>The nature of the TQM approach</i>	481
12.3.4	<i>Position of TQM in relation to schools of management thought</i>	484
12.4	Extending the Present Knowledge	487
12.5	Recommendations	487
12.5.1	<i>Future use of modified Delphi technique</i>	488
12.5.2	<i>The introduction and use of TQM</i>	488
12.5.3	<i>Practical use of research findings</i>	490
12.6	Directions for Future Research	491

REFERENCES	493
-------------------	-----

APPENDICES

Appendix 2.1.1	TQM "usage" surveys
Appendix 2.2.1.2	Deming's fourteen points for management and seven deadly sins.
Appendix 4.2.3	Participant invitation letter
Appendix 4.2.4	Listing of participants' organisations
Appendix 4.2.5a	Business dimensions for individual participants
Appendix 4.2.5b	Business characteristics profile for three classes of organisation
Appendix 4.3.2	Delphi questionnaires 1 to 4
Appendix 4.3.5	Qualifier covering letter
Appendix 4.3.6	Feedback reports 1 to 3
Appendix 5.4.5	Sample section of pre-TQM management style analysis worksheet
Appendix 5.4.9.1	Sample section of present day (TQM) quality practice analysis worksheet
Appendix 7.1	Reference of key terms
Appendix 7.3.1	Map (I) of apparent principal causal relationships
Appendix 7.4	Map (II) of apparent principal causal relationships

Appendix 10.5a	Inter-relationship record matrix
Appendix 10.5b	Inter-relationship summary matrix
Appendix 11.3	Summary matrix of second and third round Delphi questionnaire evidence for the seven proposed TQM concepts tested
Appendix 11.4	Profiles of the fourth round Delphi questionnaire evidence for the seven proposed TQM concepts tested
Appendix 11.4.3a	Summary of elements of the roles of quality <i>steering groups</i>
Appendix 11.4.3b	Breakdown of examples of top management participation in on-going total quality initiatives
Appendix 11.4.4.1	Extent of use of management problem solving tools and techniques in the benchmark sample

LIST OF TABLES

Table 2.6.3	Summary of an examination of pertinent prescriptive literature contributions describing the components/elements of TQM	83
Table 2.7.3	Summary of an examination of prescriptive literature contributions describing the process of TQM implementation	107
Table 2.8.3	Summary of an examination of prescriptive literature suggestions concerning the causes/reasons for, and consequences/outcomes of failure to achieve TQM success	124
Table 3.4.2	Comparative assessment of potential research <i>techniques</i>	192
Table 4.2.3	Breakdown of individuals indicating an interest in participating in the study	211
Table 4.3.3	Illustration of the study's main analyses	222
Table 5.4.1	Original (pre-TQM) organisation structures	246
Table 5.4.4.1	Characteristics of management style before and after introduction of TQM	249
Table 5.4.4.2	(Specific) pre-TQM management style	250
Table 5.4.9.1a	FORMAL present day quality practices	265
Table 5.4.9.1b	INFORMAL present day quality practices	266
Table 5.4.9.1c	PREVENTATIVE present day quality practices	266
Table 5.4.9.1d	DETECTIVE present day quality practices	267
Table 5.4.11	Differences in present day quality practices according to organisation <i>size</i> and <i>class</i>	274
Table 6.5.1a	Factor loadings on (stage 1) twelve variable set of purposes of TQM	300
Table 6.5.1b	Factor loadings on (stage 2) nine variable set of 'agreed' purposes of TQM	302
Table 6.5.1c	Summary of new explanatory variables - <i>Purposes of TQM</i>	303
Table 6.5.2a	Factor loadings on (stage 1) eighteen variable set of methodological foundations of TQM	305
Table 6.5.2b	Factor loadings on (stage 2) twelve variable set of 'agreed' methodological foundations of TQM	306
Table 6.5.2c	Summary of new explanatory variables - <i>Methodological foundations of TQM</i>	308
Table 6.5.3a	Factor loadings on (stage 1) thirteen variable set of general characteristics of TQM	308
Table 6.5.3b	Factor loadings on (stage 2) twelve variable set of 'agreed' general characteristics of TQM	310
Table 6.5.3c	Summary of new explanatory variables - <i>General characteristics of TQM</i>	311
Table 7.3.2	Illustration of how organisations operationalise product, process and service quality as a generic business strategy	323
Table 7.3.3	Reasons why participants regard TQM as a generic strategy underpinning or supporting other efforts of the organisation	324
Table 7.6.1a	Factor loadings on (stage 1) eight variable set of strategic conceptual roles of TQM	340
Table 7.6.1b	Factor loadings on (stage 2) seven variable set of 'agreed' strategic conceptual roles of TQM	340
Table 7.6.1c	Strategic conceptual role of TQM (fixed 3 factor solution)	341
Table 7.6.1d	Strategic conceptual role of TQM (fixed 4 factor solution)	341
Table 7.6.1e	Summary of new explanatory variables - Strategic conceptual role of TQM	342
Table 7.6.2a	Factor loadings on (stage 1) eleven variable set of strategic operational roles of TQM	342
Table 7.6.2b	Strategic operational role of TQM (fixed 2 factor solution)	344
Table 7.6.2c	Strategic operational role of TQM (fixed 3 factor solution)	344
Table 7.6.2d	Strategic operational role of TQM (fixed 4 factor solution)	344
Table 7.6.2e	Summary of new explanatory variables - Strategic operational role of TQM	345
Table 8.3a	Important TQM sub-elements: differences between views of large organisations and SMEs	376
Table 8.3b	Important TQM sub-elements: differences between views of manufacturing, service and M/S organisations	377
Table 8.4.1a	Factor loadings on (stage 1) fifteen variable set of management process TQM sub-elements	380
Table 8.4.1b	Factor loadings on (stage 2) twelve variable set of 'important' management	

	process TQM sub-elements	382
Table 8.4.1c	Summary of new explanatory variables associated with <i>management process</i>	383
Table 8.4.2a	Factor loadings on (stage 1) ten variable set of market focus TQM sub-elements	383
Table 8.4.2b	Factor loadings on (stage 2) nine variable set of 'important' market focus TQM sub-elements	384
Table 8.4.2c	<i>Main element: market focus</i> (fixed 3 factor solution)	385
Table 8.4.2d	<i>Main element: market focus</i> (fixed 4 factor solution)	385
Table 8.4.2e	Summary of new explanatory variables associated with <i>market focus</i>	386
Table 8.4.3a	Factor loadings on 'important' process focus sub-elements of TQM	386
Table 8.4.3b	Summary of new explanatory variables associated with <i>process focus</i>	387
Table 8.4.4a	Factor loadings on (stage 1) seventeen variable set of people focus TQM sub-elements	388
Table 8.4.4b	Factor loadings on (stage 2) thirteen variable set of 'important' people focus TQM sub-elements	390
Table 8.4.4c	Summary of new explanatory variables associated with <i>people focus</i>	391
Table 8.4.5a	Factor loadings on (stage 1) twenty seven variable set of communication and measurement TQM sub-elements	392
Table 8.4.5b	Factor loadings on (stage 2) twenty two variable set of 'important' communication and measurement TQM sub-elements	395
Table 8.4.5c	Summary of new explanatory variables associated with <i>communication and measurement</i>	396
Table 9.4.1	Factor loadings on (stage 1) fifteen variable set of necessary conditions for the attainment of an organisation-wide quality ethos	418
Table 9.4.2	Factor loadings on (stage 2) fourteen variable set of 'important' necessary conditions for the attainment of an organisation-wide quality ethos	419
Table 9.4.3	Summary of new explanatory variables - Necessary conditions for the attainment of an organisation-wide quality ethos	420
Table 10.2a	Summary of <i>new explanatory variables (NEVs)</i>	423
Table 10.2b	Summary of <i>remaining important variables (RIVs)</i>	425
Table 10.2c	Summary of <i>further explanatory variables (FEVs)</i>	427

LIST OF FIGURES

Figure 2.1.1a	Illustration of the categorisation of the TQM literature	18
Figure 2.1.1b	Illustration of the structure of the literature review	19
Figure 2.2	The evolution of TQM	22
Figure 2.6.5	The European Quality Award (EQA) framework	93
Figure 3.1	A framework for Research Methodology	178
Figure 3.4.5	Illustration of the Delphi process	197
Figure 3.5	Summary of the investigation's research <i>design</i>	203
Figure 4.2.4a	Participants geographical location	212
Figure 4.2.4b	Distribution of organisation size; Participating organisations business orientation	213
Figure 4.2.4c	Organisation 'class' distribution for large organisations; Organisation 'class' distribution for small-to-medium sized enterprises (SMEs)	214
Figure 4.2.5	<i>General Information</i> section of Delphi round 1 questionnaire	215
Figure 4.3.2	The modified Delphi format developed for the investigation	220
Figure 4.3.4	Resultant primary research time schedule	224
Figure 5.2	Primary reasons for introducing TQM (grouped according to nature of strategic response)	236
Figure 5.3.1	Sources resulting in identification of TQM (grouped according to the identification channel type)	241
Figure 5.4.2	Profile of prevalent organisation structure changes	248
Figure 5.4.5	Profile of change in management style resulting from the introduction of TQM	251
Figure 5.4.10a	Comparison of the nature of pre-TQM with present (TQM) quality practices	271
Figure 5.4.10b	Profile of prevalent changes with regards to quality practices resulting from the introduction of TQM	272
Figure 6.3.1	Mean scores for proposed organisational roles of TQM: purposes of TQM	281
Figure 6.3.2	Mean scores for proposed organisational roles of TQM: methodological foundations	287
Figure 6.3.3	Mean scores for proposed organisational roles of TQM: general characteristics	295
Figure 7.3.1	Mean scores for proposed <i>conceptual</i> relationship statements	315
Figure 7.4	Mean scores for proposed strategic issues addressed by TQM	326
Figure 8.2.1	Mean scores for TQM sub-elements concerned with <i>management process</i>	349
Figure 8.2.2	Mean scores for TQM sub-elements concerned with <i>market focus</i>	354
Figure 8.2.3	Mean scores for TQM sub-elements concerned with <i>process focus</i>	358
Figure 8.2.4	Mean scores for TQM sub-elements concerned with <i>people focus</i>	363
Figure 8.2.5	Mean scores for TQM sub-elements concerned with <i>communication and measurement</i>	368
Figure 9.2	Mean scores for proposed <i>necessary conditions</i> that must exist for a quality ethos to permeate an organisation in its entirety	402
Figure 10.3.1	Structure of concepts underlying the TQM approach	429
Figure 10.3.2	Illustration of iterative procedure for developing preliminary conceptual map	431
Figure 10.5	Illustration of procedure for identifying the <i>relationships</i> of the TQM theory	439
Figure 10.6	Interrelationship digraph of the <i>concepts</i> and of the <i>relationships</i> of the proposed theory of Total Quality Management	442
Figure 11.3	Illustration of the procedure used in designing the fourth round Delphi questionnaire	449
Figure 11.4.1	Summary profile of Delphi fourth round evidence in support of the proposed TQM concept <i>Customer Focus</i>	453
Figure 11.4.2	Summary profile of Delphi fourth round evidence in support of the proposed concept <i>Internal Collaboration</i>	457
Figure 11.4.3	Summary profile of Delphi fourth round evidence in support of the proposed concept <i>Dynamic/Energetic Leadership</i>	461

GLOSSARY OF ABBREVIATIONS

AQA	Australian Quality Award
ASQC	American Society of Quality Control
BIM	British Institute of Management
BQA	British Quality Association
CBI	Confederation of British Industry
CEO	Chief Executive Officer
CI	Continuous improvement
DTI	Department of Trade and Industry
EFQM	European Foundation for Quality Management
EOQ	European Organisation for Quality
EQA	European Quality Award
GAO	General Accounting Office (US)
GMFP	Global Manufacturing Futures Project
HRM	Human resource management
IDS	Incomes Data Services Ltd
IQS	International Quality Study
JIT	Just-in-time
JUSE	Union of Japanese Scientists and Engineers
MBNQA	Malcolm Baldrige National Quality Award
MCDM	Multiple-criteria decision-making
M/S	Manufacturing/service
OEM	Original equipment manufacturer
PDCA	Plan-do-check-act
PIMS	Profit Impact of Market Strategy
QA	Quality assurance
QC	Quality control
QCOC	Quality critical organisational characteristic
QIM	Quality improvement meetings
QM	Quality management
ROI	Return on investment
SEM	Structural equation modelling
SME	Small to medium-sized enterprise
SPC	Statistical quality control
SQC	Statistical quality control
TQC	Total Quality Control
TQM	Total Quality Management
UK	United Kingdom
US	United States

CHAPTER 1: INTRODUCTION

1.1 Critique of the TQM Literature

Much has been written about how "quality" should be managed in an organisation. The perceived importance of total quality management (TQM) as a means of improving performance has also captured the attention of many researchers and writers. The large increase since the early 1980s in the volume of TQM related publications and the range of publications where TQM related contributions appear bears witness to this statement.

To substantiate the points made in the previous paragraph the relevant databases were examined using the search term '*TQM {or} total quality management*'. The ABI Inform CD-ROM Database, which provides citations of articles in a large and diverse number of journals dealing with management-related issues, revealed the following statistics. Between January 1986 and December 1991 a total of 407 articles were referenced. Between January 1992 and December 1995 the number of articles referenced was 2281 - a significant increase in volume. Finally, between January 1996 and January 1998 the database identified 423 articles with '*TQM {or} total quality management*' appearing in the citation. The *Global Bookbank Premium Service* provides a database of all texts published in the English language. A recent search (June 1997) of this database identified 324 texts with 'Total Quality Management' or 'TQM' in the title.

The author's observations correspond with Lascelles and Dale's (1988) observation of quality improvement discussion, that a striking feature of the literature on quality and TQM is the variety of texts and journals in which they are discussed. These range from those dedicated to the subject, to those concerned with marketing, economics, general management, personnel and human resource management, industrial engineering and strategic management. This list is not exhaustive. Journals aligned exclusively to the subject of TQM began to appear in the late 1980s, for example *The TQM Magazine* (since 1988), *Total Quality Management* (since 1990) and *Total Quality Review* (since 1996). Though the title may suggest its focus is on productivity, the journal *National Productivity Review* features articles primarily relating to quality issues, and more recently to TQM. The *Journal for Quality and Participation* (inaugurated in 1978) and *Benchmarking for Quality Management and Technology* (inaugurated in 1994) are other such examples. In addition to these dedicated journals, special issues of other management journals focusing entirely on TQM

have also begun to appear. For example, *Journal of Organisational Change Management* Vol. 6, No.4 (1993), positioning articles on either side of the "TQM relevance" debate and *Academy of Management Review* Vol. 19, No. 3 (1994) seeking to contribute to the goal of TQM theory development.

A cursory examination of the composition of the TQM literature, that is to say the types or nature of the contributions to the TQM debate, indicates that the literature offerings are extremely fragmented. Furthermore, a large number of articles are written by practitioners in practitioner journals. Examination of a variety of key sources cataloguing TQM literature contributions¹ leads the author to the conclusion that the literature is dominated by prescription and anecdote, and unquestionably highlights a lack of empirical work beyond some specific technical issues.

When the ABI Inform CD-ROM Database search results referred to above (using the search term '*TQM {or} total quality management*') were limited to those articles which also indicated '*empirical*' in their long citation, the following statistics were revealed. Of the January 1986 to December 1991 articles none indicated an empirical grounding. For the period January 1992 to December 1995 twenty four articles were identified. For the period January 1996 to January 1998 only twelve such articles were identified. When the *Global Bookbank Premium Service* search referred to above was narrowed to include only those books identified as presenting comprehensive case history evidence as a major component of their format, only six texts were identified. When narrowed to include only those texts identified as being based around an empirical research study of multiple organisations, only four texts were identified. Though the findings of these more specific database searches cannot be regarded as conclusive of the composition of the TQM literature, they nevertheless provide a good indication of its composition.

Similar conclusions about the composition of the TQM related literature have been reached by a number of other authors [Yearout (1992); Dean and Bowen (1994); Sitkin et al (1994); Ahire et al (1995); Hackman and Wageman (1995); Wilkinson and Willmott (1996) and Morrow (1997)]².

¹(computer accessed CD-ROM citation databases; literature databases accessed through the world-wide-web; social science citation indexes and the reference lists of TQM review articles).

²Two different styles of brackets are used when referencing in the text throughout this thesis. The convention that has been adopted is as follows. Square brackets are used to enclose a reference or references in the text when the author is identifying: (a) a piece or pieces of work, or (b) an author or a number of authors. For example, "A number of surveys have been cited to this effect [Summers (1993); Holder and Walker (1993); Pike and Hewins (1992) and Ackoff (1993)].". A reference enclosed in round brackets in the text signifies that the author is acknowledging that the view, observation or idea being presented was originally put forward by another author. For example, "Therefore, verdicts on TQM's effect on Western

Dean and Bowen (1994) concluded that total quality was a ubiquitous organisational phenomenon that had been given little research attention, concluding that given its mission to improve organisational performance, TQM was almost completely prescriptive in nature. Sitkin et al (1994) concluded that although there were a number of identifiable perspectives represented in the literature on the management of quality in organisations, nearly all of the past work had been descriptive or prescriptive in nature, with very little emphasis on theory development or testing. Ahire et al (1995) suggested that there was a lack of a sound theoretical framework classifying past efforts and guiding future TQM research. In an attempt to fill this void Ahire et al (1995) undertook to review, classify and analyse the TQM research for the period 1970 to 1993. Their review covered forty four refereed management journals and identified 226 TQM-related articles. They reported that the major emphasis in published TQM research had been on *conceptual*, practitioner-oriented, "do-everything-right" types of articles (107 articles), followed by *case studies* (56 articles). *Conceptual* articles referred to prescriptive models of TQM, prescriptive methods for implementing TQM and opinions about various aspects of TQM. They reported that *empirical* research, which they classified as articles based on a field study of a large number of organisations, had been the topic of significantly fewer articles (29 articles). Furthermore, that these were some of the more recent articles. These findings led them to conclude that: (a) the broad database necessary for empirical testing of TQM theories was only beginning to be generated and, as such, (b) the TQM field had yet to develop a theoretical and empirical base³. Based on their examination of the TQM literature from the empirical, conceptual and practical viewpoints, Hackman and Wageman (1995) proposed three evident worrisome trends: (a) that large amounts of rhetoric was winning over substance; (b) that an astonishing number of other interventions, some related to TQM and some not, were increasingly being presented under the TQM banner and (c) that too much of the TQM literature consisted of anecdotal case reports that they suggested may be of more use politically in promoting TQM than in building knowledge about TQM processes. This led Hackman and Wageman (1995) to conclude that internal problems would be less likely to cause TQM to drop from popular usage, than lack of research indicating which practices have actual results, the dilution of the philosophy as it has become popular and the presentation of unrelated interventions as TQM.

business may be premature (Summers, 1993)."

³The author would suggest from his own examination of the full 226 article reference list provided by Ahire et al (1995), that these authors had been generous with the number of articles that they positioned as TQM related, but more pertinently had been even more generous with the number of articles that they had classified as *empirical*.

A cursory examination of the content of the TQM literature, that is to say of what is discussed by the TQM literature contributions, indicates that there is a wide-ranging lack of consensus. The literature contains many case studies of successful companies' efforts and descriptions of quality concepts and quality improvement programmes, and appears to have addressed every conceivable aspect of TQM. Nevertheless, five broad areas can easily be identified where it would appear that the literature has remained irreconcilable or under-developed. Firstly, the elements of a TQM approach are somewhat unclear. Furthermore there appears to be little agreement as to the relative importance or appropriate emphasis among the various elements, or how different elements interact. Secondly, there appears to be little agreement, in fact it may be argued much disagreement, concerning the details of TQM implementation. Thirdly, identification of the management style necessary for TQM appears to have been given little attention. Fourthly, there appears to have been little attempt to systematically discern the channels that facilitate organisational culture change as part of the TQM approach. Finally, there appears to be a lack of consensus about the scope of applicability of TQM. That is to say to which types of organisation and when, the introduction of TQM is applicable. It would appear that it has widely been assumed that TQM is universally applicable.

The TQM literature appears to have concerned itself perhaps for too long with promoting the adoption of TQM, while generating little sound evidence which might serve to constructively and successfully direct practitioners' efforts. It appears that the literature has largely failed to demonstrate its capacity to address the issues of how companies might be more successful in their endeavours to achieve high product and service quality and to gain competitive advantage through the TQM approach. What is clearly noticeable is the absence of substantiating data on many aspects of TQM, that has been systematically collected from organisations successfully practising TQM. This lack of data appears to be a major limitation and restraint. Although the prescriptive, non-empirical approaches described in the literature may be regarded as a good introduction to the subject of TQM, they do not provide the careful analyses necessary to evaluate the relative merits of various TQM strategies and tactics.

A number of authors have commented upon or offered reasons why the composition of the literature is in the format discussed previously [Griffin (1988); Wilkinson et al (1992); Grant et al (1994); Reeves and Bednar (1994); Smith et al (1994); Butz Jr (1995); Ahire et al (1995) and Morrow (1997)]. These authors' suggestions, which appear to be well founded, boil down to the fact that TQM applications have preceded the theoretical framework. That is to say TQM has

emerged from practical needs of organisations embracing the philosophy. *The origins and historical development of TQM* is examined in section 2.2. Griffin (1988) argued that the case had been the same for quality circles. Grant et al (1994) argued that TQM's origins and dissemination pattern are quite different from those of almost every other management innovation of the past half-century, citing management-by-objectives, time-based management and strategic management of core competencies as examples, and that it has by-passed the leading business schools and management consulting companies. As a result, they suggested it has not received the careful academic scrutiny that has served to give credence and authority to other innovations in organisation and management. Both Wilkinson et al (1992) and Morrow (1997) suggested that the majority of contributions had been made by people with a technological, operations or production background and perspective, and only recently had research attention focused on the management or 'people' side of TQM and the need to demonstrate the effectiveness of TQM scientifically. Reeves and Bednar's (1994) investigation of definitions of quality offered a slightly different perspective, leading them to conclude that the complexity and multiple perspectives historically associated with the concept of quality have made theoretical and research advances difficult.

1.2 Importance of the Study

Findings presented in the above critique indicate that TQM is a prevalent management concept. Furthermore, the positive contribution that TQM can make to industrial and commercial organisations' competitive advantage is generally recognised. Perceived and demonstrated importance of TQM is examined in section 2.4. The arguments presented above would clearly indicate however that, despite the interest, TQM remains an imprecise subject. That is to say TQM is far from clearly understood. It would appear that the domination of TQM's development by practitioners has resulted in the absence of a theoretical foundation for TQM. Indeed, it may be argued that theoretical and research advances have been hampered by TQM's pattern of evolution. Nevertheless, what is undisputable is that academic research has not provided the corrective function for TQM that it could have and should have provided⁴.

The arguments presented clearly indicate that there is a need for substantive research to extend the current knowledge and understanding of TQM and to support its future development. There is a need for the wide-ranging views and opinions to be reconciled into a common level of TQM understanding. Specifically, there appears to be an urgent need to incorporate first-hand TQM

⁴this point has also been made by Hackman and Wageman (1995).

experience into the existing body of knowledge. Furthermore, this first-hand experience needs to be a consensus of expert opinion from a large and wide-ranging sample of practitioners rather than anecdotal evidence from single organisations.

The timing of the study is of particular importance. A large and increasing number of organisations are starting to adopt TQM in recognition of the strategic importance of, and as part of their commitment to, the management of quality [Wheatley (1992); Heller (1994) and Wilkinson et al (1994)]. It is apparent however that many organisations are misunderstanding and mis-applying TQM (section 2.4.3). Furthermore, there appears to be a large contingent of organisations who believe they already have a TQM approach in place. Again it would appear that in many cases there has been a fundamental misunderstanding of what TQM involves. It may be argued that the very popularity of TQM has impeded top management's deep understanding of its ideology and consequences (Grant et al, 1994). Nevertheless, such evidence would appear to support Ackoff's (1993) proposition that there may be a lot of knowledge and intuition, but there is little wisdom in the practice of TQM⁵. That is to say, little theory is consciously involved in the practice of TQM. The author's observations correspond with those of Sitkin et al (1994), that some writers have recently argued that the potential contribution of TQM may be lost if its theoretical underpinnings are not critically assessed. Specifically, there is a dual need to accurately and comprehensively define TQM's theoretical foundation. Firstly, to stop organisations wrongly perceiving what TQM is and hence mis-applying it. Secondly, in order that organisations may avoid wrongly perceiving that they already have TQM and re-examine their existing approaches.

1.3 Aim and Objectives of the Study

The overall **aim** of the study was to fill an important gap in the existing knowledge and understanding of TQM. This was:

to develop an inductive theory of Total Quality Management (TQM) based on the expert opinion of leaders in the field.

A full description of what would constitute a theoretical contribution in the context of this study is given in chapter 3. Briefly, theory comprises concepts, relationships and rationale. Therefore,

⁵Ackoff (1993) made the point that doing things right requires knowledge, but doing the right thing requires wisdom.

to achieve the overall aim, the following constituted the key objectives of the research:

Key objective 1

To identify the prevalent *concepts* underpinning TQM and their *inter-relationships*.

Key objective 2

To identify the *rationale* underlying these concepts and inter-relationships.

Meeting these key objectives would in turn require identification of the relevant TQM *variables* and their inter-relationships, and the *rationale* for the inclusion of these variables and inter-relationships. To this end the following sequence of supporting objectives was pursued:

Supporting objective 1

To establish the changes to important aspects of organisational behaviour (structure, management style and quality practices) that are brought about by the introduction of TQM.

Supporting objective 2

To establish the organisational role (functions) and the span of application of the TQM approach.

Supporting objective 3

To establish the strategic role of TQM.

Supporting objective 4

To establish the elements of TQM, and the channels that facilitate the development of important orientations in organisational culture that must prevail for a TQM approach to be successful.

Furthermore, it is important when making a theoretical contribution to identify the main boundaries to which generalisation can be taken. In this respect it would be necessary to fill another important gap in the existing knowledge and understanding by examining the question of the *universal applicability* of TQM. To this end, the following supporting objectives were pursued:

Supporting objective 5

To establish why organisations subscribe to a TQM philosophy.

Supporting objective 6

To establish what influence *size* and *class* of organisation would have on the important TQM variables.

To enhance the study, augmenting its overall aim, there were two further objectives. The first enhancement would be to establish in non-prescriptive terms, how a TQM approach might most successfully be introduced in an organisation. Therefore, **further objective 1** was:

To derive a non-prescriptive model of TQM implementation process.

The second enhancement would be to refine the proposed theory. Therefore, **further objective 2** was:

To collect the relevant factual data and information in order to test the validity of the *concepts* of the resultant theory.

In order to achieve the aim and objectives, the study interrogates a sample of practitioners employed in different sizes and types of industrial and commercial organisations around the world that are peer renowned for their success in using a TQM approach. Secondary research is used as a background to the investigation, but more importantly, findings from this are used to ground the proposed theory in extant knowledge.

1.4 The Study's Contribution to Knowledge

The introduction and use of TQM by organisations has been and continues to be justified largely on anecdotal evidence or prescription rather than hard empirical data. This study seeks to use the available evidence to systematically clarify what TQM is, and what are its key components, through the articulation of a consensus view from a sample of multiple best practice organisations. That is to say, the study's primary data is based on the views of demonstrated TQM expertise. In this way practitioners, seeking to improve the performance of their organisation to a position of sustainable competitive advantage through the introduction of TQM approach, can have an understanding of TQM that is based on proven practice. They can therefore also justify the introduction and use of TQM on meaningful non-prescriptive grounds.

Furthermore, this understanding of TQM is developed and presented as a **theory**. Theory development differs from other forms of research outcome in that in addition to presenting the "what" of the subject under question, it also seeks to explain the "why". Identification of the relevant variables and concepts of the subject and their inter-relationships being augmented by explication of the logic underlying the variables' and concepts' relevance⁶. It is reasonable to profess that an interpretation of TQM which identifies the logic underlying the relevance of TQM variables, transcends a description of TQM which is specified purely in terms of the relevant variables and can resolve many of the assumptions about TQM that are taken for granted. It may be argued that this study therefore not only provides the opportunity for a high level of agreement about TQM, but also provides for a deep and common level of understanding.

As a part of the study, the organisational roles of TQM and its span of application are explicitly delineated, in addition to the important elements and activities. The latter appears to have been the exclusive focus of much of the previous TQM research. Moreover, the variables describing the role and span of application of TQM are subsequently incorporated as integral components of the proposed theory. In this way the objectives and desired outcomes of TQM are included in the proposed theory, but at the same time are made explicit from the elements and activities. They are included in their own right. To the author's knowledge this approach has not been adopted before. It would appear that in previous research, objectives and elements of TQM have been treated as one and the same thing. Put another way, previously the "means" have not been explicitly

⁶The definition of 'theory' used in this study is presented in section 3.2.4. Briefly, it is defined in terms of the three components it comprises: *concepts*, *inter-relationships* and *underlying logic*.

distinguished from the "ends".

Examination of the TQM literature indicates that the gaps in understanding of TQM are numerous and often considerable. Indeed, many specific facets of TQM deserve empirical consideration that would constitute major research projects in their own right. However, it is reasonable to suggest that before future research can be directed relevantly and appropriately, there is an overriding need to authoritatively and intellectually map the main variables of TQM and their main connections. Research about the various specific facets can then be incorporated into a sound theoretical framework. In this way, TQM research is significantly more likely to be cumulative and value-adding. By embedding TQM in a systematic theory of organisation and management, this study aims to initiate the development of such a platform, from which TQM understanding may become convergent, and that would enable poor design of TQM applications to be avoided. It provides a baseline for managers who wish to critically examine their existing approaches or the pre-packaged TQM programmes being marketed.

In summary, for researchers and practitioners the present study contributes:

- an understanding of TQM based on the proven practice of leading exponents;
- an understanding of TQM that can resolve many assumptions taken for granted about TQM;
- a deep and common level of understanding of TQM;
- an understanding of TQM that explicitly distinguishes its purposes from its mechanics and
- a base-line from which existing TQM approaches may be critically examined.

Furthermore, it contributes a theory of TQM to the development of a sound theoretical framework that can systematically and appropriately guide future TQM research.

1.5 Outline of Research Methodology

In this section a précis of the study's research methodology is presented. The research methodology is described in detail in chapters 3 and 4. Chapter 3 describes the *design* of the research. Chapter 4 describes the applied research *process*.

The research methodology was designed to bridge distinctive shortfalls in TQM knowledge by providing the necessary data/information to achieve the overall aim and the objectives described

in section 1.3. Furthermore, the *design* of the research was motivated by the distinctive shortfalls in the *domain* and *strategy* of previous TQM research described in section 1.1. To this end the *research design* identified:

an opinion research strategy in the group domain using the formal Delphi technique, to develop an inductive theory of TQM which is subsequently deductively tested.

Based on this research *design*, the research *process* comprised of four broad phases:

- developing the research questions (section 1.1 / chapter 2);
- identifying and assembling the participants;
- collecting data and information using the Delphi technique and
- deriving a TQM theory and evaluating the validity of the theory's concepts.

It was decided that the primary data would be drawn from an international sample of expert TQM practitioners from 'for profit' organisations recognised as leaders in the field. Supported by examination of methodological shortcomings of previous TQM research investigations, it was concluded that a great deal more could be learnt from organisations that had achieved a high level of TQM success than from organisations that had either failed or made little progress. Furthermore, that there would be a greater likelihood of reaching a greater degree of consensus about TQM if the sample was large and wide-ranging. A modified Delphi survey comprising four planned rounds of postal questionnaires was used to collect the study's primary data. First and second round questionnaires focused on collection of the primary data for the derivation of a theory of TQM, and third and fourth round questionnaires focused on collection of the primary data for testing the proposed theory's conceptual map⁷. Fifty respondents was the target sample size for the start of the study (the first round questionnaire) and twenty five respondents was the target sample size for the final questionnaire. A committee of six other known and experienced TQM practitioners was assembled and used to screen and verify the research instruments at each of the four questionnaire stages.

For the most part, the study used pre-coded instrument design for collection of the primary data to be used in the derivation of the proposed theory. Various pre-defined sets of variables were

⁷The term "conceptual map" refers to the resultant set of identified TQM concepts. The term "conceptual map" is used in preference to the more technically accurate term "concept map", in the remainder of this thesis, for purely linguistic/aesthetic terms.

submitted to the participants for examination, thereby generating the primary data in the form of comparatively rated TQM variables. Conversion of this primary data into the proposed theory involved a profound process of interpretation which centred around explaining the logic underlying these primary data findings. Three other sources of knowledge were combined in order to do this. These were: secondary source data; other primary data in the form of additional documentation supplied by the participants and the previous experience and internal logic of the author. Broader literature on organisation and management theory and behaviour were integrated with the TQM literature to provide the secondary source data.

Examining and refining the primary data collected for derivation of the theory made extensive use of the social science technique of factor analysis. Factor analysis was an ideal method since it involves systematically grouping variables on the basis of the variance in responses according to established mathematical criteria (Black, 1994). Two other versatile statistical techniques were also used extensively. Cross-tabulation was applied to augment identification of salient relationships between the TQM related study variables. The non-parametric χ^2 test of significance was used to examine the influence of *size* and *class* of organisation on the study variables.

Outcomes of the interpretive processes were two-fold. Firstly, a more concise set of salient TQM related variables was identified. Secondly, a core body of logic underlying the TQM approaches of the expert practitioners was derived. The salient variables were heuristically organised into a set of TQM concepts and the *inter-relationship digraph technique* was used to facilitate the extraction of the salient relationships between the concepts from the core body of underlying logic. Thus, the proposed theory, comprising its three components: *concepts*, *relationships* and *underlying logic*, was articulated.

The qualitative primary data collected through the third and fourth round Delphi questionnaires was then used in an attempt to test the validity of the concepts and hence refine the proposed theory.

1.6 Scope and Limitations of the Study

The primary data collected in this study came from a sample that comprised 'for profit' organisations only. The resultant proposed theory of TQM has therefore been derived in this context. This should be borne in mind and treated as a boundary to which generalisation can be

taken in any ensuing interpretation or use of the proposed theory.

An objective of the study was the testing of the conceptual map of the proposed theory in order to refine the proposed theory⁸. As it transpired this theory testing component of the study proved to be significantly more limited than had been envisaged. It had been planned that evaluation of the conceptual map would follow a route that commenced by correlating the concepts against the TQM elements that the best practice sample had implemented during their TQM implementation processes, and against the actual quality practices that exist in the best practice organisations as a result of the introduction of TQM. These 'present day' quality practices were investigated in the second round Delphi questionnaire. Investigation of the TQM implementation processes was the main concern of the third round Delphi questionnaire. The anticipated outcome of this examination would have been the identification of a number of gaps in the correlative analysis. These gaps would then form the basis of investigations to be conducted through the fourth round Delphi questionnaire. In practice the route described proved not to be possible. The main reason for this was that the primary data collected for this purpose, that is to say the implementation plans of the best practice organisations, were found to be far too diverse to permit a meaningful correlative analysis to be undertaken. Whilst it was anticipated that no two implementation plans would be the same, the high level of variation in the plans across the sample was unexpected. Furthermore, the 'present day' quality practices were found to be too highly organisation-specific at the actual activity level investigated to permit a meaningful correlative analysis. The result of these unexpected findings was that the Delphi fourth round questionnaire then became the primary mechanism for testing the conceptual map, rather than a closing mechanism. This meant that only partial testing of the conceptual map was possible. This in turn blocked the presentation of a "refined" theory.

A further consequence of the unexpected finding described above was that the process of designing, and hence the final design, of the fourth round Delphi questionnaire was to a certain extent compromised. In a "cumulative" study of this nature there is an inevitable trade-off between analysing the results of each questionnaire round as comprehensively as possible and ensuring that the momentum of the overall study is not lost. For its primary data the study was drawing on a shifting pool of resources. There was no guarantee that the participants starting the study would remain in their posts for the duration of the study - over time people change jobs, change companies or retire, all of which can compromise their ability to continue to participate. There was

⁸see section 1.3.

consequently a constant time pressure, and onus was on the author to ensure that the time elapsed between successive questionnaire rounds would not adversely affect the outcome of the study. This constant trade-off will always be a limitation in a study of this nature. However, the unexpected outcome of the Delphi third round questionnaire investigation unquestionably exacerbated the situation and compromised the precision and quality of the design of the Delphi fourth round questionnaire.⁹

The collection of a large amount of TQM implementation process data that subsequently could not be used for its main planned purpose may be regarded as the major limitation of this study. However, the value of this data was not completely lost. Although it is not presented within this thesis for reasons of scope and size, the collection of the data did enable a non-prescriptive model of TQM implementation process to be developed based on the TQM implementation experience of a large sample of leading practitioners.

Whilst the study identifies the important sub-elements of a TQM approach and explicates their importance, it was beyond the scope of the study to specify, in detail, the tactical attributes that would contribute to the most successful use of each of these sub-elements. It may be argued that in any case every organisation must interpret and apply the sub-elements in their own way. Both the TQM literature [for example, GAO (1990), Johnston and Daniel (1991) and Benson (1992)] and personal observations would strongly support this proposition.

Whilst the study methodology proved effective for identifying the important variables of a best practice TQM approach, it was more difficult to directly identify relationships between these variables. The overriding reason was that it was not a viable option to expect the participants to give the amount of time that would be required to either consider pre-defined, or to delineate themselves, the cause-effect and associative relationships between the TQM variables. That is to say, the *design* of the research precluded the 'direct' collection of primary data describing the relationships between TQM variables. However, a priori, this was not considered to be a restrictive limitation given that testing of the concepts would inevitably highlight any major deficiencies in the proposed relationships. Furthermore, it was realised that 'direct' identification of the relationships between variables would require a research *strategy* that uses face-to-face inquiry, such as a case based approach. Use of such a *strategy* would not have been compatible with the

⁹Given that the elapsed time between the third and fourth round questionnaires did exceed the amount of time that would otherwise have been desired, the sixty three percent response rate to the fourth round questionnaire was nevertheless considered to be very respectable.

primary aim of the study.

It could be argued that the identification of the relationships between TQM variables was partially restricted by the study's sample size. This is in regard to the scope of factor analysis that was possible. The response sample size precluded merging of sets of the variables in various combinations in order that they may be subjected to factor analysis examination as a single set of variables. This may have proved to be advantageous in attempting to identify pertinent and logical associative relationships between TQM variables of different types, for example between proposed "*sub-element*" variables (chapter 8) and proposed "*strategic role*" variables (chapter 7). On reflection however, the author would strongly argue that despite this perceived worth, the approach suggested would actually be more likely to hamper the identification of important relationships. The reasoning behind this suggestion is that it would present the opportunity for the author to be confronted by a vast array of conflicting permutations of relationships. That is to say it would have the opposite effect to that desired - more questions rather than explanation. Furthermore, the author would argue that by restricting the scope of factor analysis that was possible, the response sample size actually had a positive effect - it emphasised the need for the identification of relationships to be grounded in the qualitative explication of the logic underlying the relative importance of the variables.

Despite the limitations discussed above, the study achieved its overall aim by inductively developing a theory of TQM using primary data collected from a sample of practitioners at leading TQM organisations. The study also met its key objectives and the supporting objectives. Objectives that were fully met were:

- identification of the prevalent TQM *concepts* and their *inter-relationships*;
- identification of the *rationale* underlying these concepts and inter-relationships;
- to establish the changes to important aspects of organisational behaviour brought about by the introduction of TQM;
- to establish the organisational role and span of application of the TQM approach;
- to establish the strategic role of TQM;
- to establish the elements of TQM and the channels that facilitate development of a TQM culture;
- to establish why organisations subscribe to a TQM philosophy;
- examination of the influence of *size* and *class* of organisation on the important TQM variables

and

- derivation of a non-prescriptive model of TQM implementation process.

One objective was only partially met. This was to collect relevant data and information in order to fully test the validity of the *concepts* of the resultant theory.

1.7 Structure of the Report

This thesis comprises twelve chapters. This chapter has introduced the study through a brief examination of the relevant literature, set the aim and objectives, and outlined the research methodology. Chapter 2 presents a systematic review of the TQM literature. Chapter 2 is considerably larger than the thesis's other chapters. TQM is a large subject and therefore a substantial review was warranted. It was necessary to devise a framework to analyse the literature and, in order to preserve its cohesion, the review was not split into smaller chapters. The research methodology is described in two parts. Chapter 3 describes the *design* of the research. Chapter 4 then proceeds to describe the applied research *process*.

Chapters 5 to 10 report the original research. Chapter 5 describes the investigations of what led the participant organisations to introduce TQM, and the changes to structure, to management style and to quality practices that have resulted from its introduction. Chapter 6 describes the investigation of the organisational role and span of application of TQM. Chapter 7 describes the investigation of the strategic role of TQM. Chapter 8 describes the investigation of the main elements and sub-elements of TQM. Chapter 9 describes the investigation of the conditions that must exist for a quality ethos to permeate an organisation in its entirety. In chapter 10, the findings from the preceding 5 chapters are brought together and a preliminary proposed theory of TQM is derived. The chapter commences by summarising the theory building TQM variables. It then proceeds to derive the concepts and propositions of the proposed theory.

Chapter 11 describes the process and results of testing the proposed theory's concepts. Chapter 12 presents a brief summary of the study, the conclusions that were reached based on the original research, recommendations to current and future TQM practitioners and emergent directions for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The evidence presented in section 1.1 indicates that since the early 1980s there has been an enormous increase in quality and TQM related publications. Examination of the literature also reveals that quality and TQM related publications have appeared in a wide range of journals covering a wide variety of disciplines. TQM research monographs and books have also become wide-spread. A closer examination of the composition and content of the TQM literature clearly indicates its non-academic origins and practitioner-led pattern of dissemination. There was therefore a clear need for a framework to analyse the literature. This framework is presented in section 2.1.1. Briefly, the review is divided into nine parts: examination of the origins and historical development of TQM, examinations of the importance of quality and TQM, examination of broad definitions of TQM, examination of the components of TQM, examination of TQM implementation approaches, examination of the problems and difficulties associated with TQM, examination of suggested reasons underpinning TQM failure and how failure might be overcome, and examination of other key issues in the TQM field. The division reflects the structure of the chapter. Where deemed necessary summaries are provided.

2.1.1 *Framework of literature review*

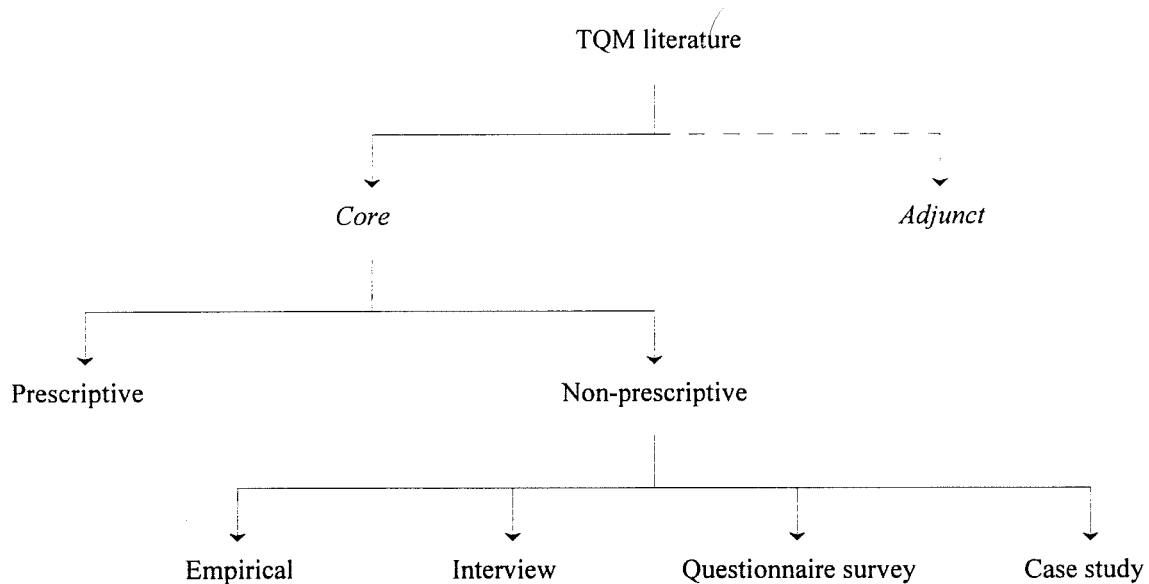
The aim of the literature survey was to accurately establish prevailing TQM thinking, understanding and knowledge. To achieve this aim, given the sheer volume of TQM literature, it was necessary to develop a systematic approach to the review. Considering various strategies that could have been adopted, the following approach was preferred. This approach is diagrammatically illustrated in figure 2.1.1a.

A close examination of the published work had quickly revealed that TQM literature fell into the following two broad categories:

- *core* literature - purposeful attempts to disseminate or augment knowledge and
- *adjunct* literature - literature marketing and presenting non-TQM related interventions under the TQM banner, or contributions sloppily pieced together simply in order provide a coarse

illustrative description.

Figure 2.1.1a - Illustration of the categorisation of the TQM literature



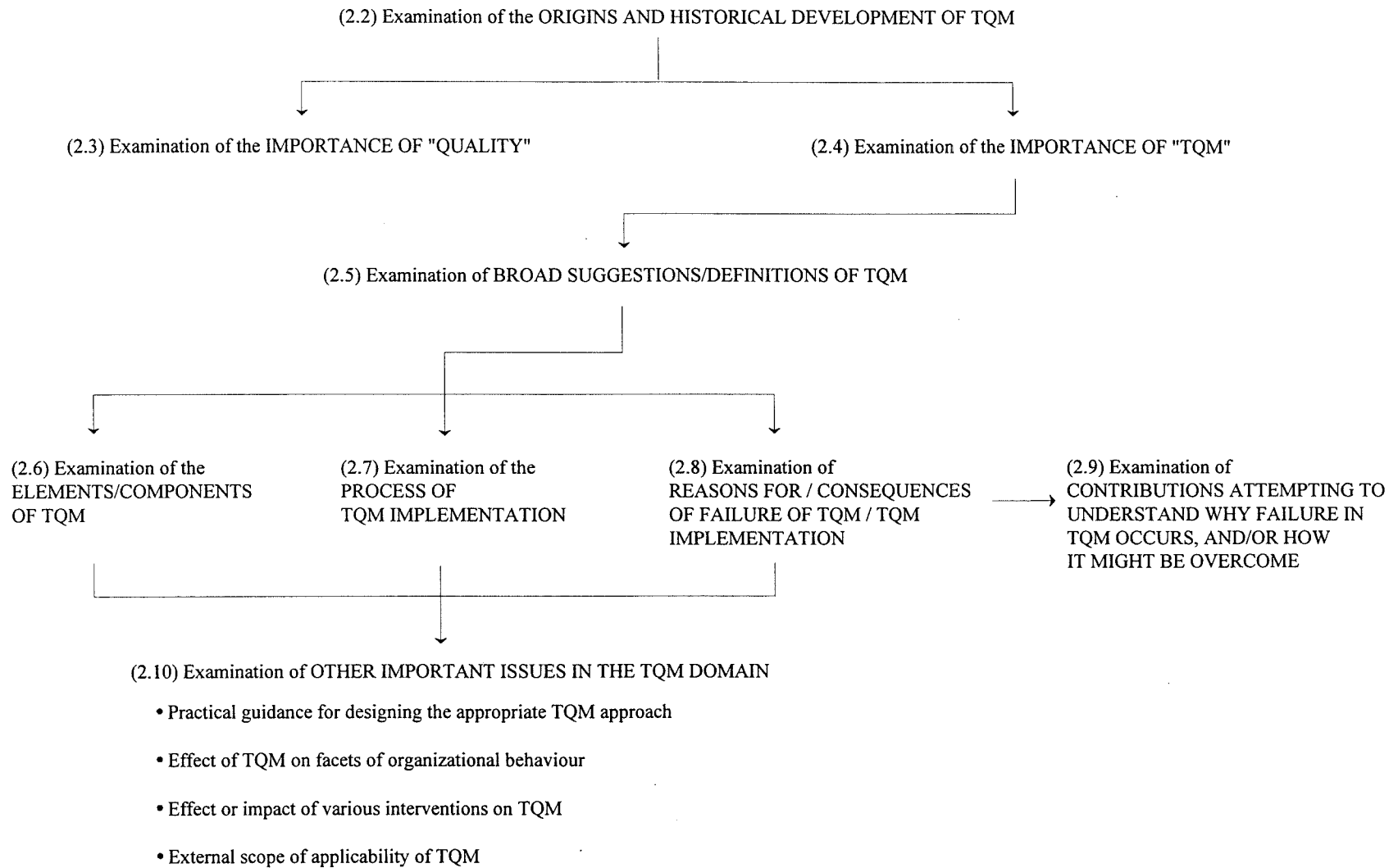
In the first instance, the review presented here deals with the former, *core* literature. In turn, the *core* literature survey fell into the following broad themes:

- examination/recommendations of what are the component parts of the TQM approach;
- examination/recommendations of the process of implementing the TQM approach and
- identification/suggestion of the problems and difficulties encountered with TQM.

These themes form the main component of the review. The remainder of the review comprises examinations in six other related areas. As is illustrated in figure 2.1.1b, the review therefore is broken down into nine main sections.

In view of the fragmented composition of the TQM literature, and its domination by anecdote and prescription, it was considered important and indeed necessary for the purpose of providing an accurately reflective review, to distinguish between the non-prescriptive and the prescriptive literature contributions. The non-prescriptive contributions are classified here as those that relate to either:

Figure 2.1.1b - Illustration of the structure of the literature review



- an empirical study of the TQM issues under question,
- a study using interview technique to examine the TQM issues under question,
- a questionnaire survey of the TQM issues under question or
- a case study focused on the TQM issues under question.

That is to say, the non-prescriptive contributions are those based on primary research methodology. The term "empirical" is used with varying meaning in the literature. In this thesis a *tight* definition of what is an empirical study is adopted. Following use of the term as advocated by Buckley et al (1976), a study is classified here as *empirical* if it has "*required that the researcher has observed and/or experienced things for [him/herself] rather than through the mediation of others*", that is to say, the primary data are collected first-hand rather than second-hand. The operative words are *observation* and *experience*. The prescriptive contributions are classified here as those which primarily express the personal views of the author(s) about the issues addressed, views which at the most are supported by anecdotal evidence. Therefore, where it was possible, in the subsequent sections the author has presented the literature according to this broad categorisation scheme¹⁰. In practice this applies from section 2.6 and onwards.

The review commences with a brief look at the origins and historical development of TQM (section 2.2). In sections 2.3 and 2.4, the importance of quality and the importance of TQM are reviewed in turn. In each case, the discussion is structured in order to differentiate between the perceived importance found in the literature, and the demonstrated importance reported by the literature. In section 2.5 the literature is examined with regard to broad suggestions and definitions about what is TQM. This examination, in conjunction with the discussions in the previous two sections, sets the scene for the remainder of the chapter, in which the TQM literature is examined from more specific view points. Section 2.6 presents findings of examination of the components/elements of TQM. In section 2.7, findings are presented with reference to examination of the literature that has dealt with the *process* of TQM implementation. Section 2.8 presents findings of an examination of observed and perceived causes and consequences of failure of TQM or its implementation

¹⁰Any modifications to this categorization are brought to the readers attention. It should be noted that classification of some contributions according to this broad categorisation scheme inevitably involved a degree of value judgement. Furthermore, it should be noted that research investigations rarely involve only one type of research strategy. Contributions have been classified according to the research strategy that the research, as far as it was possible to deduce, primarily appears to have employed. In this respect, the following should also be noted. It may be argued that one form of empirical study, though not exclusively, is the case study. However, few case study reports in the TQM literature clearly indicate the actual level of empiricism involved. For this reason, case study literature contributions are not discussed under the "empirical" headings, but under separate "case study" headings.

process. Given the considerable frequency with which the inability of TQM to deliver performance improvement has been cited in the literature, an examination devoted to contributions in which authors have attempted to understand why failure occurs and how it might be overcome was deemed to be an important part of the review. A review of these contributions is presented in section 2.9. The final section of the literature review, section 2.10 is concerned with examination of specific issues in TQM. These are important issues that primarily came to the author's attention during the process of reviewing the literature that is presented here in sections 2.6, 2.7 and 2.8¹¹. The TQM literature was re-examined for each of these issues in its own right. These issues were clustered, and are subsequently discussed under four headings: *Practical guidance for designing the appropriate TQM approach*; *Issues relating to the effect of TQM on facets of organisational behaviour*; *Issues relating to the effect or impact of various interventions have TQM* and *External range of applicability of TQM*. It is important to stress that section 2.10 is not meant to be a summary of the literature presented in the previous sections.

In addition to the various non-prescriptive surveys referred to in this review, it should be pointed out that a number of others were identified. These non-prescriptive contributions are acknowledged here because they appeared to represent a significant segment of TQM literature, but are not reviewed here. This is because in the context of this thesis these contributions were peripheral. They are surveys which largely have only attempted to ascertain what could be described as a measure of the "usage status" of various pre-defined TQM tools and techniques. Some relate to various countries, some relate to various industry sectors. These surveys shed little light on what are for instance the important components of TQM. It may be argued that they contribute a status report, rather than debate that would contribute usefully towards better understanding of TQM. After all, the latter is not their stated or implied aim. Thus, whilst the value of these surveys was recognised in a wider sense, they would not contribute to the core purpose of the study. Some of these surveys are cited in appendix 2.1.1.

2.2 Origins and Historical Development of TQM

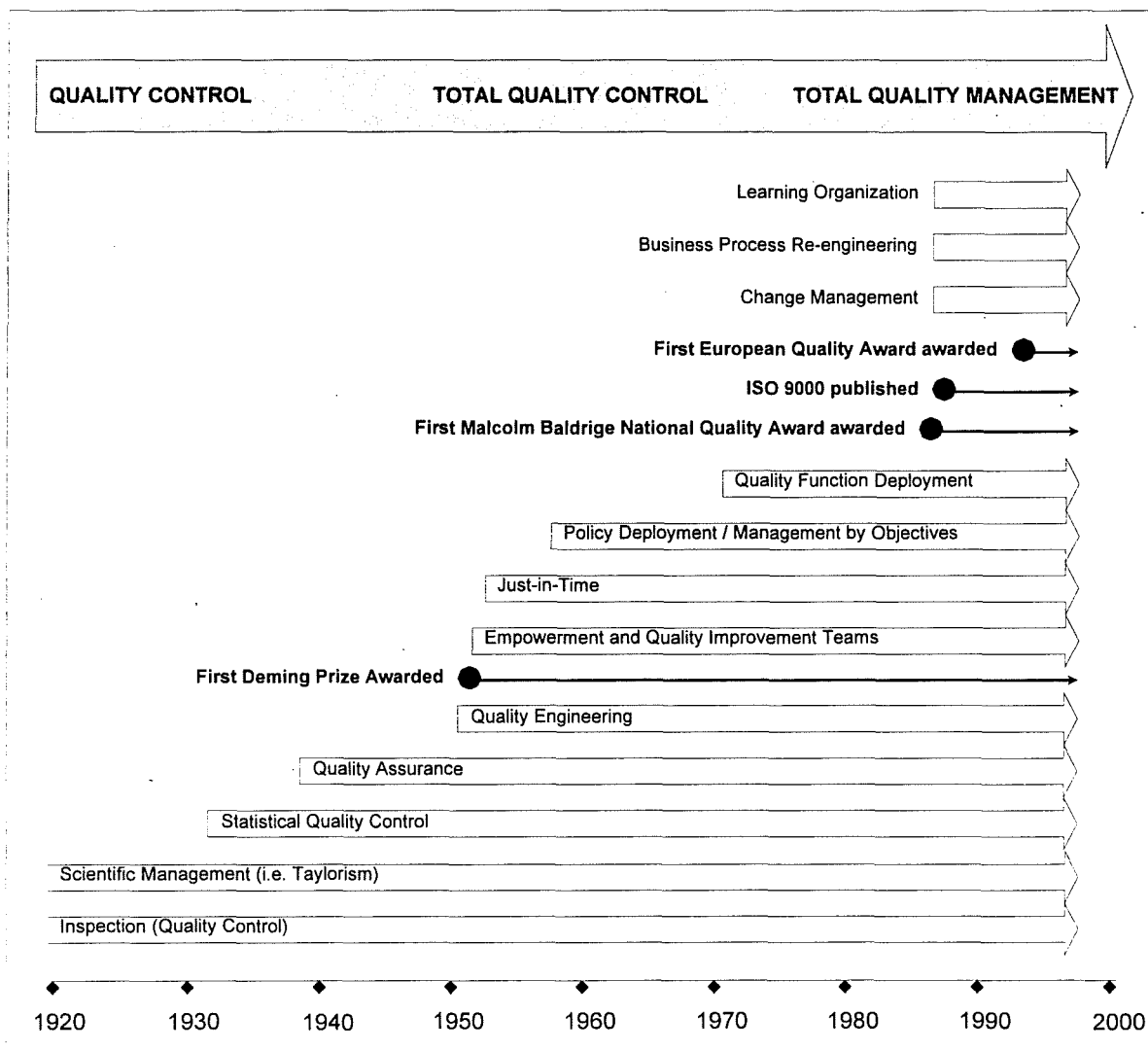
Various accounts of the historical development of TQM can be found in the literature. There appears to be a general consensus about the broad stages of the development. This is despite the fact that the various accounts may appear to differ in some of their specific detail, and despite the

¹¹These issues are also often specifically highlighted or cited for attention by the "review" type contributions to the TQM literature.

fact that authors place varying degrees of emphasis on, and/or attribute varying levels of relevance to different aspects or events.

The following perspective, drawing on the works of Marash (1993), Powell (1995) and Pegels (1994), appears to be accurately reflective of a consensus view. This perspective identifies both the quality "eras" in the historical development, and the key players and events. The broad stages of the historical development are illustrated in figure 2.2. As the figure suggests, TQM was preceded by two stages of quality thinking development: quality control (QC) and total quality control (TQC).

Figure 2.2 - The evolution of TQM



Source: adapted from Coopers & Lybrand and EFQM, 1994

Up to the 1940s the main "quality" focus across the world was on improving technical inspection. The advent of statistical techniques for quality control (SQC) can be ascribed to W. A. Shewart, who introduced the quality control chart at Bell Laboratories in the 1920's. The value of using these statistical techniques in a supportive mode spurred the introduction of quality assurance (QA) - the use of planned preventative measures. Quality philosophies evolved further in the 1950s as W. Edwards Deming introduced SQC to the Japanese. In the same period, Joseph M Juran brought the concept of managerial breakthrough to Japan, and Armand V Feigenbaum wrote and published *Total Quality Control*. Japan, prior to the Second World War, had a reputation for poor quality products. Japan realised that it had to overcome its poor reputation to gain market share. In 1949 the Union of Japanese Scientists and Engineers (JUSE) formed a committee of scholars, engineers and government officials devoted to improving Japanese productivity, and enhancing their postwar quality of life. Influenced by Deming and Juran, the committee developed a course on statistical quality control for Japanese engineers, followed by extensive statistical training and the widespread dissemination of the Deming philosophy among Japanese manufacturers. The Japanese borrowed from all three of these scholars and created what became known as the *Total Quality Control* era. In recognition of the importance of quality, and the influence of Deming's teachings, the first Japanese Deming Prize was awarded in 1951.

Japanese realisation that costs will reduce with improved quality, instead of the traditional view that money must be spent to improve quality, prompted perhaps the most significant development in the quality movement: company wide quality control programmes. As these programmes became more widely implemented and sophisticated in Japan, it became clear to the Japanese that some aspects could be applied to non-manufacturing functions such as product development, purchasing, and billing, with potential applications in service and non-profit organisations. These programmes centred on the development of empowerment strategies such as the use of quality circles and equity circles, and produced other such managerial innovations as supplier partnerships, cellular manufacturing, just-in-time production and hoshin planning.

The spectacular success of certain Japanese companies in key economic sectors damaged the credibility of traditional quality control and assurance, and signalled a fundamental change from the era of quality "control" to quality "management". The West's exposure to such thinking was quite limited until the mid-to-late 1970s. In the years directly following World War II, American industry was largely unchallenged, American products were respected throughout the world. Around 1980 American firms began to take serious notice of quality management, when some US

policy observers argued that Japanese manufacturing quality had equalled or exceeded US standards, and warned that Japanese productivity would soon surpass that of American firms. Productivity trends supported these assertions, leading some opinion leaders to assert that - barring a radical change in American management practices - Japanese and other Asian countries would soon dominate world trade and manufacturing, relegating the USA to second-tier economic status. Some high-profile American firms, such as Ford, Xerox and Motorola were easily convinced, having already lost market share to more efficient, higher quality Japanese producers. These firms, primarily under the guidance of Deming, but also other quality consultants, benchmarked the Japanese practices and were among the first to adopt formal quality management. Based on their widely publicised successes, other large manufacturers soon jumped aboard and by the end of the 1980s, a significant proportion of large US manufacturers had adopted quality management practices. By that time many large service firms had also expressed interest, due in part to pressures from customers that employed these practices.

Recognising the value of quality systems standards, the International Organisation for Standardization published the ISO9000 series in 1987. The first Malcolm Baldrige National Quality Award was awarded in the USA in 1988, and by the end of the 1980s, the USA settled on total quality management (TQM) as the most popular name for a philosophy that emphasises a company-wide approach to quality improvement. Around this time also, the Europeans started to tune in to the TQM approach. The first European Quality Award was awarded in 1992. Recently, approaches aiming to bring more radical improvements such as business process re-engineering, organisational learning and Change Management have appeared, sometimes positioned as part of a TQM approach, sometimes positioned as alternatives.

The salient characteristics of the main phases in the historical development of TQM can be summarised as follows:

- | | |
|-----------|---|
| QC | final inspection
upstream inspection with feedback |
| QA | use of statistical analysis
control of manufacturing processes
conformance to specifications and procedures
solution of technical problems |

- TQC** extension of statistical techniques
elimination of waste and non-value adding procedures
mutual harmonization and co-ordination of all production processes
continuous improvement of products and processes
- QM (TQM ?)** continuous improvement as an innate aspect of the operations of the
organisation
mutual harmonization and co-ordination of all processes
solution of technical and organisational problems

Other summary accounts of the historical development of TQM can be found in Schmidt and Finnigan (1992), Johnson and Kleiner (1993), Huxtable (1995) and Sullivan-Taylor and Wilson (1996). More detailed accounts can be found in Main (1994) and Wilkinson et al (1992).

2.2.1 Review of contribution of quality 'gurus'

Any consultation of the 'quality'/'TQM' literature, however limited or extensive it may be, shows that this literature frequently makes reference to various so called "gurus of quality". Upon deeper analysis, what is revealed is that the 'quality field' has been dominated by a number of scholars, and that the term "guru" has been coined to reflect these scholars influence on: (a) the organisation and practice of quality management and (b) modern management thinking (Ghobadian and Speller, 1994).

This section presents a review and examination of the contributions that describe the approaches promoted by the recognised "gurus" of quality. These contributions to the field of quality management are initially treated separately from the wider literature for a number of reasons. Firstly, none of these so called "gurus" of quality have actually professed that their prescriptions for an organisation to improve the quality of its products/services and/or organisational effectiveness is actually TQM. To illustrate this point, Boje (1993) reports how Deming was contacted by *Journal of Organisational Change Management (JOCM)* in 1993 and invited to define TQM for their readers. His reported response was "I do not know what TQM is". Secondly, it is nevertheless, their work which has indisputably set the foundation for the organisational and management approach that is today termed TQM. Thirdly, a substantial component of the quality/TQM literature has drawn on the teachings of these "gurus" in making their own assessments of what constitutes the TQM approach. In some cases this appears to be a genuine attempt to discern what constitutes a meaningful and practical contemporary TQM approach. In

other cases, this appears to be simply as a means to enable them to make their own prescriptive contribution to the literature and debate. And finally, quality oriented practice continues to consult the teachings of these "gurus" (either hastily or comprehensively) as a first point of reference, and to subsequently apply them to their own situations.

2.2.1.1 Who are the "gurus" of quality and why are their contributions treated so significantly?

The 'discovery' of quality and its application to management thinking and practice is usually traced back to the visits of W. Edwards Deming and Joseph M. Juran to Japan in the early 1950s to assist the Japanese in the process of industrial reconstruction after World War II (Ghobadian and Speller, 1994). Few TQM publications that are oriented towards giving an overview of TQM omit this point, though the perceived degree of significance of these visits to Japan's eventual leadership in world product quality differs. Such altercation led Juran (1993) to comment that in the minds of many journalists and industrialists Japan's leadership was the result of the lectures given by himself and Deming in the early 1950s, and that these people insist that had he and Deming not given these lectures Japanese goods would still be of stone-age quality. However, Juran refuted these claims, tracing how the Japanese launched their quality revolution, stating that the actions added up to a massive change in direction, *"one that refutes the chauvinistic notion that two Americans were somehow solely responsible for the quality revolution in Japan"*, and that on the contrary, the unsung heroes of the Japanese quality revolution were the Japanese managers.

Nevertheless, the reality is that it was Japanese managers ready response to the messages of Deming and Juran, in marked contrast to the lack of attention at that time in the US (Ghobadian and Speller, 1994), that set the foundations of the present day quality/TQM movement. That is to say, these scholars were responsible for taking the message of quality to Japan, and hence for laying the foundations of corporate focus on quality. It is generally acknowledged in the literature, that the work of Armand V Feigenbaum was discovered by Japanese industry around the same time as Deming and Juran were lecturing, and that building on the early Americans' message, a number of Japanese scholars (primarily G. Taguchi and K. Ishikawa) developed new concepts and adapted methodologies to suit the Japanese culture (Bendell, 1992). Following the rise of Japan as a powerful economic nation over the ensuing two decades, Philip B. Crosby and J. M. Grocock amongst others have extended the quality debate since the early 1970's, increasing quality awareness in the West.

Despite the apparent lack of consensus amongst the literature about which of these scholars genuinely qualify for elevation to "guru" status, four of the names are almost universally included: W. Edwards Deming; Joseph M. Juran; Philip B. Crosby and Armand V. Feigenbaum. The work of these scholars and hence the various approaches and prescriptions relating to the management of quality they have advocated are well documented [*W. Edwards Deming*: Deming (1982), Deming (1986); *Joseph M. Juran*: Juran (1951), Juran et al (1974), Juran (1992); *Philip B. Crosby*: Crosby (1979), Crosby (1984); *Armand V. Feigenbaum*: Feigenbaum (1951), Feigenbaum (1961), Feigenbaum (1991)] and will not be repeated in any great detail here. Equally well documented is the work of the other prominent scholars who are to varying degrees considered in the same capacity: Ishikawa (1985); Taguchi (1986); Grocock (1986) and Imai (1986).

Accounts of these scholars' work (in various combinations), that provide indirect comparisons of their propositions can be found in a number of other texts [for example: Logothesis (1992) and Hunt (1993)]. More usefully, a number of contributions to the literature have been attempts to directly compare and contrast the messages, teachings and advocated approaches of the gurus through the use of comparative frameworks. These frameworks have taken various forms [Kathawala (1989); Saraph et al (1989); Oakland (1993); Ghobadian and Speller (1994); Davies (1994) and Sohal and Lu (1995)].

2.2.1.2 Summary examination of the teachings of the quality gurus

In the remainder of this literature review the work of the gurus is referred to only when appropriate to the discussion. The review presented in this section only addresses important aspects of the four universally recognised gurus' writings that are not discussed in the subsequent sections.

Deming's approach

Deming's approach centres around fourteen points for management. Deming developed his ideas gradually over four decades, drawing on his consulting experience with firms in Japan and the U.S. The result was a list of fourteen points. These were published together for the first time in Deming (1981/1982)¹² (Anderson et al, 1994).

¹²Deming, W. E. (1981/1982), "Improvement of quality and productivity through action by management", *National Productivity Review*, Vol. 1 No. 1, pp. 12-22.

Deming's early experiences as a statistician led to his conviction that traditional management methods should be replaced with statistical control techniques - Deming believed that a statistically controlled management process gave the manager a newfound capacity to systematically determine when to intervene and, equally important, when to leave an industrial process alone (Hunt, 1993). Deming's experience in Japan led him to propose that associated with traditional Western management practices were seven deadly sins, which unless eliminated through managerial transformation would only serve to prolong a quality crisis in Western organisations. (Deming's fourteen points for management, and the seven deadly sins he proposed are detailed in appendix 2.2.1.2.)

Deming defined quality as "satisfying the customer, not merely to meet his expectations, but to exceed them". The methodological core of Deming's quality management approach is the use of simple statistical techniques to continually improve an organisation's management process. Only through statistical verification, according to Deming, can the manager (a) know that there is a problem and (b) find the cause of the problem (Hunt, 1993). Thus, Deming is associated with SPC and other problem-solving techniques which aim to improve processes and reduce the inevitable variation which occurs in production from 'common causes' and 'special causes'. Deming identified 'common causes' of variations as systematic and shared by many operators, machines and products. These include poor product design, incoming materials not suited to their purpose, and poor working conditions, and according to Deming are the responsibilities of management. 'Special causes' relate to the lack of knowledge or skill or poor performance, and according to Deming these are the responsibility of operators and workers (Ghobadian and Speller, 1994). However, Deming was also inclined to position quality management in human terms. He believed that when an organisation's work force is committed to doing a good job and has a solid managerial process through which to act, quality will follow naturally (Hunt, 1993). Deming stressed the responsibility of top management to take the lead in changing processes and systems. He also strongly promoted employee participation.

Both the philosophical foundation for Deming's managerial transformation and the role assigned to statistical quality control in the execution of that philosophy are present in his fourteen points for management (Hunt, 1993). Some of the points recommend behavioural practices aimed at changing the organisation's infrastructure and cultural system, others implicitly advocate methodological practices including the use of specific tools and statistical methods in the design, management and improvement of processes, products and services (Anderson et al, 1994). Deming

asserted that failure of top management to act on any of the fourteen points would impair efforts on the other thirteen.

Deming's approach envisages a never ending, cyclic management process. Deming's Plan-Do-Check-Act (PDCA) cycle - an adaptation of the work of Walter Shewart - links the seven diseases, the fourteen points for management, and the statistical techniques into a continuous process (Hunt, 1993). Unlike the approaches of Juran and Crosby (reviewed below) there is no defined implementation process for Deming's approach. It is generally agreed that there is a need to understand clearly the level of corporate culture change required before any implementation attempts are made, because few (if any) of the fourteen points can be immediately adopted by an organisation currently ruled by old-style management, and all fourteen points are generally interlinked and overlapping (Logothesis, 1992). However, Deming has recommended an action plan comprising of seven steps, which if taken in the order presented should help with the implementation of the philosophy (Logothesis, 1992). (These steps are presented in section 2.7.3).

Juran's approach

Juran's approach to quality centres around his "quality trilogy". Juran (1986) believed that there were certain inherent non-uniformities in any company including multiple functions, multiple levels in the hierarchy and multiple product lines. He believed that compounded by associated beliefs about their uniqueness¹³, these constituted a serious obstacle to unity of direction in managing quality. Juran proposed that such an obstacle could be overcome if a universal way of thinking about quality could be created. That is to say, a way of thinking about quality which was applicable to all functions and all levels in the organisation hierarchy (from the chief executive officer to the worker in the office or the factory), and to all product lines. To meet this need, Juran proposed the concept of the "quality trilogy". According to Juran (1986), the underlying concept of the quality trilogy is that managing for quality consists of three basic [inter-related] quality-oriented processes: *quality planning*; *quality control* and *quality improvement*. While planning, controlling and improving managerial processes had long been considered fundamental executive functions, Juran asserted that they were seldom combined in a structured way (Hunt, 1993).

Adoption of Juran's quality trilogy requires that an organisation, once and for all, redesign its

¹³For example, product development seeing themselves as more important than manufacturing, and vice-versa.

product and service planning and control systems and then, through an ongoing improvement program, ensure that the basic causes of quality flaws are permanently eliminated (Hunt, 1993). Adoption of Juran's approach also requires adoption of Juran's definition of quality (Hunt, 1993). Juran defined quality as "fitness for purpose of use" (Ghobadian and Speller, 1994), which demands quality of design, quality of conformance, availability, safety and adequate field service (Logothesis, 1992). According to Juran, the aim is to satisfy the customer with the right amount [of quality]; any more or less costs money (Ghobadian and Speller, 1994).

According to Juran, each of the three trilogy processes is carried out by an unvarying sequence of activities. The starting point is *quality planning* - creating a dependable process that will be able to meet established goals and do so under operating conditions (Juran, 1986). For quality planning, Juran recommended a 'quality planning road map' which consists of four steps: identify the customer and their needs; translate the customer's needs into a language everybody can understand and develop a product which can respond to those needs; optimise the product by developing and optimising the process which produces the product; and once the operating conditions have been established and proved as the optimal, transfer the process to operations (Logothesis, 1992). Juran believed that objectives should be set annually for increased performance and decreased costs. Following the planning, the process is turned over to the operating forces (Juran, 1986). Control processes are designed to ensure that the quality goals set in the planning stage are met during the actual production or rendering of the organisation's products and services (Hunt, 1993). In order to run the process at optimal effectiveness Juran outlined a simple *quality control* sequence. The third part of the trilogy, known both as *quality improvement* and Juran's "breakthrough sequence", provides managers the means for finding and remedying the basic quality limiting causes embedded in the organisation (Hunt, 1993). The breakthrough sequence involves the following seven steps: breakthrough in attitudes; identify the vital few projects; organise for breakthrough in knowledge; conduct the analysis; determine how to overcome resistance to change; institute the change; and institute controls. Juran used the term *breakthrough* to emphasize that this part of the trilogy is the means for achieving unprecedented levels of quality performance in an organisation.

A distinctive feature of the Juran approach is the emphasis on team and project work (Ghobadian and Speller, 1994). In fact, the focal point of Juran's quality management approach, as operationalised through the trilogy processes, is the organisation's individual product or service, not the organisation per se (Hunt, 1993). In addition to the trilogy though, Juran has advocated a broader ten step process for introducing quality improvement into an organisation (this is presented

in section 2.7.3). A second distinctive feature of Juran's approach is a cost of quality accounting system to attract and keep top management interested in, and supportive of, the quality management process (Hunt, 1993). Juran identified four types of cost associated with quality: internal failure costs (defects discovered before shipment); external failure costs (defects discovered after shipment); appraisal costs (for assessing the condition of materials and product) and prevention costs (for keeping defects from occurring in the first place). Juran proposed that internal and external failure costs account for between 50 and 80 percent of the cost of quality. He advocated that management should aim to reduce these failure costs to the point where any additional spending on appraisal and prevention would not exceed the savings from decreased failure or defect costs (Ghobadian and Speller, 1994). That is to say, because the costs of finding and preventing the last few defects in any transformation system are extremely high - higher than the costs saved if these defects were eliminated - the optimal quality level is somewhat less than a 100 percent, defect-free system. In this respect, Juran's approach is essentially a practical one, not a perfectionist 'zero-defects' one (Ghobadian and Speller, 1994).

Crosby's approach

In contrast to the pioneering work of Deming and Juran, Crosby provides a more recent major influence on attitudes to quality, particularly in the U.S. Crosby's approach to quality centres around his four "absolutes for quality management": the definition; the system; the performance standard and the measurement. Crosby defined quality as "conformance to requirements", a supply-led definition, thus making quality tangible, manageable and measurable (Ghobadian and Speller, 1994). The performance standard in Crosby's approach is zero defects, and this requires an emphasis on prevention rather than after the event inspection (Ghobadian and Speller, 1994). Crosby proposed that quality is measured by the cost of quality, which he defined as the 'expense of non-conformance', and he defines three types of costs: prevention, appraisal and failure. Crosby believed that an organisation can "learn" and that top management should adopt a quality management style not because it is the right thing to do, but because it is "free" and good for the bottom line (Hunt, 1993). Crosby's maxim that 'quality is free' is based on the reasoning that quality improvement will reduce total costs, thus increasing profitability. For Crosby, the key to quality improvement is to change the thinking of top managers - to get them to refuse to accept mistakes and defects as this would in turn reduce work expectations and standards in their jobs (Ghobadian and Speller, 1994).

In Crosby's approach, the first step for an organisation moving toward a quality management profile is to determine its current level of "management maturity", and for this purpose Crosby developed a Quality Management Maturity Grid (Hunt, 1993). This sets out five stages of development to a fully mature quality management approach, starting with uncertainty, then awakening, enlightenment, wisdom and finally certainty. These can be used to assess progress on six measures of the sophistication of the organisation's management style (management understanding and attitude; the status of quality in the organisation; problem handling; the cost of quality as a percentage of sales; quality improvement actions and a summation of the company's quality posture). Once an organisation has located its current maturity stage on the grid, it then implements a quality improvement programme based on Crosby's fourteen step programme for quality improvement. Crosby's proposed fourteen steps are presented in section 2.7.3. In Crosby's view, the quality improvement process is never-ending.

Feigenbaum's approach

Feigenbaum's *total quality control* aims at managing so that the same statistical and engineering methods applied to production can be used throughout a company (Main, 1986). Feigenbaum (1986) defined quality as the "total composite product and service characteristics of marketing, engineering, manufacture and maintenance through which the product and service in use will meet the expectations of the customer". This definition recognises that quality is a multi-dimensional entity and there are trade-offs between various individual quality characteristics (Ghobadian and Speller, 1994). According to Feigenbaum (1991), *total quality control* consists of four main stages: setting standards; appraising performance to these standards; acting when standards are not met and planning for improvements in these standards. The emphasis is clearly on the prevention of poor quality rather than detecting it after the event.

For achieving business strength through *total quality control*, Feigenbaum (1982) identified five fundamental areas of action. The first action area is the decision to make quality leadership in the workplace a basic strategic goal. The second area is translating company quality strategy into clear customer-oriented product specifications. Feigenbaum (1982) suggested that experience in total quality control programmes throughout the world indicated that one of the great weaknesses was the inadequacy of marketing and engineering specifications for clearly defining the requirements of customers in terms of the "use" of products. The third action area demands that implementation of the necessary quality actions takes place throughout the entire company, not just in the

traditional quality control department (Feigenbaum, 1982). Feigenbaum proposed that the quality chain starts with the identification of all customers' requirements and ends only when the product or service is delivered to the customer who remains satisfied. Thus, all functional activities such as marketing, design, engineering, purchasing, manufacturing, inspection, shipping, accounting, installation and service, need to be involved in and influence the attainment of quality. That is to say, effective total quality control requires a high degree of functional integration (Ghobadian and Speller, 1994). The fourth area of action has to do with clarifying the work of the quality function itself. Feigenbaum suggested that to organise managerially for necessary business quality results, there must be three principle responsibilities assigned to a modern quality function: a *business* responsibility, a *systems* responsibility and a *technical* responsibility. The fifth area of action was continuous motivation, commitment and measurement throughout the company.

2.3 Importance of "Quality"

The "concept" of quality has been contemplated throughout history and continues to be a topic of intense interest (Reeves and Bednar, 1994). It is a concept which has evolved significantly since the Second World War, and has come a long way from days in which the term was little more than a synonym for "inspection" (Krygier, 1993). In Ross's (1993) view, no management issue since the Scientific Management Movement of Frederick Taylor in 1907 has had the impact of the quality movement¹⁴. Oakland (1989) suggests that after the industrial and computing revolutions of yesteryear, we are no doubt in the midst of a quality revolution. According to Yearout (1992), few subjects have captured the attention of business people the way quality has. He suggests that the subject has been so thoroughly discussed that business people throughout the world know quality encompasses a plethora of business processes - from market research to production.

These views capture the extent to which "quality" has become a major topic of interest. The importance of quality, in that it can lead an organisation to gain competitive advantage has been recognised by many researchers and writers. Evidence also suggests that the importance of quality as a route to competitive advantage has been and continues to be recognised in practice. That is to say by those organisations who are in a position to, and choose to exploit "quality". In the following sub-sections, a review and examination of this "recognition" is presented. In doing so, it was important to distinguish between the "recognition" which has been perceived, that is to say "recognition" based on logical arguments put forward in advocacy of importance and need for

¹⁴cited in Spencer (1994).

quality, and the "recognition" which has been derived through the actual demonstration of "quality's" beneficial effects. As such, findings are presented in three sub-sections: Perceived importance of "quality"; Perceived importance of "quality" in practice and Demonstrated importance of "quality".

2.3.1 Perceived importance of "quality"

From the early 1980's, the perceived importance of quality as a source of competitive advantage began to be recognised extensively in the literature [Leonard and Sasser (1982); Feigenbaum (1982); Garvin (1984); Mortiboys (1984); Ross and Shetty (1985) and Garvin (1987)], although, as Lascelles and Dale (1988) have pointed out, the signs of the market paradigm shift that led to these perceptions were evident to some writers early in the 1970s. Both Peckron (1971) and Sheridan (1973) reported that consumers were demanding higher levels of product quality and were becoming more conscious of value for money, leading them to conclude that price competition would become subordinate to quality competition in the future¹⁵.

In 1982, Leonard and Sasser (1982) proposed that quality had become a major strategic variable in the battle for market share. They reported that the more they observed, the more firmly they were convinced that quality improvement was the most fruitful path to higher productivity and competitive success, and proposed that identifying the different quality levers, understanding their effect on quality and costs, and determining both the investment needed to apply each lever and its overall payback in product quality must be the first order of business for all quality conscious managers. In 1984, Garvin (1984) expressed a similar view, that product quality was rapidly becoming an important competitive issue. Garvin (1987) later argued that managers had to stop thinking about quality merely as a narrow effort to gain control of the production process, and to start thinking more rigorously about consumer's needs and preferences - that "quality was not simply a problem to be solved", but "a competitive opportunity". This assertion was based on Garvin's belief that even by rigorously applying the principles of quality control, these [principles] were designed as purely defensive measures, and did not support an aggressive strategy to gain and hold markets with high quality as a competitive linchpin. In 1984 Mortiboys (1984) outlined his perception of the need for the cost-effective management of "quality". He proposed that the cost-effective management of "quality", extending from market research, through design and production to delivery or installation and after-sales service, was not only fundamental to the creation of

¹⁵cited in Lascelles and Dale (1988).

demand, it was also the powerful tool with which the Chief Executive could gather the power back into the boardroom and dramatically improve the performance and profitability of his company. Mortiboys (1984) further suggested that properly applied, the cost-effective management of "quality" was potentially so powerful a tool because it not only affected, directly or indirectly, the product or service, its availability, the price that could be charged and the way the customer was treated both during and after the transaction, but also could be used as a framework for reviewing the operation and organisation of the whole company. In 1985, Ross and Shetty (1985) proposed that technological sophistication, shortened life-cycles and more rigorous competition, combined with increasing consumer awareness, were among those factors that argued for a strategy that included "quality" as competitive advantage. They argued that all that was known about strategy and strategic planning argued for the adoption of "quality" as a major component of mission and competitive advantage, that whatever the label, it was clear that the focus on quality was far reaching and promised to become the competitive advantage of the 1980s and beyond. A number of authors have further extended the arguments for quality as a source of competitive advantage such as those provided above, to suggest that the major effect of the shift in the market paradigm is that "acceptable" or "good" quality would, or even has, become a minimum requirement. Lascelles and Dale (1988) asserted that quality was clearly more than just an optional product attribute. Hill (1985) argued the point in 1985, proposing that quality had already become a "qualifying criterion"¹⁶. In 1991, Crosby (1991) re-iterated that in the coming years quality would be expected as a given commodity, suggesting that customers would provide no additional rewards for companies who simply did what they said they were going to do, and that they would provide death for those who could not accomplish that simple task. Other authors have been known to be even more assertive. Quality has been described by Feigenbaum (1982) as "*the single most important force leading to the economic growth of companies in international markets*"¹⁷. Feigenbaum (1982) argued that a deeper examination of issues shows that quality excellence in a company, regardless of where it may operate in the world, results from effective recognition and application of two fundamental principles: "The first is that *quality is, in its essence, a way of managing the organisation*, [that] does not depend upon geography nor upon particular national social structure nor solely upon special techniques". The second principle Feigenbaum argued: "has to do with a new form of competition which certain companies and some nations have learned to use very successfully over the past decade: *effective international competition today is a combination of competition in its highly visible and traditional form - product versus product -*

¹⁶cited in Lascelles and Dale (1988).

¹⁷cited in Reeves and Bednar (1994).

together with a less outwardly visible, but equally powerful, competition involving companies effectiveness in quality and productivity management". Such views about the perceived importance of quality continue to be iterated. Glover (1993) asserts that "quality" is not only a good idea, it is a survival strategy - companies without "quality" are losing market share to companies with "quality".

Historically, the perceived importance of quality as described in the literature and as illustrated above, has primarily related to the manufacturing industry, that is to say, in relation to "product quality". There is now a body of literature which specifically deals with "service quality". This body of literature was developed on the premise that attention to "service quality" can help an organisation to differentiate itself from other organisations and through it gain a lasting competitive advantage. A review of this specific field is outside the scope of this work. Examination of the underlying concepts of "service quality", and accounts of the various "service quality" concepts and models that have been developed can be found in Parasuraman et al (1985), Gronroos (1988), Haywood-Farmer (1988), Borgowicz et al (1990), Brown et al (Eds.) (1991), Mattsson (1992), Babbar (1992), Ghobadian et al (1994a), Tanner (1994) and Mels et al (1997).

2.3.2 Perceived importance of "quality" in practice

The perceived importance of "quality" in practice is illustrated by both the demonstrated industrial and commercial awareness of its importance, and the extent to which industrial and commercial organisations and other types of organisations have promoted it.

In 1982, Leonard and Sasser (1982) reported that their survey of thirty Fortune "500" companies had indicated that only six percent of executives perceived management to be the source of quality problems in organisations¹⁸. Nevertheless, they reported signs that adjustments¹⁹ were beginning to take shape towards a determined effort to manage quality throughout the organisation, and that more and more companies were willing to experiment with different approaches. Leonard and Sasser concluded that managers were at least recognising the importance of up-stream design decisions and down-stream sales-service decisions in establishing product quality, and as such, the

¹⁸These authors did point out that on further discussion, it became clear that most of the executives thought management a much larger cause of the problem than the six percent response indicated.

¹⁹a shift from an inspection-oriented, manufacturing-focused approach towards a defect-prevention and company-focused strategy; and quality managers growing out of their narrow administrator or technical roles and becoming cross-functional.

realisation was finally taking hold that the design and production of high-quality goods and services was not just a quality manager's technical problem on the factory floor, but a general manager's problem throughout the entire corporation - that quality leads everywhere and touches everything.

More recent survey findings suggest that the realisation Leonard and Sasser (1982) referred to has taken a firm hold. A 1987 survey of British senior executives [ODI, 1987] reported that the critical importance of quality and reputation for quality was seen as a major survival issue for their organisations. A 1990 U.K. survey of chief executives awareness and attitude to quality [Lascelles and Dale (1990a)] reported that within the previous four years the majority of respondents had come to the conclusion that product and service quality was an important factor in international competitiveness²⁰. In a U.S. survey, executives ranked the improvement of service and product quality as the most critical challenge facing U.S. businesses [Zeithaml et al (1990)]²¹. Kwok (1990) reported that during a 300 CEO strong international conference [organised by Business International in Puerto Rico] a survey was posted which identified that quality, along with the globalisation of markets, were considered the most important factors that would force changes in the 1990s²². A survey reported by Shetty (1991) also indicated that many US executives perceive that quality is critical to their companies. Yearout (1992) suggested that the eighty four percent response rate (representing representatives from more than 500 businesses) to the International Quality Study (IQS²³) demonstrated how important the issue of quality has become to businesses throughout the world.

The recognition of quality as an important competitive feature is not restricted to academics and industrialists. Governments also recognise its importance. Quality was strongly advocated by the British government with a White paper, *Standards, Quality and International Competence*, which led to the National Quality Campaign in 1983. A National Strategy for Quality campaign took place in 1988 (Wilkinson et al, 1992). A more recent Department of Trade and Industry (DTI) and Confederation of British Industry (CBI) joint paper on competitiveness [DTI and CBI (1994)]

²⁰the study also reported that demanding customers appeared to be the most important agent for changing chief executives' attitudes to quality and motivating improvement activities.

²¹cited in Reeves and Bednar (1994).

²²cited in Pulat (1994).

²³The International Quality Study (IQS) sponsored by Ernst & Young and the American Quality Foundation: the first major effort to define and measure quality practices, conducted in Canada, Germany, Japan and the United States (Yearout, 1992).

further stressed the central contribution of quality to enhanced competitive capability.

2.3.3 *Demonstrated importance of "quality"*

Drawing on information from the source *I know best - General Systems data*, Feigenbaum (1982) asserted in 1982 that economic results from quality industrialisation experience throughout the world demonstrated that strong programmes that combine a genuine quality management policy together with modern industrialisation to improve productivity together with quality, provided the single best business return-on-investment opportunity for many companies. Generally speaking, the published empirical data has supported Feigenbaum's assertion. The published empirical data, reviewed in the remainder of this section, has shown that for companies seeking growth within their markets, products and services that offer *greater* value have a far better chance of (i) commanding higher prices, (ii) gaining market share and (iii) increasing the organisation's relative profitability. In addition, that achieving high customer-perceived quality does not result in higher direct costs.

Research studies using the PIMS database have been a key source of such evidence. Schoeffler et al (1974) using the PIMS database demonstrated a positive connection among quality, market share, and return on investment. They reported that not only does good quality yield a higher ROI for any given market share (for example among businesses with less than twelve percent of market share, those with inferior product quality averaged an ROI of 4.5 percent, those with average product quality an ROI of 10.4 percent and those with superior product quality an ROI of 17.4 percent), it also leads directly to market share gains, in that those businesses in the PIMS study that improved in quality during the 1970s increased market share five to six times faster than those that declined in quality and three times faster than those whose quality remained unchanged.

Other research studies conducted for the profit impact of market strategy (PIMS) programme [Phillips et al (1983); Gale and Klavans (1985); Luchs (1986) and Buzzell and Gale (1987)] have led to the conclusion that in the long run, the most important single factor affecting a business unit's performance is the quality of its products and services, relative to those of competitors. Phillips et al (1983) showed that perceived quality and profitability were positively related. Their findings suggested that pursuit of a quality strategy enables the company to command profit margins superior to lower quality competitors. Across all businesses they studied, quality was shown to influence ROI indirectly via its positive effects on market position. Phillips et al's general

conclusion was that attainment of a quality position was not generally found to involve many of the strategic trade-offs often attributed to quality strategies by business analysts. Gale and Klavans (1985) reached similar conclusions when they empirically showed that higher relative quality and market share lead to substantially higher return on sales. Also using the PIMS database, they firstly tested and quantified the relationship between product price and performance, and the data clearly showed that on average better products commanded higher prices. Secondly, testing the relationship between perceived value and change in market share, they found that sixty two percent of businesses that start with greater value than competitors, and raise their value, gain market share, whereas only forty percent of businesses with lesser and falling perceived value gain market share. Finally, quantifying the relationships between strategic position and profitability, they observed that businesses with higher quality and market share earn margins about five times greater than businesses with lower quality and smaller share.

There is also empirical evidence indicating clearly that customers are willing to pay a premium price for better quality products [PIMS (1978)]. Peters and Austin (1985) concluded that winning medium sized companies competed on the value of their products or services and usually enjoyed premium prices, and that they achieved this position by consistently satisfying customers needs and meeting or exceeding their perceived quality expectations. Reeves and Bednar (1994), have pointed out that much of the early marketing literature [for example Leavitt (1954) and Shapiro (1968)] has found support for a positive relationship between price commanded and perceived quality.

It is important to point out however, that not all authors investigating the price-quality relationship have reached this positive conclusion. Researchers such as McConnell (1968) and Jacoby et al (1973)²⁴ postulated a uni-dimensional relationship, that is to say, high price signifies high quality and vice-versa, while other researchers, such as Reisz (1979) and Gerstner (1985) have concluded that the relationship between quality and price is generally weak. Gerstner's (1985) findings indicated that for many products, higher prices appeared to be poor signals of higher quality, and that quality-price relations were generally product-specific, with frequently purchased items displaying weaker relations than non-frequently purchased items. However, it is equally important to point out that it is the more recent of these type of studies that have found the positive relationships. That is to say, the studies conducted since "quality" has been recognised by industry and commerce as a source of competitive advantage.

²⁴cited in Lascelles and Dale (1988).

Peters and Waterman (1982) using the empirical evidence collected by Garvin showed that greater quality reduces operational costs. Though no empirical evidence was presented in support of their assertion, Leonard and Sasser (1982) have warned against overlooking the close connection between quality and productivity when evaluating the various levers on quality. They proposed that in their experience, efforts to raise quality almost always result in heightened productivity²⁵. Garvin (1983) himself, in his firmly grounded²⁶ study of room air conditioning unit manufacturers in the US and Japan concluded that "quality pays". He found that the highest quality producers (measured by incidence of "internal" and "external" failures) were also those with the highest-output per man hour. That is to say, on the basis of the number of direct labour hours actually worked on the assembly line, productivity at the best US companies was five times higher than at the worst. He also found that the association between cost and quality was equally strong. Figures on the total costs of quality (which included expenditures on prevention and inspection as well as the usual failure costs of rework, scrap and warranties) showed that those incurred by the Japanese manufacturers were less than one-half of the failure costs incurred by the best US companies. In other words, among manufacturers of room air conditioners, the Japanese - even with their strong commitment to design review, vendor selection and management and in-process inspection - still had the lowest overall quality costs. Manni et al (1994) undertook a study to investigate what changes in operational performance could be expected when more stringent quality practices were adopted by manufacturers, and to examine whether quality changes in manufacturing show up as changes in performance at the level of the business unit. *Activity* and *performance* data was collected by questionnaire survey from 184 New Zealand based manufacturing plants over a three year period. Structural equation modelling (SEM) was then used to test the links between quality and various dimensions of manufacturing and business performance represented in a Quality-Performance (QP) Model²⁷. Based on their findings, the authors concluded that the study showed empirically that in manufacturing companies, improving quality positively enhances operational performance and productivity, and certain indicators of business performance. The authors reported that the association was most pronounced between quality and process utilisation, with the second largest impact of quality being on improved (i.e. reduced) manufacturing costs.

²⁵and incidentally, that the reverse also holds true: efforts to raise productivity usually pay off in better quality.

²⁶the strong associations could not be explained by differences in technology or capital intensity, because most of the plants employed similar manufacturing techniques.

²⁷According to the authors this model, while grounded in the extensive literature on quality, was derived principally from the insights of two theories, Deming's Chain Reaction Model, and Garvin's Cost Savings Model.

An examination of the findings of these studies suggests that the following relationships between "quality" and improved performance exist. A quality edge boosts performance in two ways. In the short-term, superior quality yields increased profitability via premium pricing. In the long-term, superior or improving quality should result in increased market share. Higher volumes of output result in improved scale economies that in turn should give the organisation cost advantage over its competitors. Thus, the investment required to improve quality is normally off-set, over a relatively short period of time, by the resultant increase in the scale economies.

2.4 Importance of "TQM"

The previous section sought to examine the importance attached to "quality". Attention is now turned towards the importance of "TQM". As was the case for "quality", the important contribution that TQM can make towards gaining competitive advantage has been recognised by many researchers and writers. Evidence also suggests that the importance of a TQM approach as a route to competitive advantage has been and continues to be recognised in industrial and commercial practice. In the following sub-sections this "recognition" is reviewed and examined. As was the case for "quality", it was considered important to distinguish between that "recognition" which has been perceived, that is to say "recognition" based on the belief that the TQM approach is the means to address present and future business needs, and the "recognition" which has been derived through the demonstration of TQM's beneficial effects in practice. As such, findings are presented in three sub-sections: Perceived importance of "TQM"; Perceived Importance of "TQM" in practice; and Demonstrated importance of "TQM". A summary of the findings is presented in section 2.4.4.

2.4.1 Perceived importance of "TQM"

From the late 1980s the perceived importance of introducing TQM as a means for organisations to gain competitive advantage began to be recognised extensively in the literature [for example Hendricks and Triplett (1989); Hiam (1992); Steele (1993); Harari (1993a); Myers and Ashkenas (1993); Wright and Kusmanadji (1993) and Webb and Bryant (1993)].

Myers and Ashkenas (1993) proposed that TQM had evolved into one of the most powerful opportunities for effective planned change ever to take root in organisations. Such a view is supported by many other authors. Hiam (1992) suggested that TQM was perhaps the best hope of revitalisation for the US economy, a view that was endorsed by Wright and Kusmanadji (1993)

who proposed that of the several alternatives that might revitalise the competitiveness of Western businesses, a quality improvement strategy is considered the single most feasible, and the one which can be best controlled and implemented. In recognition that a different set of management concepts and principles would be required if American firms were to achieve strong competitive positions in international trade (Tribus, 1989), Webb and Bryant (1993) asserted that this would only be accomplished if US firms incorporate a TQM philosophy. Hendricks and Triplett (1989) and Raynor (1992) contended that company-wide TQM strategies provide long term competitive advantage as this type of strategy is difficult for competitors to imitate. That whilst recognizing the value of other forms of strategic initiative, non-quality-oriented strategies provide a company with only short lived competitive advantage, citing technology programmes as the prime example, which are often available to everyone, and hence can easily be duplicated. These latter views appear to be supported by recent results from the *Manufacturing Futures Project*, a temporal study simultaneously conducted in Europe, the USA and Japan, which showed that (a) quality is the core of European manufacturing strategy and (b) that technology has lost some of its former appeal and more attention is paid to organisational improvements rather than developments in technology [Ferdows and De Meyer (1990)].

2.4.2 Perceived importance of "TQM" in practice

All the signs point to the widespread diffusion of the TQM concept among major corporations. The perceived importance of TQM in practice is demonstrated by (a) industrial and commercial awareness of the importance of TQM, (b) the number of organisations claiming to have adopted TQM as their preferred approach and (c) the extent to which TQM has been promoted and adopted by internationally recognised independent / government agencies and other types of organisations. The latter is evidenced by (i) the growth in the number and membership of quality bodies and the interest in major quality awards by major corporations and (ii) public sector interest. Reported evidence is presented below.

- Industrial and commercial awareness of importance of TQM

A recent study [Anon (1993a)] reported that North American executives ranked TQM as the strategy most likely to have a long-term effect on their organisation's competitiveness. According to Pulat (1994) over 90 percent of respondents to productivity surveys among US electronics manufacturers claimed TQM to be a competitive tool. Kano (1993) noted the increase in the

number of corporate quality officers. That although formerly only a few companies had Vice Presidents in charge of quality, over the last decade their numbers have increased, and in some companies, Senior Vice Presidents and Executive Vice Presidents in charge of quality have appeared.

- Adoption of TQM

Instone and Dale (1989) have suggested that the companies which have been in the vanguard of company-wide quality improvement have created a "quality knock-on-effect" by a combination of three factors. Firstly they have set for themselves high quality standards, and as part of their vendor improvement programme have imposed similar quality standards and systems on their suppliers. For example by requesting that they use specific quality management tools and techniques. In turn these first-line suppliers, if they are to fulfill their quality obligation, must demand the same from their suppliers and so on. Secondly, by selling their goods or services as a "quality product or service" this has increased the quality awareness of the consumers, who consequently have become more critical of their purchases. There is a ratchet effect as the product/service perceived by the customer as giving best value for money then becomes the standard which the competition has to meet or beat. Thirdly, the benefits achieved by other companies pursuing a "quality first" policy in conjunction with the surrounding publicity then acts as an inducement for others to follow. According to Holder and Walker (1993), the TQM approach is now found in all types of organisations, including manufacturing, government, service industries, research and development and education. Wellins et al (1993) suggested that TQM had been the most widely adopted strategy for improving productivity and competitiveness during the previous five years²⁸.

Holder and Walker's (1993) and Wellins et al's (1993) suggestions appear to be supported by reports of the extent of TQM adoption and planned adoption [Develin & Partners (1989); The Conference Board Inc (1989); Lascelles and Dale (1990a); Wheatley (1992); Holder and Walker (1993); Wilkinson et al (1994); Witcher (1994); Heller (1994) and Mohrman et al (1995)].

A research study of quality improvement in British manufacturing industry carried out during the period 1984 to 1988 [Lascelles and Dale (1990a)] found that half of the respondent companies

²⁸cited in Butz Jr (1995).

claimed to have in place a process of quality improvement²⁹. Develin & Partners (1989) reported in 1989 that out of 3000 companies chosen as a representative cross section by sector, size and geographical location, 307 replied to an unsolicited postal questionnaire survey on TQM. All 307 claimed to have carried out some form of programme to improve quality, but more specifically, 59 percent reported that they had started a TQM programme, and a further 35 percent had plans to undertake it. A 1989 US survey of senior executives at 800 large US corporations about their quality management practices [The Conference Board Inc (1989)] reported that of the 149 firms that responded, 111 reported that they had a quality management programme in place, and that thirteen of the remaining thirty eight were planning to institute TQM. Holder and Walker (1993) reported that in 1991, the American Electronics Association (AEA) surveyed 300 electronics companies. Seventy three percent of the companies reported having a TQM programme underway. Wheatley (1992) reported on a British Institute of Management commissioned survey exploring the future role of middle managers, drawing on the views of over 1000 middle managers and 150 employing organisations. Asked which of a number of new management techniques or approaches their organisations were either implementing or contemplating implementing, total quality management was the single biggest reported (63 percent) by the responding managers, a virtually identical proportion as reported by the corporate respondents (67 percent). Wilkinson et al (1994) also reported on a British Institute of Management commissioned survey (*Quality and the Manager (1993)*), which found that 71 percent of the 880 responding British managers claimed their organisation had a formal quality management campaign, and a further eleven percent claimed their organisation was planning to introduce one. A 1993 survey concerning the adoption of TQM in Scotland [Witcher (1994)] reported that sixty five percent of the 650 responding organisations claimed either to have TQM in place or to have started the process of TQM introduction. Heller (1994) surveyed a sample of top 500 FT companies, and found that 69 percent of the 270 organisations responding had a quality programme, twelve percent were in the process of introducing one, and a further five percent were thinking of setting one up. Mohrman et al (1995) reported on a survey of TQM practice in the 500 largest service and 500 largest industrial US companies, to which seventy three percent of the responding 290 companies reported having a TQM initiative in place in 1993. It should be pointed out that only four of the nine studies and surveys referred to above also reported on the composition of the TQM programmes underway. That is to say, these reports do not comprehensively provide substantiating evidence of the respondent claims. Nevertheless, they appear to demonstrate at least that, the introduction of TQM

²⁹companies with an annual sales turnover in excess of £10 million were more likely to pursue continuous quality improvement.

and hence its perceived importance to for-profit organisations is widespread.

- Promotion of TQM by independent / government agencies

In 1957 the European Organisation for Quality (EOQ) was formed, and though originally acting as focus for discussion and experience-sharing regarding quality assurance, the development of the EOQ has reflected the evolution of quality management and it now addresses broader aspects of quality management including TQM. Representing the national quality organisations of twenty five European countries, it has built a membership of over 50,000 people via individual and corporate memberships. In recognition of the strategic importance of TQM to the competitive position of European businesses, the European Foundation for Quality Management (EFQM) was established in 1988 by fourteen leading European corporations, and by July 1993 there were more than 280 members (Coopers & Lybrand and EFQM, 1994). The foundation outlined its perception of TQM, and its vision in the 1993 Membership brochure:

"The EFQM believes that, through Total Quality Management, Western Europe will become a leading force in the world market. Our objective is to create conditions to enhance the position of European industry by strengthening the role of management in quality strategies. EFQM's vision is to become the leading organisation for promoting and facilitating Total Quality Management in Western Europe. This vision will be achieved when TQM has become an integrated value of the European society, and European Management has achieved a global competitive advantage" (Cole and Mogab, 1995).

After only a few months of active recruitment, the British Quality Foundation (BQF), established in late 1993, achieved 1,200 corporate members.

The US government through an Act of Congress³⁰ established the Malcolm Baldrige National Quality Improvement Act in 1987, which introduced the Malcolm Baldrige National Quality Award (MBNQA) to help improve the quality performance of American commerce and industry. The award recognises US firms that excel in quality management and achievement. There are three categories of awards given each year (manufacturing, service and small business) with up to two awards per category. The US Department of Commerce's National Institute of Standards and Technology (NIST) manages the MBNQA, and consortia including the American Productivity and Quality Center and The American Society of Quality Control administers the award. A number of authors have pointed to the interest in the MBNQA. According to Ghobadian et al (1994b), the

³⁰Public Law 100-107, signed by President Reagan, August 20, 1987.

number of requests for information for the MBNQA rose from 12,000 in 1987 to 175,000 in 1992. Collier (1992) reported that in 1990 and 1991, more than 180,000 and 260,000 MBNQA Application Guideline Booklets respectively were requested. In Australia, government agencies such as the National Industry Extension Service (NIES) and industry based organisations such as the Total Quality Management Institute (TQMI) have been established to assist companies to implement TQM ideas (Fisher, 1992). The frameworks promoted by the various quality award bodies referred to above are discussed briefly in section 2.6.5

- Public sector interest

The for-profit organisation interest in the TQM approach has already been highlighted in previous sections. Daley (1992) pointed out that there is real public sector interest in the TQM concept, and that public sector application has been encouraged and in some instances attempted. An examination of the literature appears to support this view. For example, Nagel (1994) reported how, realizing that their development and acquisition procedures were outdated and seeing examples of private industry's success, the US Department of Defense (DoD) adopted TQM in the late 1980s, publishing its Total Quality Management Master Plan outlining the goals and milestones for TQM implementation in January 1989. In 1988 the US Federal Quality Institute (FQI) was established as a centre of quality excellence and the principal instrument for the promotion of TQM in US federal agencies. Its aims on establishment were to introduce senior officials to the concepts of TQM, to establish a vehicle to help agencies contract for TQM implementation services in a timely manner, and to provide information on quality management through its resource centre (Brockman (1992) and Vinzant and Vinzant (1996)). It has also been noted that the forces driving quality extend even to academia, Juran (1993) reporting that at least one major company had told its chief sources of college graduates that in the future, they would send their recruiters to only those schools that were willing to embark on Total Quality Management. A review of such public sector interest is outside the scope of this work. Reports and examples of public sector adoption and interest relating to government, health, and education can be found in the following works: Hunter et al (1987); Berwick (1989); Cohen and Brand (1990); Milakovich (1990); Feigenbaum (1992); Jordan (1992-1993); West et al (1993); Speller and Ghobadian (1993); Scheidt and Amsler (1995); Mani (1995) and Calek (1995).

2.4.3 Demonstrated importance of "TQM"

Section 2.3.3 examined the literature relating to the demonstrated impact that a focus on "quality" can have on various aspects of improved performance, primarily from a financial point of view. The contributions identified and cited were overwhelmingly positively-oriented in favour of "quality" and led to the conclusion that pursuit of "quality" is a sound basis of business strategy. Consultation of the literature may initially lead one to believe that the case for TQM, as the business approach for an organisation to adopt in order to deliver such positively-oriented benefits, is weakly supported. Recently, in the 1990s, the number of authors making reference in the literature to the failure of TQM to deliver, or more generally to the decline of TQM, is substantial [Dobson (1991); James (1992); Coulson-Thomas (1992); Walker (1992); Whiteley (1991); Summers (1993); Anon (1993a); Krygier (1993); Chang (1993); Goodman et al (1993); Myers and Ashkenas (1993); Harari (1993a); Parker and Slaughter (1993); Abram, Hawkes plc and Kingston University (1993); Wacker and Sheu (1994); Choppin (1994); Foster et al (1994); Gharajedaghi (1994); Sirota et al (1994); Grant et al (1994); Reger et al (1994) and Eskildson (1995)]. This list is not exhaustive. Walker (1992) has suggested that a growing number of organisations that have several years of experience with TQM and other forms of continuous improvement were reporting that their programmes were running out of steam or had failed to live up to expectations, and that feedback on many of the programmes that were not working well report that nearly all process goals were being met, but the results goals were not. Grant et al (1994) suggested that TQM programmes may have produced some tangible improvements in product and service quality, but that the programmes themselves have ultimately fallen apart.

A number of recent surveys have been cited in the literature to this effect [Summers (1993); Holder and Walker (1993); Pike and Hewins (1992) and Ackoff (1993)]. According to Summers (1993), a study conducted by Ernst and Young (published in October 1992) concluded that TQM was not consistently providing the results anticipated by American companies, and that many may have wasted millions of dollars each year on quality improvement strategies that did not improve, and may even have hampered, company performance. An American Electronics Association survey reported in Holder and Walker (1993) claimed that of the surveyed companies that had a TQM programme underway, 63 percent had indicated failure even to improve quality defects by as much as ten percent. According to Pike and Hewins (1992) and Ackoff (1993), [other] recent surveys have cast serious doubt on the notion of large and rapid payback: *The Economist* (April 1992) cited a survey by A.D. Little that showed that though most US companies (93 percent) had some form

of quality improvement programme, many were finding that they were simply not improving fast enough in relation to competition, with only one third of US manufacturing and service TQM programmes having any significant impact on competitiveness; while a later survey by A.T. Kearney/*The TQM Magazine* is quoted as finding even fewer (20 percent) of TQM programmes having "tangible" results within the UK manufacturing sector.

However, Pike and Hewins (1992) suggest that it seems very likely that the reported situation has much to do with TQM's lack of definition. Perhaps more importantly, as Sirota et al (1994) have also suggested, upon closer examination it became apparent that (a) the companies cited in these [survey] examples had been pursuing TQM strategies for only a few years (Sirota et al (1994) suggested that from their experience a few years is simply not a long enough period of time for TQM efforts to show significant measurable impact, especially in financial performance indicators³¹), and (b) the supporting evidence clearly indicated that these companies' efforts, though having genuine intentions, were narrowly focused without changes in the way the organisation was actually managed. A number of authors [Summers (1993) and Walker (1992)] have pointed out in relation to the former of these two observations, that the Japanese companies worked and invested more than ten to fifteen years of consistent effort to see an improvement culture become ingrained and before experiencing major product or service breakthroughs. Therefore, verdicts on TQM's effect on Western business may be premature (Summers, 1993). The latter of Sirota et al's (1994) two suggestions appears to be supported by Heller's (1994) FT 500 company survey analysis which casts doubt on the respondents' understanding of the true nature of TQM. Twenty four percent of the sample claimed great familiarity with what is involved in quality improvement, and a further forty six percent claimed to have a fair knowledge. Ninety five percent claimed to be aware of total quality and eighty two percent claimed to be aware of TQM. However, Heller (1994) reported that only thirty nine percent were aware of Kaizen, and a paltry nine percent were aware of Deming's PDCA cycle. Asked to identify which quality theorists they were aware of, Crosby received the highest response of thirty nine percent, and responses against the other gurus of quality clustered around the quarter to one third of respondents mark. Heller (1994) went on to conclude that these answers confirm the suspicion that a vast gulf exists between a relatively small number of companies which are truly revolutionising their activities and the large number which are mostly making worthwhile but piecemeal advances in some aspects of their operations. Further, to members of the British Deming Association which helped compile the survey

³¹they suggest that cultural integration alone takes approximately 3 - 7 years depending on an organisation's size, market conditions and commitment to change.

questionnaire, that represented a fundamental misunderstanding.

The above arguments suggest that drawing firm conclusions about the appropriateness of the TQM approach, based on those contributions to the literature that portray TQM's impact in a negative light should be treated with caution. Unfortunately, due to the unavailability of copies of the original reports of many of the surveys cited above, the author was unable to substantiate comprehensively either the findings reported, or consequently, Sirota et al's (1994) aforementioned criticisms of such surveys. However, the fact that those surveys that the author was able to scrutinise tended to neglect to differentiate between companies that clearly have and do not have considerable experience with TQM, when collecting and analysing their data, emphasises the need for cautionary treatment. Other than isolated company specific examples the author has found little robust empirical evidence that supports or confirms the conclusions drawn by the surveys cited. One exception may be that reported by Fisher (1992). Based on a study of four Australian companies who considered that they had successfully implemented the principles of TQM, which sought to determine whether improvements in quality were being matched by improvements in overall organisational productivity or performance, the findings led Fisher (1992) to conclude that "quality management programmes such as TQM do *not* result in significant *direct* improvements in overall company performance". It should be pointed out however, that no standard measurement and comparison format was used across all four companies³².

Literature contributions reporting performance outcomes from the practice of TQM are not exclusively negative. For example Kano (1993) reported that at the beginning of each year various statistical reports are released by the Japanese press, and in 1993 three reports in particular led him to observe a trend that during the last decade, American improvement efforts, including TQM, have gradually led to good results in industries such as semiconductor, automotive and personal computer. An extensive Coopers & Lybrand and EFQM (1994) study on the economic aspects of quality, proposed that the application of quality management practices is likely to benefit European business by sustaining competitiveness through improved customer satisfaction, integrating the concept of continuous improvement into company activities, fully harnessing learning and innovation capacity to make step changes in performance, continually upgrading the satisfaction and skills of all employees and improved financial performance. The findings from the study led to the conclusion that TQM is one of the most effective ways to improve the competitive position

³²Fisher (1992) suggested that the impacts of quality management processes are greatly overshadowed by the effects of internal factors (such as the decision to invest in new capital equipment) and the generally uncontrollable external (economic and competitive) factors.

of European business during the 1990s (Coopers & Lybrand and EFQM, 1994). The study highlighted a multi-sector survey of British business in 1989, which showed that seventy five percent of businesses increased their profitability within three years of introducing TQM (Coopers & Lybrand and EFQM, 1994). The study also cited evidence from the 1993 World Competitiveness Report which had correlated the extent of TQM application with the perceived quality of products (relative to foreign competition) for a large number of countries around the world. The correlative trend clearly showed that for those countries in which the extent of TQM application was considered to be comprehensive, the perceived quality of products (relative to foreign competition) was considered to be superior, and that for those countries in which the extent of TQM application was considered to have been neglected, the perceived quality of products (relative to foreign competition) was considered to be inferior.

There have been a number of contributions to the literature that have reported, based on investigations of organisations' own perceptions of the impact of TQM, that TQM adoption has improved areas of bottom-line performance [Mann and Kehoe (1994a); Heller (1994); The Conference Board Inc (1989); Anon (1989); Powell (1995); Mohrman et al (1995) and Radovilsky et al (1996)].

Mann and Kehoe (1994a) reported that 52 percent of their study's sample indicated that since the introduction of TQM the company had increased its market share generally, and 57 percent had indicated that market share in specific areas had increased³³. In Heller's (1994) study, more than half of the respondents claimed that quality improvement made a significant contribution to achieving business goals, while only one percent expressed the view that quality improvement did not contribute to business improvement³⁴. The Conference Board Inc (1989) study referred to previously, reported that of the one hundred and eleven (111) companies practising quality management, sixty two reported that they measured the impact of quality on profitability. Of these, forty seven reported "noticeably increased" profits due to quality management, while only one firm reported decreased profits due to "the increased costs of providing higher quality products and services". Another 1989 US survey [Anon (1989)], which surveyed six hundred and one (601)

³³It should be pointed out however that, investigation of the extent to which the company's sales turnover had changed since TQM, and the proportion believed to be attributable to TQM proved inconclusive. The authors proposed that this was because few companies have a method of isolating the effects of individual quality activities, and most did not measure the effects of quality activities in terms of strategic business performance. This point is returned to at the end of this section.

³⁴N.B. the arguments discussed above would suggest that Heller's findings here should be treated with caution.

corporate quality executives concerning their perceptions of quality, reported that 54 percent of the respondents said that they were pleased with the results of their quality improvement efforts, with half of these reporting "significant results, including increased profitability and/or increased market share". Powell (1995) used perceptual data gathered from fifty four northeastern US firms to test the hypothesis that TQM firms outperform non-TQM firms. Assessing the partial correlations between TQM activity and performance, when both industry and firm size factors had been partialled from the analysis, Powell (1995) reported that the findings supported the hypotheses, leading him to conclude that TQM does provide economic value to the firm. In Mohrman et al's (1995) survey of the five hundred largest service and five hundred largest industrial companies in the US, eighty three percent of the two hundred and ninety (290) respondents reported that their experience of TQM had been very positive, and seventy nine percent indicated that consequently they planned to increase or greatly increase their use of TQM in the following three years. Mohrman et al (1995) reported that in the eight outcome areas which were measured, at most one percent of the companies had experienced a negative impact, while two-thirds or more felt positive about the impact TQM had had on competitiveness, profitability and employee involvement. Radovilsky et al (1996) surveyed a sample of two hundred and sixty five (265) companies identified as TQM practitioners, mainly in manufacturing, and reported that three-quarters of the two hundred and thirty six (236) respondents rated their TQM programmes as either good or excellent in terms of quality improvement. More specifically, Radovilsky et al (1996) reported that as a result of quality improvement, on average at these companies profits had increased by 20.8 percent, market share had increased 8.6 percent, productivity had grown by 20 percent and errors/defects had reduced by 24.7 percent. Furthermore, more than half of the respondents had indicated that under their TQM programmes the average cost of achieving quality had decreased by 20-40 percent.

As noted above, the seven surveys reported here drew on perceptual data supplied by the organisations in their samples. In this respect, the reported findings of these surveys should therefore also be treated with a degree of caution. 'TQM - performance' relationship studies that have not relied exclusively on company supplied perceptual data, and that would appear to be considerably more rigorous [Kano et al (1983); GAO (1990); Anon (1994a); Oakland et al (1994); Wisner and Eakins (1994) and Hendricks and Singhal (1996)], suggest that a positive relationship between the practice of TQM and improved business performance does exist.

A US study of TQM initiatives during the period 1980 to 1990 [reported in Anon (1994a)], showed

that the stock prices of a portfolio of Total Quality companies significantly outperformed the stock price index. The Total Quality company portfolio achieved a compound annual growth rate of 16.9 percent per annum by the end of that decade, compared with 10.9 percent for the Standard & Poor's 500. Letza and Zain (1994) refer to a study conducted in Japan in the early 1980s³⁵ on the Japanese companies that won the Deming Prize between 1961 and 1980. The study considered the earnings rate, productivity, growth rate, liquidity and safety of the companies, and concluded that most of these companies had an upward trend in or maintained a favourable level of business performance above the industry average. In particular, the Deming Prize winning companies averaged fourteen percent increase in sales, whilst those companies that did not apply for the award achieved only twelve percent. In addition, the study reported that all Deming prize winners since its inception were still in business. In May 1990, the US General Accounting Office (GAO) published a report [entitled "Management Practices - U.S. Companies Improve Performance Through Quality Efforts"] based on investigation of the quality programmes at twenty companies, all high scorers on either the 1988 or 1989 Malcolm Baldrige National Quality Award. Using a detailed survey and extensive follow-up interviews, the GAO concluded that there was a cause-and-effect relationship between TQM practices and corporate performance, measured by indicators in four areas: employee-related indicators, operating indicators, customer satisfaction indicators, and financial performance indicators³⁶. Along virtually all of the indicators: (a) positive improvements were consistently observed (that is to say, favourable improvement for the vast majority of the companies providing data) and (b) average annual percentage improvements were consistently observed. Perhaps most significantly, the study reported that: "*As measured by several ratios widely used in financial analysis, the impact of an organisation's quality management practices was improved profitability*". Furthermore, that: "*improved market share [was] attained*". This study has been referred to widely in the literature. Though some shortcomings in the study methodology employed have been claimed³⁷, the general consensus in the literature supports the view of Garvin (1991), who proposed that this study was a giant step toward quantitatively documenting TQM practices and their effect on corporate performance. Further, the diverse nature of the companies involved in the GAO study, coupled with the overwhelmingly positive results in the four areas measured, demonstrates that well-designed and implemented TQM strategies can

³⁵Kano, N. et al. (1983), *Quality*, Union of Japanese Scientists and Engineers, Tokyo (published in Japanese).

³⁶the results for each indicator were presented in two forms: direction of the trend over time, and an average annual percentage improvement.

³⁷primarily that information including financial indicators was supplied by the companies in a subjective manner.

have a positive economic impact (Sirota et al, 1994). The GAO study also reported more recent findings from the General Systems Company Inc proprietary database, which showed that firms with TQM systems in place consistently exceed industry norms for return on investment. This higher return on investment was attributed to three factors: TQM, by improving the quality of products and services, reduces the direct costs associated with poor quality such as inspection, rework, and warranties; improvements in quality tend to lead to increases in productivity; and the combination of improved quality and increased productivity leads to increases in market share. Oakland et al (1994) reported the results of a study that, compared the performance of twenty nine companies practising TQM along seven key financial indicators chosen to reflect business performance both in the short term and long term and using externally reported information subject to external standards for a five year period, with the corresponding industry medians. These companies were selected based on direct knowledge and understanding of specific TQM approaches. For each of the seven indicators, the findings showed that the performance of virtually all of the companies exceeded their respective industry's median performance³⁸. Although it was not possible to prove direct causation since other factors may be present, the consistency of the results led the authors to believe that there is a positive association between the introduction of TQM and tangible results.

Wisner and Eakins (1994) reported findings from a similar financial performance assessment study of US Baldrige winners, however with a much smaller sample size. After briefly examining and reviewing a number of key operating performance measures for the seventeen winners to that date, the authors reported that while several winners exhibited improvement characteristics unique to their respective industries, all or most of the seventeen winners had shown impressive achievements in customer service, production costs, product reliability, defect or failure rates, and cycle time. This led them to conclude that it was apparent that the quality improvement efforts of these firms had a positive effect on the operating characteristics of the firms. The authors then went on to financially examine the performance of four of the winners, which were both publicly-held and were not subsidiaries or divisions of other firms. Profitability and stock market-based ratios (using financial information sourced from the *Value Line, Standard and Poor's* and

³⁸profit margin (22 of the companies showed healthier profit margins than their industry median); return on total assets (22 showed better returns on investment than their industry median); turnover per employee (22 showed sales per employee higher than their industry median); profit per employee (23 showed positive quanta in comparison with their industry median); total assets per employee (23 had at their disposal greater asset value per employee than their industry median); fixed asset trend (21 showed a fixed pattern of long term investment in comparison to their respective industry median) and average remuneration (in 27 companies remuneration was higher than their industry median).

Disclosure databases) were used to evaluate financial performance on the basis of trend and industry analyses (1987-1992). Based on the findings the authors concluded that while the economic conditions had been poor for many companies in the period studied, the firms studied generally appeared to be performing financially as well as or better than their competitors³⁹. Hendricks and Singhal (1996) empirically investigated the impact of winning a quality award on the market value of firms by estimating the mean "abnormal" change in stock prices of a sample of ninety one firms on the date when information about winning their quality award was publicly announced. They proposed that by examining the stock price reaction to announcements of winning a quality award, the change in risk, and the stock price behaviour in periods surrounding the announcements of winning a quality award would provide evidence as to the impact of implementing an effective quality improvement programme (TQM) on the market value of the firm, a widely accepted measure of performance. Using 'Event Study Methodology' to isolate the component of price change due to firm specific events, Hendricks and Singhal (1996) concluded that the stock market reacts positively to winning quality award announcements, and that the reaction was particularly strong in the case of small firms and awards given by independent organisations⁴⁰.

Despite the fact that the more rigorous attempts at testing and empirical validation of the impacts of TQM on performance are somewhat fragmentary, the evidence overall suggests that the adoption of a TQM based strategy can be a worthwhile route to both operational and financial improvement, and long-term competitive sustainability. One limitation of most of the positively-oriented studies described that should be recognised is their cross-sectional research design. Although the findings suggest significant TQM-performance correlation, they do not strictly prove that TQM caused performance to improve, but only that an association existed. As Powell (1995) has suggested, high performance may actually give rise to TQM programmes, or TQM and performance may be caused by some additional factor not measured in the studies. Longitudinal research designs with pre-TQM and post-TQM performance measures, which appear to be absent in the TQM literature, would be required to support a conclusive causal inference.

³⁹Compared to industry averages, two of the firms performed substantially better, one performed slightly better, and one performed somewhat worse.

⁴⁰They also reported that there was some evidence to suggest that large firms experience negative stock price performance in the second year before winning quality awards, which is followed by a year of positive performance, and small firms experience a positive stock price performance in the second year before winning quality awards but no negative performance before winning quality awards.

2.4.4 Summary of findings - importance of "TQM"

The review of the literature presented in sections 2.4.1 and 2.4.2 suggests that there appears to be widespread recognition of the importance of the TQM approach. Clearly also, as the review of the literature presented in section 2.4.3 has demonstrated, a key methodological issue which appears to remain elusive is to demonstrate the causal impact of TQM on economic performance, as opposed to correlating the adoption of TQM with improved business results. It appears that for most of the TQM "impact" studies the methodologies employed to date have been fairly limited. Many collect management perceptions, and moreover, response rates have tended to be low. There is little in the way of independent measurement of TQM practices and their impact on performance. It is important to point out that the apparent absence of any 'TQM-performance' relationship studies of the type previously referred to as "more rigorous", which have suggested that TQM has a negative impact on company performance⁴¹, should not be taken as further proof of an overall positively-oriented relationship.

However, as a number of authors [Dobson (1991); Goodman et al (1993); Grant et al (1994) and Heller (1994)] have correctly pointed out, to dismiss quality improvement and TQM on the basis of the "loose" negatively-oriented evidence cited in the literature, would be to ignore the accomplishments of many companies that have used it to achieve competitive advantage and maintain or increase their market share. Accomplishments which are acknowledged in the literature and press and cannot be refuted. Companies such as Boeing, Federal Express, 3M, Xerox, Motorola, Allen-Bradley, Marriott, Harley-Davidson, Ford, Hewlett-Packard and Corning have taken eclectic approaches in developing their own versions of TQM with demonstrated success. These companies committed themselves whole-heartedly to TQM, made fundamental changes in their management practices and philosophies and improved product quality and company performance (Grant et al, 1994). In some cases these have been ailing organisations, such as Rank Xerox, who had their market share stripped away by the 'Japanese success' but have demonstrated how the application of Total Quality principles can turn them into world class organisations. The literature also cites the success of organisations inaugurated with a TQM approach. Set up from scratch as a total quality company, National Westminster Life started business in January 1993. Within a year it was heading towards a billion pounds of annual sales and a ranking in the top dozen of British life insurers. Such business results demonstrate that total

⁴¹During the course of this study the author located no studies which provided any substantial evidence that TQM has a negative impact on company performance.

quality is no fad, rather an agent of highly effective change (Heller, 1994). AT&T Universal Card Services provides another good example, winning the Baldrige Award in 1992 two years after it was inaugurated as a total quality company.

In Wright and Kusmanadji's (1993) view, data from several thriving companies such as those cited above suggests that the ultimate test of a successful organisation in today's competitive environment, is its ability to produce and deliver quality products and services which surpass customer requirements, and that achieving this level of effectiveness can be met only through the adoption of TQM. The evidence from the literature presented and discussed in this section cannot be taken to unequivocally support the latter part of Wright and Kusmanadji's (1993) assertion. However, the evidence undoubtedly does more to endorse their view than it does to refute it. A poignant point was made by Coulson-Thomas (1992), who suggested that the extent to which quality [management] is being questioned is evidence of its continuing relevance.

2.5 Broad Suggestions/Definitions of TQM

A number of suggestions have been made in the literature concerning what in its broadest sense TQM is. That is to say, is TQM for example a philosophy ?, is TQM a process ?, is TQM a project ? or is TQM a technique ? In some cases these suggestions have taken the form of a definition. These definitions or suggestions⁴² range from the simple, for example Spelcher (1991) who describes TQM as "art that utilises science", to the quite complex, for example those advanced by the British Quality Association (BQA) and Dean and Bowen (1994). A striking observation from examination of the literature is the conspicuous absence of TQM definitions/suggestions that have been derived empirically. Consensually arrived at definitions/suggestions also appear to be sparse. Further, empirically tested definitions appear to be completely absent. In this section the author examines how TQM, as a type of organisational intervention, is presented in the literature. In subsection 2.5.5 a summary of the findings is presented.

2.5.1 *The 'philosophy' perspective*

Some authors have positioned TQM as a *management philosophy* [Fisher (1992); Hunt (1993); Sirota et al (1994); Dean and Bowen (1994) and Ehrenberg and Stupak (1994)]. Sirota et al (1994) described TQM as a *broad management philosophy* that encompasses all organisation functions

⁴²referred to in the remainder of this section as "definitions/suggestions".

and disciplines. Fisher (1992) highlighted one of the few consensually derived definitions, reporting that according to the Total Quality Management Institute (TQMI) in Australia, TQM is a *management philosophy* that seeks continuous improvement in the quality of performance of all the processes, products and services of an organisation. According to Hunt's (1993) definition, TQM is both a *comprehensive managerial philosophy* and a tool kit for its implementation. Ehrenberg and Stupak (1994) defined TQM as the *management philosophy* that focuses on fulfilling customer expectations by providing quality services and products as a result of continuous improvement to the organisational processes. Dean and Bowen (1994) suggested that TQM can be seen as a *philosophy to management* that can be characterised by its principles, practices and techniques, proposing that its three principles are customer focus, continuous improvement and teamwork, each of which is supported by a set of practices and techniques and all of which are ultimately based on fulfilling customers' needs. This view led Dean and Bowen to add that as such, TQM is not simply a hodge-podge of slogans and tools. Perhaps the most comprehensive definition of TQM to be found in the literature which positions TQM as a management philosophy, and which can be said to be consensually derived, is that produced by the British Quality Association (BQA)⁴³ in 1989:

Total Quality Management (TQM) is a corporate business *management philosophy* which recognises that customer needs and business goals are inseparable. It is appropriate within both industry and commerce.

It ensures maximum effectiveness and efficiency within a business and secures commercial leadership by putting in place processes and systems which will promote excellence, prevent errors and ensure that every aspect of the business is aligned to customer needs and the advancement of business goals without duplication or waste of effort.

The commitment to TQM originates at the chief executive level in a business and is promoted in all human activities. The accomplishment of Quality is thus achieved by personal involvement and accountability, devotion to a continuous improvement process, with measurable levels of performance by all concerned.

It involves every department, function and process in a business and the active commitment of all employees to meeting customer needs. In this regard the 'customers' of each employee are separately and individually identified.

Other authors have also placed TQM as a *philosophy*, but place with it an alternative emphasis to "management" [Baum (1993); Grant et al (1994); Youssef (cited in Zairi and Youssef (1995)) and Radovilsky et al (1996)]. Baum (1993) reported that according to the US Department of Defence's TQM Implementation Guide, TQM is both a *leadership philosophy* that creates a working

⁴³cited in Huxtable (1995).

environment promoting teamwork, trust and the quest for continuous improvement, and a *customer focused philosophy* in which business planning decisions are based not on a perception of customer needs, but rather in response to an inquiry of these customers as to what they want. Grant et al (1994) proposed that TQM is a *revolutionary philosophy* that requires radical and pervasive change within the firm and which contends that the firm's primary goal is to better meet customer requirements by improving the quality of products and processes. Youssef (cited in Zairi and Youssef (1995)) defined TQM as an *overall philosophy* whose objective is to meet or exceed the needs of the internal or external customer by creating an organisational culture in which everyone at every stage of creating the products as well as every level of management is committed to quality and clearly understands its strategic importance. According to Radovilsky et al (1996), TQM is both a complete *manufacturing philosophy* and a tool kit for implementing that philosophy in the production process. Spencer (1994) examined TQM in relation to three diverse models of organisation, and after comparing components of each model with TQM principles concluded that each model: mechanistic, organismic and cultural; contributed to TQM practice. That, although many of the new ideas regarding TQM practices are associated with organismic concepts, ample evidence of mechanistic influence also exists, and that the cultural model highlights the philosophical components of TQM. This led Spencer to conclude that in practice TQM does not describe an objective reality, but instead depicts a somewhat *amorphous philosophy*.

2.5.2 The 'management system' perspective

Some authors have positioned TQM as a *management system* [Hill (1991); US Federal Quality Institute (1991) and Benson (1992)]. Hill (1991) suggested that TQM is a holistic *system of management*, representing a synthesis of a number of discrete principles of managing into a discipline intended to promote continuous business improvement, so that companies may: (a) become more innovative by anticipating and creating new market opportunities and devising new products and better ways of producing; (b) increase efficiency by economizing on costs while also improving quality and (c) respond more quickly to change. Hill further added that it is as much a methodology as a distinct set of practices. According to the US Federal Quality Institute (1991), TQM is a strategic, integrated *management system* for achieving customer satisfaction, involving all managers and employees, and using quantitative methods to improve continuously an organisation's processes. Benson (1992) reports the assertion of the International Quality Study (IQS), that TQM is a *management system* that must be designed and installed based entirely on the unique challenges a company faces.

2.5.3 *The 'strategy' perspective*

TQM has also been positioned as a *strategy* [Sink (1991); Lee et al (1992); Jones (1992) and Tenner and DeToro (1992)]. Sink (1991) defined TQM as a *strategy* for continuously improving performance at every level and in all areas of responsibility. Lee et al (1992) defined TQM as an *organisational strategy* and accompanying techniques that result in the delivery of high-quality products and/or services to customers. According to Tenner and DeToro (1992), TQM is a *basic business strategy* to provide goods and services that completely satisfy the customers by utilising the employees' talents while providing a positive financial return to shareholders. Jones (1992) provided a similar but more extensive version, defining TQM as a *strategy* for improving business performance through the commitment of all employees to fully satisfying agreed customer requirements at the lowest overall cost through the continuous improvement of products and services, business processes and the people involved. This latter definition was described by Patel (1993) as "the best way" of defining TQM.

2.5.4 *The other definitions/suggestions*

Many other TQM definitions/suggestions that have been proposed in the literature make no reference to a type of organisational intervention. Instead, some define/describe TQM in terms of a historical or developmental context [Broedling (1990); Daley (1992); Myers and Ashkenas (1993) and Cole and Mogab (1995)]. Daley (1992) suggested that TQM is a *quite loose amalgamation* of productivity theories drawn from such scholars as Crosby, Deming and Juran, and that it is in many ways, an extension or renewal of Taylor's (1911) scientific management movement (because like Taylor and scientific management it calls for a revolution of the mind). Myers and Ashkenas (1993) expressed a similar view, that TQM today is a *potent amalgam* of many highly effective technical as well as behavioural improvement strategies and techniques. Cole and Mogab (1995) describe TQM as a focus on the beliefs and practices required of management to bring about and perpetuate the "new type of firm". Ultimately, TQM has been described as a *paradigm shift* [Broedling (1990)]⁴⁴.

Other definitions/suggestions can be said to be primarily 'objective-oriented'. In other words, they define/describe TQM primarily in terms of its objectives [Pfau (1989); Mortiboys and Oakland (1992); Schmidt and Finnigan (1992); Main (1994) and Frehr (1997)]. Pfau (1989) suggested that

⁴⁴cited in Spencer (1994).

a popular definition of TQM is: an approach for continuously improving the quality of goods and services delivered through the participation of all levels and functions of the organisation. Schmidt and Finnigan (1992) proposed that TQM is a disciplined approach to keeping everyone's attention directed to the actions they can take to keep the organisation on course toward providing greater customer satisfaction. Main (1994) proposed a similar definition, that TQM is a way of running a company or other organisation that focuses its efforts in a systematic, disciplined fashion on improving continuously the quality of everything it does. Mortiboys and Oakland's (1992) and Frehr's (1997) definitions replace and extend respectively, the "externally-oriented" objective(s) implicit in these previous three definitions/suggestions, with "internally-oriented" implicit objective(s). According to the UK department for enterprise (Mortiboys and Oakland, 1992) TQM is defined as a way of managing an organisation so that every job, every process, is carried out right, first time and every time. Frehr (1997) defined TQM as the management *approach* of an organisation, centred on quality, based on the participation of all its members, and aiming at long term success through customer satisfaction and benefits to the members of the organisation and society. As implied above, these definitions/suggestions can primarily be said to be 'objective-oriented'.

Others definitions/suggestions refer more to constituent components of TQM, that is to say to TQM's operational characteristics [Dobson (1991); Heilpern and Nadler (1992); Hanks (1993) and Zairi et al (1994)]. These can be said to be primarily 'means-oriented' definitions/suggestions. Heilpern and Nadler (1992) suggested that TQM can be defined as creating and implementing organisational architectures that motivate, support, and enable quality management in all the activities of the enterprise. TQM is defined by Hanks (1993) as the continuous improvement in quality, productivity and effectiveness obtained by establishing management responsibility for processes as well as outputs. Zairi et al (1994) defined TQM as a positive attempt by the organisations concerned to improve structural, infrastructural, attitudinal, behavioural and methodological ways of delivering value to the end customer, with emphasis on: consistency, improvements in quality, competitive enhancements, and the aim of satisfying or delighting the end customer. Dobson (1991) positioned TQM as "a marriage of business strategy and human resource development at the altar of customer satisfaction".

These non-classificational types of definition/suggestion are the most frequently found in the literature. As demonstrated above, "a way" or "an approach" is often the preferred definitional / descriptive starting point. It should also be pointed out that a number of definitions/suggestions

of what TQM is can be found in the literature which appear to do little more than compound the confusion expressed about the meaning of TQM. That is to say, they appear not to provide for a clearer understanding of TQM. More so, they appear to create confusion. For example, Pulat (1994) placed TQM as a holistic global concept which synchronises the elements of quality performance across the various business functions, and involves the planning, installation and evaluation of all quality systems at each step of a manufacturing or service business. Mann and Kehoe (1994b) considered TQM to be a quality activity, which is composed of many other quality activities. According to Kekale and Kekale (1995) TQM can be defined as the management methods and ways to achieve total quality control. Though it is not the intention of the author to undermine any contribution, it is deemed important to highlight such definition/suggestions, given that one of the main purposes of providing a definition for a subject is to help create an understanding of that subject. In the case of TQM in practice that understanding will then lead, or at least influence, the action and behaviour of those involved.

2.5.5 *Summary of findings*

An examination of proposed definitions/suggestions reveals that in terms of types of organisational interventions TQM is positioned in a variety of ways (a philosophy, a strategy, a system, an approach, a concept, or an activity). Nevertheless, when TQM has been classified by authors, the findings suggest that in the main TQM is regarded as a "*philosophy*". A number of authors, while not offering their own definition/suggestion [Bright and Cooper (1993); Sinclair and Collins (1994) and Mohrman et al (1995)] have commented to the effect that it is now generally recognised that in broad terms TQM, at its highest level, is a *philosophy of management*.

Examination of these definitions/suggestions also suggests that TQM has a number of broad roles. The most prevalent roles appear to be:

- delivering quality products and/or services,
- providing or ensuring customer satisfaction and
- providing the organisation with the ability to undertake continuous improvement.

Though a number of the definitions/suggestions clearly place TQM as an intervention for the management levels in an organisation, further examination of these definitions/suggestions indicates a strong view that the scope of TQM is *organisation-wide*.

Ultimately however, the findings suggest that in spite of the considerable interest in TQM (section 2.4.2), there is no overall consensus regarding what TQM is, in its broadest sense. The definitional detail aside, only the definitions/suggestions provided by BQA and Fisher (1992) can be said to have a consensual grounding. Given the quantity of TQM literature referred to in section 1.1, the findings here also suggest that there is perhaps even a reluctance in the literature to offer definitions of TQM. In this respect, a number of authors [Fisher (1992); Pegels (1994) and Dawson and Palmer (1993)] have pointed to the definitional ambiguity of the term "TQM" itself. Pegels (1994) suggested that the first word "total" is somewhat trite and highlights the question: does quality management mean good management or does it mean the management of quality ?. Fisher (1992) pointed out that the use of the word "quality" is sometimes deliberately avoided by companies in giving their [TQM] approach a name, that it can be misleading because of its strong association with product (rather than process or service) characteristics. Dawson and Palmer (1993) suggested that a number of factors contrive to render it difficult to construct a single definition of TQM. These included: the vested interests of competing consultant groups, the incorporation of service industries, the long-term nature of transformational change strategies, the growth and application of TQM to include cultural and attitude changes, as well as the more conventional application of process control techniques to shopfloor operations.

A number of other authors have either indirectly [Ross and Shetty (1985); Instone and Dale (1989) and Dean and Bowen (1994)] or directly [Lascelles and Dale (1988) and Reeves and Bednar (1994)] suggested that one of the main problems underlying the provision of definitions of TQM is that there is still confusion over the definition of "quality". Ross and Shetty (1985) proposed that given the correlation between quality and success as measured by financial performance, growth and market share, one would expect a greater definition and understanding of quality between company and customer, concluding that part of the problem relates to differing definitions of quality. Having examined the literature themselves, Reeves and Bednar (1994) pointed out that quality has been variously described as *value* [Abbott (1955) and Feigenbaum (1951)], *conformance to specifications* [Gilmore (1974) and Levitt (1972)], *conformance to requirements* [Crosby (1979)], *fitness for use* [Juran and Gryna (Eds.) (1988)], *loss avoidance* [Taguchi cited in Ross (1989)] and *meeting and/or exceeding customers' expectations* [Gronroos (1983) and Parasuraman et al (1985)]. This led Reeves and Bednar to undertake an examination of the strengths and weaknesses of various definitions of quality. They concluded that the search for a universal definition of quality had yielded inconsistent results and that a global definition does not

exist; rather, different definitions of quality are appropriate under different circumstances⁴⁵. Similar views about the definitional ambiguity of quality related concepts led Lascelles and Dale (1988) to conclude that in general the literature does not deal adequately with these terms and definitions, and Newall and Dale (1991) to conclude that there was an urgent need to develop standard definitions of these concepts.

2.6 What is Involved (TQM Components/Elements)

The question, "what does TQM involve in terms of its components/elements ?" is addressed in this section. The non-prescriptive contributions in this branch of the literature are reviewed in sections 2.6.1 to 2.6.2. Review of the prescriptive contributions follows in sections 2.6.3 to 2.6.4.

2.6.1 Review of the non-prescriptive contributions

The non-prescriptive contributions are examined under three headings: empirical or structured interview derivation; questionnaire survey derivation and literature survey derivation. For purely practical purposes, in each section the contributions are reviewed in chronological order. In section 2.6.2 a summary of these contributions is presented which details the broad conclusions reached by the author about the nature of this segment of the literature, and the common findings that are evident within it.

2.6.1.1 Empirical or structured interview derivation

Garvin (1983), GAO (1990), IDS⁴⁶ (1990), Johnston and Daniel (1991), Porter and Parker (1993) and Mann and Kehoe (1994a, 1994b), examined the components/elements of a TQM approach empirically or through structured interview technique. In each case the main findings and where given, the main conclusions, are presented together with the study's main limitations.

Garvin (1983) studied the quality practices of all but one of US and Japanese manufacturers of room air-conditioning units. That is to say, a sample size of fifteen companies. This industry was chosen by Garvin because it contained companies of varying size and character, its products are

⁴⁵However, these authors also suggested that although most operations management scholars continue to focus on a conformance-to-specifications definition of quality, the meeting-and/or-exceeding of customer expectations definition of quality was now widely accepted.

⁴⁶Incomes Data Services Ltd.

standardised which facilitated inter-company comparisons, and it employed a simple assembly line process which was representative of many other mass production industries. The methodological format of the study was the administration of a questionnaire requesting background information, followed up by visits to all of the companies in order to review the questionnaire results, collect additional information, tour the factories and conduct interviews with key personnel, and finally a second questionnaire to fill any gaps and make the data more comparable. Garvin acknowledged that the interviews were open-ended and unstructured, though he suggested that similar questions were posed at each company. Garvin identified five areas of effort and practice employed by the quality leaders: (1) programs, policies and attitudes; (2) information systems; (3) product design; (4) production and workforce polices and (5) vendor management. Garvin's main conclusion was that the "quick fix" approach provides few lasting gains and instead, what is needed is a long-term commitment to these five fundamental areas of effort.

At the request of US Congress, the US General Accounting Office undertook a study [GAO (1990)] to examine the impact of formal total quality management practices on the performance of selected US companies. The sample studied was twenty companies that were among the highest scoring applicants in 1988 and 1989 for the Malcolm Baldrige National Quality Award. The information was collected through on-site visits and the examination of supporting company documentation. In addition, the examination was guided by a general framework developed through a comprehensive review of quality management literature and interviews with experts from industry, professional and trade associations, universities and government agencies. The study's main conclusion, as was reported in section 2.4.3, was that adopting TQM as a method for conducting their business had a positive effect on key areas of the organisations' corporate performance. In addition, the study concluded that the diversity of companies studied showed that TQM is useful for small companies (not more than 500 employees) as well as large (500 or more employees) and for companies that sell services as well as for companies that produce and sell manufactured goods. The study identified six consistently appearing (shared) interrelated features of the twenty TQM approaches that were deemed to have contributed to the improved performance. These were:

- a. corporate attention that focuses on meeting customer quality requirements;
- b. management that leads the way in disseminating TQM values throughout the organisation;
- c. employees that were asked and empowered to continuously improve all key business processes;
- d. management that nurtures a flexible and responsive culture;
- e. management systems that support fact-based decision making and
- f. partnerships with suppliers that improve product or service quality.

A number of practices typifying these common features were also identified by the study, though these were acknowledged by the authors as being broader generalisations.

In 1990, IDS undertook a study to examine the main elements of TQM theory and practice [IDS (1990)]. The study drew on the experience of five large companies that had adopted the total quality approach to quality management. These companies were identified through IDS's Record Section. The study proposed that in its most advanced form, TQM 'seeks to create a culture whereby all employees are continually examining and improving the organisation of their work with a view to constantly satisfying changing customer requirements'. Though IDS asserted that the list should not be considered comprehensive, the study identified five typical elements of a total quality approach. These were: (1) training; (2) teamworking; (3) quality organisation; (4) application of statistical methods and problem-solving techniques and (5) identifying the customer. The study findings suggested to the IDS authors that the creation of a full-blown total quality programme required the full commitment of management and a potentially massive commitment of resources, with much of them required before the programme has even begun. All five organisations emphasised that implementing a meaningful quality programme was a long-term process, taking anything between five to ten years from introduction to maturity, that while elements of TQM can undoubtedly be adopted on a site or local basis, corporate-wide commitment is then vital if it is to be sustained. Though the small relative sample size of five organisations is an obvious limitation of IDS's study, the five organisations were all well recognised examples of successful TQM companies. The main limitation of the study was that the investigative methodology was not described in detail, leaving open to question the exact source of the information in all five cases, and also the homogeneity of investigation between the five companies.

Johnston and Daniel (1991) reported a study jointly sponsored by the *Conference Board of Canada* and *Industry, Science and Technology Canada*, to investigate the TQM practices at leading international firms. The study brought together senior managers from a diverse group of Canadian companies who spent over a month studying (through on site company visits) how fourteen leading companies from USA, Germany, England and Japan derived a competitive advantage through the skilful application of TQM. The companies were selected on the basis of their outstanding achievements in TQM, which in many cases had been recognised with a quality award⁴⁷. The main

⁴⁷A listing of the fourteen companies was not provided, however, the companies cited in the report when giving examples of the findings would suggest that the sample were recognised leaders in the field.

conclusion from the study was that competitive success can only be achieved by organisations able to create a management system that focuses all resources on delighting customers. Secondly, that there was no one answer and no set of instructions for such a management system. The study suggested that TQM is a state of mind that finds its ultimate success in the whole organisation's willingness to change, in some cases to cast out old ways of managing and working, and to view satisfying customers' needs as the determinant of good decision making. Despite their acknowledgement that there were many differences in implementation strategies, the study claimed to identify five basic emergent themes:

- a. quality must be defined by the customer not the supplier;
- b. designing the integrated management system, ensuring that customers' requirements are the driving force for the organisation and aligning the company's resources to those needs are the responsibility of the organisation's senior management;
- c. recognition that employees are the major source of competitive advantage and that the greatest waste is employee contributions that are lost because of the organisation's failure to tap the potential of its employees;
- d. continuous improvement of processes must be sought on an individual basis, within functions, and across functional and company boundaries;
- e. it is only through the integrated efforts of all employees and departments that the goal of satisfied customers will be realised and
- f. forming alliances with vendors and distributors to ensure the joint continuous improvement of what they offer to customers.

Unfortunately the report provided little indication of the components/practices that support these themes, other than ad hoc examples. Further, the main limitation of the study, acknowledged by the authors, was that during the tour (a) the participants, in small teams, focused their attention on particular aspects of TQM, and (b) whilst each of the companies studied took the participants through the route toward total quality, each organisation tended to focus on a different aspect of its initiative. Hence, though the assessments were pooled through focused sessions in order to draw generalised lessons, question marks must remain over the actual level of consensus of these findings.

Porter and Parker (1993) undertook a study to evaluate the experiences of a range of organisations against a set of eight pre-defined factors in an attempt to derive the critical factors necessary for the successful implementation of TQM. A structured in-depth interview technique, conducted with the 'board member responsible for quality' was used in preference to a postal questionnaire. The

sample of ten organisations were selected at random from the University of Bradford Management Centre's database of organisations having attended TQM courses at the Bradford Management Centre. The authors concluded that the findings demonstrated that the eight factors: (1) necessary management behaviours, (2) a strategy for TQM implementation, (3) organisation for TQM, (4) communication for TQM, (5) training and education, (6) employee involvement, (7) process management and systems and (8) quality technologies, were indeed all critical to the successful implementation of TQM. The two main limitations of this study were acknowledged by its authors. Firstly, that their review of the literature which led to the identification of the eight pre-defined factors to be qualitatively tested, had been based mainly on a series of case studies which were heavily influenced by the ideas of the quality gurus. Secondly, that having conducted the interviews, the authors concluded that only five of the ten organisations were actually considered to be implementing TQM.

Mann and Kehoe (1994a, 1994b) reported the results of their study which aimed to identify the most commonly used quality improvement activities of TQM. The study sample comprised twenty one TQM organisations in which structured interviews were undertaken. It appears that these companies were chosen from within a previously constructed sample of 120 manufacturing companies selected through publications. The authors reported that all of the twenty one organisations selected had reported that they had been implementing TQM for at least two years, and that this was important as these companies were likely to be experienced with regards to implementation and the effects of TQM on business performance. It appears that the first stage in the research was the identification of sixty five quality activities, for which the frequency of use was then assessed. Eleven "quality activities" were found to be used by all of the sample. These were: strategic measures; sampling; inspection; business plan/targets/goals; deploy via organisational structure; quality policy; quality manual; procedures; internal audits; quality awareness programme and customer complaint information. As reported in Mann and Kehoe (1994a), the study then attempted to assess the effects of the 65 quality activities on two categories of measures which the authors termed strategic business performance (SBP) and operational business performance (OBP). It would appear this was done in order to identify their relative criticality. Here, two sets of findings were reported: those derived through interviews with the 21 organisations as above, and those derived through a postal questionnaire survey. From their findings the authors reached few conclusions, other than proposing that the research had shown that all the quality activities, particularly TQM, had beneficial effects on business performance. Unfortunately the findings presented and this conclusion appear to be at odds. From the postal

questionnaire survey, the authors reported that in terms of improving strategic business performance, nine of the quality activities were all found to have a positive effect, and in terms of improving organisational business performance, six quality activities were found to have a positive effect. The reported findings of the structured interview component of this investigation failed to add any more clarity in terms of quality activities key to strategic business performance, and appear to provide only a non-consensual picture of quality activities key to organisational business performance. This may explain why the outcome of the study reported was the presentation of a TQM quality activity model with the 65 quality activities classified by the OBP element they primarily aim to improve as perceived by the authors (it appears). The authors proposed that the model provided an important guide to the expected effects of the 65 quality activities and hence would assist organisations in the selection and targeting of quality activities to specific problems and opportunities, however, the model only distinguished "importance" between the quality activities on the basis of the original frequency of use findings, for which the authors themselves noted in (1994b) that 'high use' quality activities do not necessarily imply 'key quality activities'. In addition to the inconclusive overall findings of this study, the findings derived through the questionnaire survey component should be treated with caution. This is because the findings were pooled findings from two samples, the sample referred to above for which 69 responses were received and of which 46 companies claimed to have implemented TQM, and a second 'random' sample of 142 responses of which only nineteen companies had claimed to have implemented TQM. The study causes further confusion in that "TQM" itself was defined as a quality activity to be rated against other quality activities, despite the conclusion of the study being the presentation of a model comprising the most common quality activities of TQM.

A major strength of the studies reported by IDS (1990), GAO (1990) and Johnston and Daniel (1991) is that in all three cases the sample studied comprised companies known to have been consciously pursuing and successfully executing a TQM approach. However, it appears that there has been little empirical or structured interview investigation based on a sample of multiple organisations of the components/elements of the TQM approach. As far as it has been possible to examine the literature, the author was able to locate only these six studies in this respect.

2.6.1.2 Questionnaire survey derivation

van der Wiele et al (1990), Lascelles and Dale (1990a), A.T. Kearney and The TQM Magazine (1991), Benson (1992), Anon (1993a), Mohrman et al (1995), Wilkinson et al (1995), Powell

(1995), Ho and Fung (1995) and Radovilsky et al (1996), examined the components/elements of a TQM approach through the conduct of a survey. The main findings and any conclusions drawn by these surveys are reviewed below. The main limitations of these surveys are also highlighted.

In 1990 a questionnaire survey was conducted to establish the TQM training and research needs of European businesses [van der Wiele et al (1990)⁴⁸], commissioned by the European Commission and supported by the European Foundation for Quality Management (EFQM). As part of the study the authors tried to find out what TQM means to an organisation. Five different samples comprised the database for the survey, these choices made purely on the basis of accessibility of company contact name and address. The authors acknowledged that with the benefit of hindsight the method of sampling could have been improved, but argued that the lack of sampling rigour was compensated by the diversity of company respondents. 358 responses were received to the questionnaire, more than half of these from the third sample (the largest 1000 companies in the Netherlands based on number of employees). As such, the familiarity and experience with TQM of a large proportion of the overall sample is unclear. In the first instance the target sample was asked to rank a list of factors on a five-point importance (Likert) scale. All fifteen factors were ranked as of more than average importance. van der Wiele et al's main conclusions with respect to this aspect of the study were that satisfying external customers is what TQM means to most organisations, followed by: reducing costs, partnership between an organisation and its customers, each person satisfying their internal customers and employee involvement and development.

During their research into the quality improvement process in British manufacturing industry, Lascelles and Dale⁴⁹ found that those companies which had achieved success [with TQM] had three common characteristics. Firstly, they had clearly defined and articulated quality improvement policies and objectives; secondly, quality improvement was seen as part of a general company-wide improvement process and strategy and not a stand-alone programme and thirdly, they had effective leadership from the chief executive. (Unfortunately the original source of these findings⁵⁰ and therefore more detailed findings and the conclusions drawn by the authors, was unobtainable.)

A 1991 study [A.T. Kearney and The TQM Magazine (1991)] concluded that companies which

⁴⁸also reported in Dale et al (1993).

⁴⁹reported in Lascelles and Dale (1990a).

⁵⁰Lascelles, D. M., A Study of Quality Improvement in UK Manufacturing Industry, PhD Thesis, School of Management, UMIST, 1988.

practise Total Quality successfully shared four broad common characteristics:

- an emphasis on tangible results;
- an insistence on performance measurement;
- an integrated programme and
- a clear commitment from top management.

Various "contributing sub-factors" were also reported. These findings were based on comparison of those organisations in the sample that had reported that they had achieved a significant improvement in performance over the last twelve months (20 percent), against those who either provided no information on performance (50 percent) or did not report any improvement (30 percent). Unfortunately, no indication was given of how the companies were selected for the study, or whether or not they even considered themselves to be practising or implementing a total quality approach. Hence, no indication was given as to whether there was a correlation between the companies registering improvement and TQM companies. Further, the respondent sample size was omitted from the report. A similar survey [Anon (1993a)] conducted in 1993 which attempted to evaluate the importance of thirteen organisational factors critical for a successful TQM implementation, reported that the respondents (North American and European executives) rated: (1) customer focus; (2) leadership commitment; (3) vision/values; (4) training; (5) communication and (6) empowerment, as the most important top six. This study reported to have surveyed 7,000 people from more than 500 organisations, however, it is not made clear if these figures reflected the target sample or the response sample (the author suspects the former). Unfortunately few, if any, methodological details about surveys such as the two described here are available to the readers of the reports of their findings. In this respect, it is the author's view that such reports have only served to further cloud the understanding of TQM.

Benson (1992) reported results from the International Quality Study (IQS)⁵¹, which claims to have drawn on the experiences of over 500 companies. In attempting to discern the important and key components/quality practices of the TQM approach, the analytical structure adopted by the IQS study team was designed to show which practices [within 92 different assessment areas] impacted on three performance criteria: profitability; productivity and quality. Study participants were separated into three strata: low, medium and high performers based on their current positions. Examination of the database derived led the IQS study team to conclude that TQM is a

⁵¹A joint research effort launched by the American Quality Foundation and Ernst & Young, claiming to be the first known attempt to assess the level of quality practices across industries and across national borders. In so doing it has examined management practices across four countries - Canada, Germany, Japan, and the US, and within four industries - automotive, banking, computers and health care.

management system that must be designed and installed based entirely on the unique challenges a company faces. That is to say, that the appropriate components/practices are dependent on its current performance position. According to the IQS study team: survival for *low* performers depends on staying focused on the fundamentals, by using practices that build the organisational capacity to develop and deliver reliable products and services; for *medium* performers there appeared to be only a handful of practices that affect performance, however a focus on processes and measurement provides the leverage for improvement; and *high* performers have the latitude to benefit from a variety of progressive management techniques. (Thirteen, nine and twelve practices respectively, to engage in for immediate impact, were proposed.)

Mohrman et al (1995) reported the findings of a questionnaire survey to examine the pattern of use of TQM practices in the largest US firms. Conducted in 1993 the survey was mailed to the companies listed in the 1992 Fortune 1000 listing of the 500 largest service and 500 largest industrial companies in the USA, and a response rate of 29 percent was obtained, with a roughly equal representation between the service (45 percent) and manufacturing (55 percent) companies. Mohrman et al's main conclusion was that various practices are used to differing extent. Mohrman et al reported that the study suggested two major clusterings (non-statistical) of TQM practices. The first contained seven *core practices* which were being applied in all kinds of work settings and according to the authors were equally applicable and extensively applied in both service and manufacturing settings. These were:

- quality improvement teams; quality councils; cross-functional planning; process re-engineering; work simplification; customer satisfaction monitoring and direct employee exposure to customers.

The second contained four production-oriented practices deployed primarily in manufacturing settings with some application in through-put oriented administrative and service settings. These were:

- self-inspection; statistical control methods; JIT deliveries and work/manufacturing cells.

Two other practices, namely cost of quality monitoring and collaboration with suppliers, were deemed not to fit either of these clusters. These findings were derived through an assessment of the percentage of employees covered by the practices in each of the organisations that reported they had a TQM programme in place (73 percent of the respondents). These thirteen practices however were pre-defined by the investigating authors. The only indication given as to the means of their identification was that they were commonly included in the practices that companies refer to as TQM. According to the authors, "these practices include some which are encountered in most

organisations using TQM and others which are representative of the variety of practices employed". As such, the findings cannot be considered as truly representative of the key components of a TQM approach.

Wilkinson et al (1995) reported the findings of a British Institute of Management sponsored survey which aimed to provide a full picture of TQM and its operations in the UK. The survey sample was drawn from managers who were members of the then British Institute of Management, and usable responses were received from 880. This represented a response rate of 22 percent⁵². Part of the study examined the approaches to quality management that were being adopted by the respondents' organisations. Based on the percentage of respondents reporting usage within their organisations, the study indicated a number of practices pertinent to a TQM approach, though it should be pointed out that the identification of the elements comprising a TQM approach was not the stated aim. Practices claimed to be in use by more than 40 percent⁵³ were: quality circle/quality action teams; quality improvement projects; customer satisfaction surveys; customer needs survey; quality awareness training; customer care training; mission statement and quality steering group/committee. Based on a low reported level of usage within the sample, the findings question the applicability of: quality days; competitive benchmarking; JIT and SPC. Seventy one percent of the respondents had reported that their organisations had implemented a formal quality management campaign.

Powell (1995) examined the salient elements of the TQM approach through the administration of a survey to northeastern US businesses. The survey was designed to test twelve hypotheses, each relating to one of twelve variables which were considered by Powell to collectively represent a 'complete TQM programme' and were derived, according to Powell, through review and integration of the TQM literature. Forty seven measurement items were derived covering the twelve variables, and each hypothesis took the following form: *TQM performance is positively associated with [factor n]*. The survey instrument also requested perceptual data (a) rating the respondents' companies overall performance over the previous three years, and (b) rating how their TQM programme had impacted performance. From a total of 166 mailed surveys, thirty nine responses were received from organisations who indicated they had made a significant commitment to TQM. Based on analysis of these responses, Powell (1995) concluded that TQM success appeared to

⁵²The authors reported that the majority of the respondents described themselves as either board or senior management, and in terms of job function there was a fairly even spread across the various management functions.

⁵³this figure arbitrarily set by the author for the purpose of illustration.

depend critically on (1) executive commitment, (2) open organisation and (3) employee empowerment, and less upon such TQM staples as benchmarking, training, flexible-manufacturing, process improvement and improved measurement. Only three hypotheses, relating to the former three factors were supported conclusively. This led Powell (1995) to further conclude that though tools, such as the latter, may be indispensable to a fully-integrated TQM initiative, they apparently do not produce performance advantages in the absence of certain tacit, behavioural and imperfectly imitable features of TQM (such as the former).

Ho and Fung (1995) examined the saliency of ten pre-defined elements deemed to represent a TQM approach through a survey administered to a sample of 1800 BS5750 registered UK companies, as part of their development of a TQM excellence model. The authors reported that of the 110 manufacturing and 51 service organisations responding, over half claimed that they practised TQM. The findings led the authors to conclude that all ten elements: leadership, commitment, customer satisfaction, continuous improvement, total involvement, training, ownership, reward and recognition, error prevention and teamwork, were equally important to successful TQM. However, no indication was given as to the ten factors original means of identification.

In response to their perception that previous surveys undertaken to identify the critical [factors] of TQM had shed little light on the relationships between different factors involved and TQM results⁵⁴, Radovilsky et al (1996) undertook a study of their own in an attempt to identify relationships between quality improvement and various internal factors associated with TQM, and in order to estimate the likelihood of quality improvement occurring based on those factors. Responses to a questionnaire survey inquiring about "different aspects of implementing TQM programmes" were received from 236 respondents, the majority of which (68 percent) were in a manufacturing industry. According to the authors, most of the questionnaires were completed by quality control professionals/managers. The article implied that all the companies were considered to have a TQM programme, however it appears that this was based purely on the authors post-survey judgement. Despite their argument above, these authors nevertheless did report their own qualitative findings, concluding that the successful implementation of a TQM programme should include:

- the generation of timely and reliable information on the results of implementing TQM;

⁵⁴the basis of their argument appears to be that most of the results of "previous surveys" were qualitative, and therefore the analyses of their results, and conclusions and recommendations based on those analyses, were simply rationally derived with a basis in common sense.

- consistent training in TQM issues for all employees and managers, with applications reflecting the company's actual processes;
- a re-evaluation of existing methods of communication between departments implementing TQM and
- the development of standards to measure and control the cost of quality.

Unfortunately, their main conclusion offered little guidance concerning the relative importance of the factors. This was that *"for successful implementation, management must recognize and implement consistently the whole range of the principles and elements associated with TQM"*. Using 101 independent variables (or predictors), and five dependent variables⁵⁵ provided by the survey data for correlation and regression analysis, the authors further concluded that many independent variables need to be combined to produce a successful implementation of TQM. A number of the leading predictors of a successful TQM implementation were presented.

2.6.1.3 Literature survey derivation

Saraph et al (1989), Bossink et al (1992), Pegels (1994), Kasul and Motwani (1995) and Ahire et al (1996) adopted the approach of using the existing literature to derive the salient components/elements of a TQM approach. Many descriptions of the components/elements of a TQM approach are to be found in the literature. It could be argued that many of these constitute derivations from existing literature⁵⁶. However, the five contributions reviewed here differ from the many, in that they are clearly purposeful attempts to derive the salient components/elements, rather than just contributions pieced together in order to provide an illustrative description of the components/elements of TQM that is "typical" of publication in this area.

Saraph et al (1989) concluded from their own review of the quality literature that there had been no systematic attempt to organise and synthesize the various sets of critical factors identified by different authors, nor had measures of overall organisational quality management or of any individual critical factor been proposed⁵⁷. Based on their own thorough review and synthesis of the quality literature, Saraph et al identified eight critical areas of managerial planning and action (or factors) that they proposed must be practised to achieve effective quality management in a

⁵⁵reduction of errors/defects; decrease of customer complaints; growth of productivity; increase in profits and decrease in cost of quality.

⁵⁶a number of the more holistic such contributions are reviewed in section 2.6.3.

⁵⁷the relevance of the latter of these two conclusions is revisited in section 2.10.1.

business unit. The factors were: (1) the role of management leadership and quality policy; (2) role of the quality department; (3) training; (4) product/service design; (5) supplier quality management; (6) process management; (7) quality data and reporting and (8) employee relations. The factors were derived through a process that involved identification and synthesis of those critical requirements for quality management that had been prescribed by eminent quality practitioners and academics. These authors argued that the strength of their contribution was that the review focused on literature that addressed quality management from an organisation-wide, managerial point of view.

A commercial need presented to them by the DAF company led Bossink et al (1992) to attempt to gain a clearer understanding of the subject of TQM. The commercial need was to enable an assessment of TQM's role in the formulation of long-term quality objectives. In response, based on an extensive literature study Bossink et al distinguished eight basic elements of TQM: totality; line-staff relationship; technological perspective; cultural implantation; management commitment; upstream emphasis; market-in approach and integration. In order to operationalise these eight basic elements for practical purposes the authors identified 63 concepts, methods and techniques. Further, based on the quality management model of another author, Vorstman (1990), these 63 concepts, methods and techniques were allocated amongst four categories of application areas: primary activities; supporting activities; conceptual/regulatory activities and top-management activities. According to the authors, the literature study included both basic articles on the concept of quality as well as the "latest state-of-the-art" publications. Bossink et al suggested that an organisation wishing to formulate quality objectives could adopt the generalised basic elements as a starting point, then by taking the specific and less-specific characteristics of the organisation into account, concrete quality objectives could be derived. However, as these authors acknowledged, neither the relative importance nor the relationship between the concepts, methods and techniques was represented in the resulting "model".

Unlike the previous two contributions, Pegels (1994) drew on literature with a much more 'practice based' grounding. In an attempt to determine what TQM was on the basis of recent American industry practice, and hence to "give some structure" to the area, Pegels conducted a study, review and analysis of the TQM activity of twenty four recognisable total quality organisations, as reported by these organisations in a variety of documented interviews and reported in detail by a number of business publications. No indication of exactly how the organisations studied were chosen was given, however the organisations listed are generally regarded to be successful

organisations engaged in a TQM approach. Based on the aggregate picture, Pegels developed/defined seven improvement tactics. These constituted short-term strategies that could be employed with minimal preparation or alternatively could be summarily suspended. In addition, Pegels identified ten improvement strategies. These constituted long term approaches that the firm could follow in order to achieve its long term objectives. The more frequently occurring tactics were⁵⁸:

- encourage and develop teams to identify and solve problems and
- benchmark every major activity in the organisation to ensure that it is done in the most efficient and effective way.

The more frequently occurring strategies (see previous footnote) were:

- maintain continuous contact with customers to understand and anticipate their needs;
- develop loyal customers by not only pleasing them but by exceeding their expectations;
- focus on quality, productivity and profitability and
- focus on quality, timeliness and flexibility.

Pegels concluded that quality was by no means the only focus of TQM. Equally important he proposed were important performance factors such as productivity, timeliness, flexibility and profitability. However, as Pegels acknowledged, since the various reports surveyed only showed highlights of what each firm was doing, the picture presented for each firm was therefore not necessarily complete. As such, the aggregate picture he proposed should also not be treated as a comprehensive picture⁵⁹.

Kasul and Motwani (1995) undertook a review of the literature in order to identify critical factors and supporting measurements of TQM in manufacturing environments. Based on their examination and through a judgemental process of grouping similar TQM requirements, Kasul and Motwani proposed eight critical factors and 47 specific [activity related] performance measurements supporting these factors. The eight factors were: management commitment; quality; equipment/technology; customer service; facility control; lead time; value-added analysis and material policy. However, it should be pointed out that the review, though appearing to be extensive from the references cited, drew on both the quality literature and the world-class manufacturing management literature. This is clearly indicated in the eight critical factors.

⁵⁸in which more than 25 percent of sample were engaged for the purpose of illustration.

⁵⁹It would appear that Pegels acknowledged this limitation, through his statement: "*the aggregation and evaluation of all of the individual reports should provide a good 'overview' of the practices of TQM*".

Like Saraph et al (1989), Ahire et al (1996) proposed that the contemporary quality management literature primarily prescribed various quality improvement strategies, but that it lacked scientifically developed and tested constructs that represent an integrative philosophy. In response, Ahire et al (1996) undertook a thorough literature review (in quality management, organisational behaviour and general management theories), in order to identify the theoretical constructs of integrated quality management strategies. Twelve constructs were identified. For each construct a set of representative items were also identified. The constructs were subsequently tested through a questionnaire survey instrument. This was administered to representatives of the motor vehicle parts and accessories industry (SIC3714), and was followed by scale refinement and validation procedures using confirmatory factor analysis. The authors concluded that they had developed a reliable and valid instrument for measuring various quality management constructs that affect product quality. The twelve constructs were: top management commitment; customer focus; supplier quality management; design quality management; benchmarking; SPC; internal quality information usage; employee empowerment; employee involvement; employee training; product quality and supplier performance.

As was mentioned earlier, these five contributions do represent purposeful attempts to use existing literature to derive the salient components/elements of a TQM approach. However, only the contributions of Saraph et al (1989), Kasul and Motwani (1995) and Ahire et al (1996) provided (a) a reasonably clear indication of the magnitude of the literature sample reviewed and (b) a good indication of the composition of the literature sample reviewed.

2.6.2 Summary of non-prescriptive contribution findings

Twenty one non-prescriptive contributions to the TQM literature which have genuinely attempted to ascertain the components/elements of the TQM approach were identified and reviewed. Of these, six were considered to be empirically based or based on structured interview technique, ten used the format of a questionnaire survey and five derived their findings from a literature survey.

Six of the contributions either solely or primarily describe the components/elements at the "activity" level. However, only three of these have clearly attempted to derive the salient activities by taking a holistic view of the possibilities. Eleven of the contributions primarily describe the components/elements at a more "general/abstract" level. Nine appear to have clearly attempted to derive the salient components/elements by taking a holistic view of the possibilities. Five of

these nine contributions have to varying degrees included supporting activities in their reports, but only on a very ad hoc basis for the purpose of providing "examples". Four of the contributions identified the components/elements equally at both the "activity" and "general/abstract" level, with only two of these clearly deriving their findings on the basis of a holistic view.

Eight of the contributions in some way attempted to assess the relative importance of the components/elements, though in four of these cases this was done only on the basis of the relative frequency of use, that is to say, relative importance was not linked to positive performance impact. Only six of the contributions drew on a sample of greater than one hundred. One contribution drew on a sample of thirty nine, and for all others that quoted the responding sample size (five), the sample size was less than twenty five.

The various limitations of the individual studies and the weaknesses of the overall non-prescriptive contribution as described above aside, a number of conclusions about what is involved in the TQM approach in terms of its components/elements based on this segment of the literature can be discerned. At the "general/abstract" level, broadly speaking the findings of the three types of non-prescriptive contributions are supportive of each other.

A close examination of the findings of the contributions that have reported primarily at the "general/abstract" level⁶⁰, suggests that core salient components/elements of the TQM approach are:

- **customer focus** [GAO (1990); Johnston and Daniel (1991); Garvin (1983); van der Wiele et al (1990); Anon (1993a); Bossink et al (1992); Pegels (1994); Ho and Fung (1995) and Ahire et al (1996)]
- **management leadership** [GAO (1990); Johnston and Daniel (1991); Lascelles and Dale (1990); Porter and Parker (1993); Saraph et al (1989); Bossink et al (1992); Ho and Fung (1995); Powell (1995); Kasul and Motwani (1995) and Ahire et al (1996)]
- **employee involvement** [GAO (1990); Johnston and Daniel (1991); van der Wiele et al (1990); Porter and Parker (1993); Saraph et al (1989); Ho and Fung (1995); Powell (1995) and Ahire et al (1996)]
- **information sharing** [GAO (1990); Garvin (1983); Anon (1993a); Porter and Parker (1993);

⁶⁰N.B. the analysis presented is based on an examination of the findings for both explicitly suggested components/elements and clearly implied components/elements. However, only the specific contributions that explicitly defined the element/component are shown in brackets.

Saraph et al (1989) and Ahire et al (1996)]

- **supplier management** [Garvin (1983); van der Wiele et al (1990); Saraph et al (1989) and Ahire et al (1996)] or **partnerships** [GAO (1990) and Johnston and Daniel (1991)].

The evidence also suggests that the following are other probable components/elements:

- **continuous improvement philosophy** [GAO (1990); Johnston and Daniel (1991); van der Wiele et al (1990); Bossink et al (1992) and Ho and Fung (1995)]
- **quality improvement and business process integration** [GAO (1990); Lascelles and Dale (1990) and A.T. Kearney and The TQM Magazine (1991)]
- **quality policy/planning and company planning⁶¹ integration** [GAO (1990); Lascelles and Dale (1990); Porter and Parker (1993) and Bossink et al (1992)]
- **process management philosophy** [van der Wiele et al (1990); Porter and Parker (1993) and Saraph et al (1989)]
- **internal customer-supplier concept** [GAO (1990); van der Wiele et al (1990) and Bossink et al (1992)].

However, the non-prescriptive contributions also suggest a number of components/elements whose relevance or applicability remains questionable based on the cumulative findings. These are:

- **product design** [Garvin (1983) and Saraph et al (1989)]
- **innovation focus** [GAO (1990) and Bossink et al (1992)]
- **technological perspective** [Bossink (1992) and Kasul and Motwani (1995)]
- **fact-based information system** [GAO (1990) and A.T. Kearney and The TQM Magazine (1991)].

An examination of the findings of the contributions that have reported at the "activity" level, guided primarily by those that have drawn on large samples, leads the author to the following conclusions.

The evidence suggests that definite "activities" of the TQM approach are:

- **teamworking (local / within function)**

⁶¹ *company planning* refers to: strategic, business and operational planning.

- **cross-functional teamworking**
- **quality improvement project teams**
- **problem solving training**
- **customer satisfaction survey/monitoring**
- **quality systems (e.g. BS5750)**
- **cost of quality monitoring**
- **performance measurement systems**
- **internal (employee) attitude surveys.**

The evidence suggests that probable other relevant supporting activities are:

- **specialized training (e.g. customer care / awareness)**
- **benchmarking**
- **quality steering group/committee**
- **statistical process control**
- **quality circles**
- **supplier quality improvement programmes**
- **employee self-inspection**
- **informal communications programme.**

Overall however, the cumulative evidence leaves a question mark over the relevance of a large number of activities. Examples are: suggestion programmes; recognition systems; reward systems; supplier rating and evaluation; performance feedback systems; just-in-time; vision/mission; policy deployment; process re-engineering; market research; customer complaint monitoring; competitor analysis systems; bonus schemes; quality awards/prizes; employee performance appraisal; quality function deployment; quality days; process analysis and job description. However, an exhaustive listing here would be pointless. In addition, beyond the activities already listed, the vagueness of definition of other activities makes meaningful assessment difficult. As such, it appears that the salient activities of a TQM approach, that is to say the means involved, are not clearly delineated in the existing literature.

2.6.2.1 Review of case study evidence

In addition to the three sources of non-prescriptive TQM element/component evidence described

above, a further non-prescriptive source that exists is the case study literature. In the main, the case study literature appears to have concentrated on large organisations. Descriptions of the TQM approaches adopted by a variety of large organisations can be found in [Kendrick and Heckel (1988); Kennedy (1989); McCormick and Milford (1990); Aly et al (1990); Heath (1990); Nelson (1991); Wetzel and Yencho (1992); Mallinger (1993); Seemer (1993); Hohner (1993); Simmons et al (1995) and Bunney and Dale (1997)]. In most of these cases, the organisations are in the manufacturing sector. Case studies describing the TQM approach adopted by various small to medium-sized enterprises (SMEs) can be found in [Stoddart (1988); Price and Chen (1993); Bilston and Sohal (1995); Ghobadian and Gallear (1996) and Irani et al (1997)]. There is also a body of case study literature dealing with the TQM approaches in service sector organisations [Dawson and Patrickson (1991); Creelman (1991); Robinson (1991); Kane (1992); Watkins (1992); Boaden and Dale (1993); Cowling and Newman (1995) and Lakhe and Mohanty (1995)]. Case studies of organisations in the public sector have also been documented [Thomas (1986); Pasternak and Berry (1994) and Roland et al (1997)]. Oakland and Porter (1994) and Teare et al (Eds.) (1994) have provided compilations of a series of TQM case studies.

From the point of view of understanding what are the salient components/elements of a TQM approach, the single case evidence taken collectively provides a very hazy picture. On examination, it is clear that few of the documented case studies attempt to provide an examination of the full scope of the TQM approach. That is to say, in many cases the evidence presented relates to only certain aspects of the TQM approach employed by the organisation under scrutiny. It appears that this finding may be a consequence of the orientation of the publication in which the particular case is published. A major outcome of this tendency to concentrate on a narrow sub-set of aspects is that where conclusions are drawn by this segment of the literature, they are extremely fragmented.

In light of these characteristics it is therefore extremely difficult to draw any decisive conclusions from the case study literature about what are the salient components/elements of a TQM approach. At best, it was possible from examination of TQM case studies to conclude that collectively, they broadly provide some support for a number of the components/elements that were identified through the multiple organisation studies and surveys and the literature surveys presented in sections 2.6.1.1 to 2.6.1.3.

2.6.3 *Review of the prescriptive contributions*

Many authors have contributed to the literature with their own perceptions of what are the components/elements of a TQM approach. Examination of this segment of the literature indicates that it is dominated by contributions that focus on one or two narrow aspects of TQM. In these contributions the authors make use of fragmentary pieces of anecdotal evidence that they perceive to be relevant, in order to put forward their recommendations about what they perceive are important TQM components/elements. These contributions aside, the remainder of this segment of the literature tackles the subject from a more holistic viewpoint. For the purpose of a meaningful analysis it is these latter type of contributions that are reviewed by the author in the remainder of this section.

In some cases these authors indicate or propose that these perceptions are based on their accumulated experience and observations of TQM in practice [Leonard and Sasser (1982); Sink (1991); Fisher (1992); Hiam (1992); Heilpern and Nadler (1992); Schmidt and Finnigan (1992) and Pulat (1994)]. Examination of their contributions suggests that they are justified in making this assertion. In some cases it is clear that the authors perceptions have been arrived at through their own consultation and synthesis of other authors views/prescriptions or findings [Fisher and Spillane (1991); James (1992); Banker et al (1993); Longenecker and Scazzero (1993); Burr (1993); Spencer (1994); Waldman (1994); Davies (1994) and Goh and Ridgeway (1994)]. In the majority of other cases though it is clear that the intention is to present a holistic view, it is unclear exactly how the authors have arrived at their offering [Pfau (1989); Hill (1991); Dobson (1991); Lee et al (1992); Conway (1992); Daley (1992); Rigg (1993); Baum (1993); Belohlav (1993); Chang (1993); Goodman et al (1993); Wright and Kusmanadji (1993) and Patel (1993)].

The suggestions of these twenty nine prescriptive contributions were examined and summarised and are presented in table 2.6.3 for practical purposes.

2.6.4 *Summary of examination of the [anecdotal/] prescriptive contributions*

Twenty nine prescriptive contributions that have extended beyond the narrow focus that dominates this segment of the TQM literature were located and reviewed. As is indicated by the second column in the table, the contributing authors adopt various approaches (or forms) in which they present their prescriptions.

Table 2.6.3 - Summary of an examination of pertinent prescriptive literature contributions describing the components/elements of TQM

Author	"Form" of the prescription	Suggested components/elements:
<i>Cumulative experience</i>		
Leonard and Sasser (1982)	8 requirements for success	(1) top management's strategic support (open and active commitment to improving quality as a strategic necessity; treatment of quality as an integral part of all corporate review processes); (2) organisational analysis (improvement of managerial ability to analyse the decisions, work flows, and organisational structures that influence product quality); (3) responsibility (improvement of product quality should be the task of everyone in an organisation); (4) open participation (formation of groups who share information, interests, skills, resources and a stake in solving all quality problems); (5) quality calculus (managers should re-examine the calculus by which they measure, estimate and account for quality related decisions); (6) quality assurance and control (well-run quality departments); (7) training and development (employees, suppliers, and even customers require sustained special training that extends far beyond conventional "quality topics" to areas where the leverage of quality is greatest) and (8) personal attributes (managerial style or personal leadership attributes).
Sink (1991)	10 foundational concepts and principles	(1) customer orientation; (2) long-term commitment to the continuous improvement of all processes; (3) success demands top management leadership and continuous involvement; (4) products and services are the result of processes, and all processes are subject to inherent variation; (5) much of the knowledge needed to improve a process resides in the workforce and with the customer, however, only management can make many of the necessary changes happen; (6) responsibility for establishment and improvement of processes lies with management; (7) managers are responsible for the quality of supplier products and services received; (8) establishment of a nurturing, encouraging environment; (9) disciplined organisational goal-setting methodology and (10) a formal, structured process-improvement methodology.
Fisher (1992)	7 key principles + (underpinned by) 7 components	<i>key principles:</i> (1) it is a management philosophy; (2) it seeks continuous improvement in all processes, products and services; (3) it requires understanding of variation; (4) it emphasises the importance of measurement; (5) it requires an understanding of the role of the customer (and supplier); (6) it emphasises the involvement of all employees at all levels and (7) it recognises that management plays the key role. <i>components:</i> (1) commitment of senior management [to the quality way of doing things]; (2) education of senior and middle management; (3) formation of quality council or equivalent senior management group; (4) training of the workforce in concepts and techniques; (5) implementation of a structure or mechanism to assist communication and motivation and (7) ongoing group activities.

Hiam (1992)	12 key components	(1) a clear, compelling vision of what quality means in an organisation; (2) quality plans and a quality planning and management process; (3) company-wide customer focus; (4) innovation in all aspects of the business; (5) employee participation in management and change; (6) healthy competition to improve performance; (7) strong participative leadership from the top of the organisation and through it; (8) dedication to training and learning for both employees and managers; (9) use of teams for many improvement projects; (10) benchmarking against superior role models; (11) measurement of the costs of bad quality and the results of quality improvements and (12) extensive use of process management methods and tools.
Heilpern and Nadler (1992)	6 core concepts + 8 critical success factors for transition to TQM	<i>core concepts:</i> (1) customer/supplier model; (2) process control and capability; (3) management by fact; (4) problem solving; (5) quality economics and (6) employee involvement and teamwork. <i>success factors:</i> (1) tools; (2) training; (3) measurement and information; (4) technical support; (5) communications; (6) recognition and reward; (7) transition management structures and (8) management behaviour.
Schmidt and Finnigan (1992)	8 underlying principles	(1) customer satisfaction; (2) challenging goals; (3) process improvement; (4) continuous improvement; (5) collaboration; (6) culture change; (7) measurement and (8) persistence.
Pulat (1994)	8 pillars constituting an operational definition focusing on implementable attributes of TQM (suggested supporting activities in brackets)	(1) management leadership (regular meetings with customers; regular meetings with suppliers; scheduled and unscheduled talks; active engagement in goal setting, planning and performance reviews); (2) employee involvement (effective suggestions programme; training and retraining and teamwork); (3) focus on the customer (internal customer/supplier concept); (4) fact-based decision making (definition of key performance metrics and routine tracking); (5) continuous improvement (includes activities designed to control and reduce process variability); (6) benchmarking; (7) responsibility for quality at the source and (8) quality function deployment.
<i>Synthesis of others</i>		
Fisher and Spillane (1991)	[not given]	(1) customer partnerships (long term relationship); (2) recognition and reward; (3) formal and structured communications; (4) continuous commitment to quality; (5) top management commitment; (6) training; (7) effective teamworking; (8) project management and (9) project review process.

James (1992)	9 insights and concepts + (underpinned by) 12 QWL ⁶² elements (for continuous consideration)	<i>insights and concepts</i> : (1) management led approach; (2) company-wide scope; (3) everyone is responsible for quality; (4) prevention not detection philosophy; (5) right first time standard; (6) continuous improvement theme; (7) goal to delight the customer; (8) focus on processes and (9) scientific and statistical methodology. <i>elements</i> : vision statement (philosophy and core values); management style; role of trade unions; organisation structure; job design; teamwork (semi-autonomous); problem-solving groups; information system; physical/technical design; harmonization; reward systems; personnel policies; career system; selection system and training orientation.
Banker et al (1993)	[none given]	(1) top management leadership for quality; (2) statistical process control; (3) employee involvement in problem solving; (4) training; (5) improved supplier relations; (6) quality incentives; (7) teamwork and (8) continuous improvement of the work process by all employees.
Longenecker and Scazzero (1993)	6 core attributes	(1) clearly defining what quality is and developing quality standards; (2) conducting quality training for the entire organisation; (3) developing meaningful measurements of quality for both work processes and for each member of the organisation; (4) establishing a system to take corrective action, when product quality problems emerge; (5) employing enlightened management practices to encourage employee involvement and (6) developing an organisational culture and reward system, which instils the belief that quality should be everyone's primary concern.
Burr (1993)	6 common principles	(1) start at the top; (2) require total involvement; (3) focus on the customer; (4) use teams; (5) require training for everyone and (6) use tools to measure and follow progress.

⁶²Quality of Working Life, extracted from Lawler, E. E. (1986), *High Involvement Management: Participative Strategies for Improving Organisational Performance*, Jossey-Bass, Oxford.

Spencer (1994)	7 major components	(1) <i>goal</i> : TQM establishes quality enhancement as a dominant priority and one that is vital for long-term effectiveness and survival; (2) <i>definition of quality</i> : quality is satisfying or delighting the customer. All quality-improvement initiatives must begin with an understanding of customer perceptions and needs; (3) <i>role/nature of environment</i> : Entities previously regarded as outsiders (e.g., suppliers, customers) are now considered part of organisational processes; (4) <i>role of management</i> : management's role is to create constancy of purpose for improvement of product and service, and to create a system that can produce quality outcomes; (5) <i>role of employees</i> : employees are empowered to make decisions, build relationships, and take steps needed to improve quality within the system designed by management; (6) <i>structural rationality</i> : the organisation is re-configured as a set of horizontal processes that begin with the supplier and end with the customer. Teams are organised around processes to facilitate task accomplishment and (7) <i>philosophy toward change</i> : change, continuous improvement, and learning are encouraged. Ideally, all organisational members are motivated to improve the status quo.
Waldman (1994)	8 key elements	(1) upper management commitment to place quality as a top priority; (2) a broad definition of quality as meeting customer's expectations at the least cost, which encompasses all phases of design, production, and delivery of product/service; (3) the institution of leadership practices oriented toward TQM values and vision; (4) the development of a quality culture; (5) involvement and empowerment of all organisational members in co-operative efforts to achieve quality improvements; (6) an orientation towards managing-by-facts, including prolific use of scientific and problem solving techniques such as SPC; (7) the commitment continually to improve employees' capabilities and work processes through training and benchmarking, respectively and (8) attempts to get external suppliers and customers involved in TQM efforts.
Davies (1994)	requirements (5 soft outcomes + 4 hard management necessities)	<i>soft outcomes required</i> : (1) identifying customer/supplier relationships; (2) managing processes; (3) changing the culture; (4) improving communication and (5) showing commitment. <i>hard management necessities</i> : (1) quality systems (e.g. ISO9000); (2) tools and techniques; (3) quality teams and (4) top and middle management commitment.
Goh and Ridgeway (1994)	5 pillars (suggested supporting activities in brackets)	(1) management commitment (quality policy); (2) customer focus (customer surveys and trials; working closely with key customers; competitor analysis; analysis of customer complaints and compliments; trade surveys and trials); (3) quality costs, (4) quality systems and (5) continuous improvement (benchmarking).
Source unclear		

Pfau (1989)	8 key concepts and actions + 6 necessary activities	<p><i>key concepts:</i> (1) long-term perspective; (2) upper management commitment; (3) employ a system approach; (4) training and tools; (5) participation; (6) new measurement and reporting systems; (7) cross-organisational communication and (8) leadership.</p> <p><i>necessary activities:</i> (1) realization that customer satisfaction is key to survival and success; (2) understanding that quality improvement is key to increased customer satisfaction, productivity, and reduced cost; (3) the commitment of a leader to the philosophy of TQM; (4) a change in organisation's culture to accept tenets of TQM; (5) training from top to bottom and with customers and suppliers and (6) the immediate beginning of improvement activities.</p>
Hill (1991)	7 common principles (associated activities in brackets)	<p>(1) quality is defined as conformance to the requirements of the customer; (2) there are internal as well as external customers; (3) appropriate performance measures are used routinely to assess quality of design and conformance and initiate corrective action when performance is below standard; (4) new organisational arrangements are required (top level oversight via steering committee, organised interdepartmental and cross-functional communication, special project teams, teamwork and small group activities for improvement; (5) wider participation in decision-making; (6) an appropriate culture, if everyone in the organisation is to endorse the objectives and routinely follow the procedures of quality management (high-trust social relationships, shared sense of membership, belief that continuous improvement is for the common good, <u>substantial changes in prevailing employment practices regarding low level employees may be needed</u>) and (7) the quality of the final product or service results from every single activity in an organisation (however, as managers have the major responsibility for quality improvement and managerially controlled systems are the prime sources of quality failures, the preceding principles apply <i>a fortiori</i> to managers).</p>
Dobson (1991)	6 key components + other requirements	<p><i>key components:</i> (1) a compelling vision of future success and the path of pursuit; (2) goals reflecting vision attainment for customers, employees and owners; (3) yardsticks for measuring progress; (4) a quality policy that is systematically installed; (5) and-hoc improvement projects and (6) management ownership</p> <p><i>other:</i> teamworking; modification of performance review procedures (to incorporate customer input into the process); top management championing and commitment; middle management commitment (sharing information; delegating authority; facilitating participation); measurement of internal quality (employee surveys); education and training and appropriate performance measures.</p>

Lee et al (1992)	5 principles	(1) strategy formulation at top-management level and deployment throughout the whole organisation; (2) wide range of techniques from traditional inspection and statistical quality control to cutting-edge human resource management techniques such as self-managing teams; (3) quality is operationalised by meeting or exceeding customer expectations; (4) people deliver quality products and/or services and (5) customers are external and internal.
Conway (1992)	core activity + requirements for success	<i>core activity</i> : identifying, quantifying, and eliminating waste in work and work processes. <i>requirements</i> : (1) culture change in which everyone from top management down works as a team; (2) focus on requirements of external customers; (3) training and education to raise the capabilities of all employees and (4) reward.
Daley (1992)	primary focus + 7 basic tenets of its purpose and direction	<i>primary focus</i> : the development of an array of statistical process controls (SPCs) as a means of monitoring and improving organisational productivity. <i>tenets</i> : (1) it is founded on the notion that the customer is the arbiter of quality; (2) emphasis is placed on building quality into the product or service rather than weeding out failures through some form of post-production inspection; (3) it calls for consistency; (4) it emphasises group or team performance rather than individual performance; (5) it is a continuous process; (6) efforts are substantially dependent for their success on the participation of workers and (7) it demands commitment from the organisation
Rigg (1993)	components (hard side + soft side)	<i>hard side</i> : establishing clear cut performance standards [that cannot be compromised]. <i>soft side</i> : (1) internal customer-supplier communications and audits; (2) training; (3) regular management presence on the shopfloor; (4) an incentive system (monetary or otherwise); (5) an internal communication system; (6) a list of company values and (7) a formal discipline system.
Baum (1993)	core element + 6 supporting systems	<i>core element</i> : partnerships between suppliers, employees and customers. <i>supporting systems</i> : planning (the rationale for action); participation (all who should influence or participate are part of the action); accountability (identify who has primary responsibility for results); communication (establish a mechanisms to generate and receive good information for those who need it); review (measurement of progress against objectives) and reward (recognise examples of success or achievement).
Belohlav (1993)	4 actions associated with total quality	(1) distinguishing potential future development; (2) paying strict attention to processes; (3) prioritising and focusing attention on problems and (4) focusing attention on the corporate system.

Chang (1993)	6 essential elements	(1) an unending, intense focus on satisfying the customer; (2) visible, hands-on involvement of senior management; (3) clear communication and deployment of strategic business objectives and priorities; (4) ongoing measurement of critical variables in the business operation; (5) targeted training and empowered involvement of employees at all levels and (6) continuous, systematic improvement of processes used to deliver products and services.
Goodman et al (1993)	3 building blocks	(1) quantifying the bottom-line impact of poor quality and customer problems; (2) identifying quality priorities on the basis of market/revenue impact and (3) continuously measuring performance in each priority area and having management review the results.
Wright and Kusmanadji (1993)	5 key principles + 4 critical requirements	<i>key principles:</i> (1) customer focus; (2) quality is everybody's job; (3) empowerment and leadership; (4) doing things right the first time and (5) continuous improvement. <i>critical requirements:</i> (1) TQM requires a focus on the entire organisation, downplaying the traditional emphasis on individual jobs, while relying on teamwork; (2) TQM requires the integration of all management levels, both horizontally and vertically (employees at all levels need to work on a basis of mutual respect and co-operation, while senior managers have to demonstrate constant strong leadership. Rather than authoritarian, TQM requires an egalitarian management style); (3) the over-riding objective of TQM is to satisfy customers by providing quality products and services (since customer requirements are constantly changing, striving for continuous improvement is fundamental to TQM) and (4) employee involvement and participation is the foundation of TQM.
Patel (1993)	10 basic principles	(1) agree customer requirements; (2) understand and improve customer supplier chains; (3) do the right things; (4) do things right first time; (5) measure for success; (6) continuous improvement is the goal; (7) management must lead; (8) training is essential; (9) communicate more effectively and (10) recognise successful involvement.

For example, eight prescribe "[key] principles " of TQM, five prescribe "[key] requirements [for success]", five prescribe "[key] components", and four prescribe "[key] elements"⁶³. Closer examination however, suggests that in essence there is no meaningful difference between these forms which may provide for a clearer understanding of the subject. Nevertheless, examination does indicate that prescriptively, the components/elements of a TQM approach are foremostly described at the "general/abstract" level. Where components/elements are described at the "activity" level, in the main this is on an example basis for the purpose of illustration. Only a few contributions extensively de-lineate tangible activities.

A close examination of these contributions suggests that the following are important components/elements of a TQM approach:

- **customer focus** (20 authors)
- **employee involvement** (15 authors)
- **continuous improvement philosophy** (15 authors)
- **management commitment** (13 authors)
- **focus on internal communication** (inc. infrastructure/mechanisms) (12 authors)
- **(strong) leadership** (12 authors)
- **company wide (shared) responsibility** (11 authors)
- **ongoing appropriate (performance) measurement** (11 authors).

The evidence also suggests that the following are other relevant components/elements⁶⁴:

- **organisational culture** (change) (6 authors)
- **internal customer-supplier relationships/concept** (9 authors)
- **quality control technologies** (i.e. use of scientific tools and techniques) (8 authors)
- **process focus/management** (8 authors)
- **participative decision making** (6 authors)
- **co-operative supplier relations** (5 authors).

Though the focus appears to be mainly at the "abstract/general" level, the examination of these

⁶³Others are: "pillars"; "concepts"; "tenets" and "building blocks".

⁶⁴due to the nature of prescriptive evidence, the author does not feel it is appropriate to attempt to draw conclusions about the relevance of components/elements on the basis of their absence in the cumulative evidence.

non-prescriptive contributions does suggest the following salient components/elements at the "activity" level: **training; teamwork and reward systems.**

2.6.5 Examination of quality award frameworks

The 1980's saw the birth of three new major Quality Awards: the Malcolm Baldrige National Quality Award (MBNQA); the European Quality Award (EQA) and the Australian Quality Award (AQA). The quality awards provide a universal framework for evaluating and establishing the position of an organisation with regard to key actions and processes that influence the quality of the final offerings and competitiveness (Ghobadian et al, 1994b). The awards help organisations to establish a benchmark from which all future progress can be measured (Ghobadian et al, 1994b). Each award presents its own framework/model. To experienced companies, these frameworks/models provide a sound basis for focusing on the objectives of their quality processes.

These frameworks are prescriptive in terms of the philosophy and values that they expound, and do not stipulate any particular tools, methods, procedures or practices. They do describe elements and desirable behaviours of organisations that exemplify a total quality approach. As such, at the "abstract/general" level (but not the activity level), they provide an alternative view of what are the salient components/elements of a TQM approach. The fourth major recognised quality award is the Deming Application Prize which was established much earlier in 1951 in Japan. The major components and underlying rationale of each framework is briefly reviewed.

The Deming Application Prize [JUSE (1990)] evaluates the operation of an organisation against ten criteria which are sub-divided into sixty four items. The ten criteria are:

- company policy and planning;
- organisation and its management;
- quality control education and dissemination;
- collection, transmission and utilization of information on quality;
- analysis;
- standardization;
- control;
- quality assurance;
- effects and
- future plans.

This framework is centred on the implementation of a set of principles and techniques, such as process analysis, statistical methods and quality circles. The award's stated purpose is to award prizes to those companies that are recognised as having successfully applied company-wide quality control based on statistical quality control, and that are likely to keep up with it in the future. Therefore, most of the criteria are confined to the application of statistical techniques. Even the criteria such as company policy and planning, effects or future plans, are primarily concerned with quality assurance activities and quality results, especially the elimination of defects (Nakhai and Neves, 1994).

The MBNQA framework [NIST (1993)] is based on seven [examination] criteria that are sub-divided into twenty eight items. The seven criteria are:

- leadership;
- information and analysis;
- strategic quality planning;
- human resource development and management;
- management of process quality;
- quality and operational results and
- customer focus and satisfaction.

The rationale for the seven criteria is based on senior executive leadership (the *driver*) being the foundation on which a quality organisation is built and quality results are obtained. According to this framework, information and analysis, strategic quality planning, human resource management and process quality management (the *system*), are company-wide efforts that lead to measurable quality and operational results (the *measures of progress*), which in turn affect customer satisfaction relative to competitors, customer retention and market share gain (the *goals*) (Nakhai and Neves, 1994).

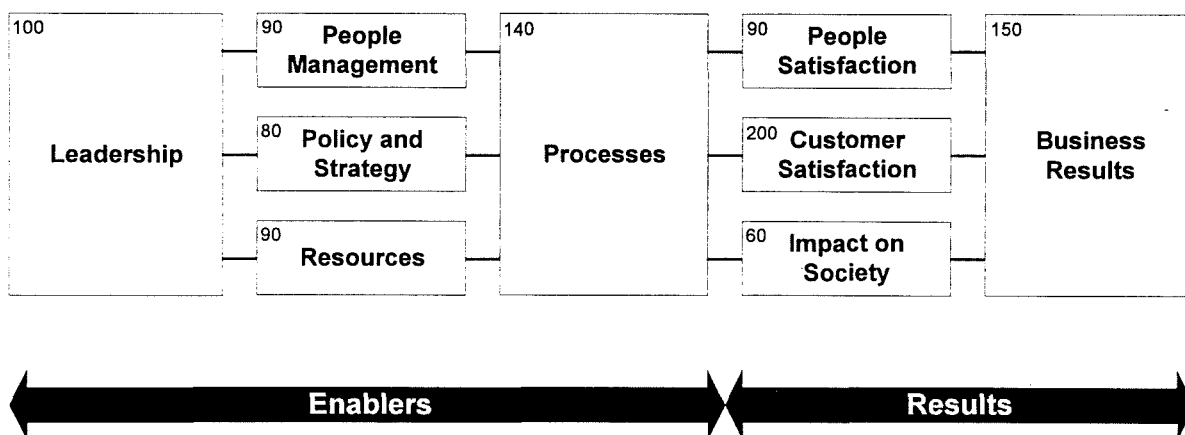
The AQA framework [AQA (1993)] is based on six evaluation categories which are sub-divided into 23 items. The six categories are:

- leadership;
- policy and planning;
- information and analysis;
- people;
- customer focus and
- quality of process, product and service.

Management leadership and customer focus are considered to be the main stimulus in the design of quality-oriented processes and procedures. The model is based on the premise that quality improvement requires an enlightened and influential leadership that drives the programme forward and nurtures an innovative and creative work force capable of meeting customer expectations. The AQA's core concepts and framework are similar to those of Baldrige (Ghobadian and Woo, 1994).

Though prescriptive, the EQA framework [EFQM (1992)] can be considered to be a representation of the salient components/elements of TQM that has been derived on a consensual basis from practical experience, in that it was developed by practitioners from fourteen large European multinational corporations. The EQA framework is divided into two parts: (a) the enablers and (b) the results. The framework is depicted in figure 2.6.5. The "enablers" are policies and processes that drive the business and facilitate the transformation of inputs to outputs and outcomes. The "results" are the measure of the level of output and outcome attained by the organisation. The model consists of nine elements, five are the enablers (which are further divided into twenty four items) and four measures of results. The model recognises that management plays the key role in the development of the structures and infra-structures necessary to enable the organisation to meet its output and outcome goals. Furthermore, the significance of developing human resources, process capability and planning is emphasised (Ghobadian and Woo, 1994). As such, the rationale for the EQA framework is that customer satisfaction, people (or employee) satisfaction and impact on society (the results), are achieved through leadership driving policy and strategy, people management, resources and processes (the enablers), leading ultimately to excellence in business results (Nakhai and Neves, 1994).

Figure 2.6.5 - The European Quality Award (EQA) framework



It is evident that in addition to criteria that are similar to those in the MBNQA and AQA frameworks, three EQA criteria (people satisfaction, impact on society and business results) introduce new elements, and as such represents a radically broader guideline for addressing quality issues. People satisfaction refers to how the employees feel about their organisation, and some of the aspects addressed in this category include the working environment, perception of management style, career planning and development and job security. Thus, the EQA incorporates employee satisfaction as an independent component of the quality system and as a measure of excellence in management. The impact on society criterion focuses on the perceptions of the company by the community at large and the company's approach to the quality of life, the environment and the preservation of global resources. The business results criterion explicitly addresses the financial performance of the company and its market competitiveness and the company's ability to satisfy shareholders' expectations (Nakhai and Neves, 1994).

Discussion and comparisons of the various award frameworks, including perceived relative merits and shortfalls has been given some attention in the literature [Bush and Dooley (1989); Reinmann (1989); Dooley et al (1990); Cole (1991); Boaden and Dale (1994); Nakhai and Neves (1994); Ghobadian and Woo (1996); Zairi and Youssef (1995) and Brown (1997)], as so has the advantages and disadvantages of participating in a quality award programme [Garvin (1991); Collier (1992); Halachmi (1995/96) and van der Wiele et al (1996)]. A salient point that should be highlighted here relates to the process of TQM implementation (discussed in section 2.7). The awarding bodies (with the exception of that for the Deming Prize) generally claim that their models are templates for the implementation of TQM, but to the author's knowledge these have not been empirically tested. As intimated above, it appears that for TQM implementation purposes they offer limited guidance on operationalising any total quality goals an organisation may have identified.

2.7 Process of TQM Implementation

The discussions in the previous section were focused on the components/elements of TQM. Attention is now turned to examination of the literature that relates to the process of TQM implementation. By comparison to components/elements there are less publications in this area, especially in the non-prescriptive (empirical) domain. Again, for the purpose of providing an accurately reflective analysis the author considers it necessary to examine separately the non-prescriptive and the prescriptive literature contributions.

2.7.1 Review of the non-prescriptive contributions

The non-prescriptive contributions are examined under four headings: empirical or structured interview examinations; questionnaire survey examinations; conclusions drawn by other non-prescriptive contributions and case study examinations.

2.7.1.1 Empirical or structured interview examinations

Newall and Dale (1991); Mann and Kehoe (1994c) and Harte and Dale (1995a, 1995b), examined the process of TQM implementation empirically or through structured interview technique. Each is reviewed below and in each case the main findings and, where available, the main conclusions are presented.

As part of a study whose primary aim was to investigate the problems encountered in the introduction and development of a process of quality improvement, Newall and Dale (1991) examined the process of TQM implementation in eight UK organisations. The authors reported that the companies differed in size, ownership, product range, customer spread, competitors and self-perceived strengths and weaknesses, and though precise detail was not provided, it appears that seven were manufacturers and one a service organisation. Data were collected through interviews with company representatives, examination of company reports and published documents, and personal observations made during site visits. Newall and Dale concluded that their research supported the view that, despite the different interpretations and descriptions of the development of the quality improvement process, companies pass through a number of the same discrete phases during the introduction. These six phases were: awareness; education and training; consolidation; planning, problem identification and problem solving; implementation of quality improvement plans and assessment. With regard to the process of implementation Newall and Dale presented few further conclusions⁶⁵, other than that for the process to be effective it is essential that the process is carefully planned beforehand.

Mann and Kehoe (1994c) examined the process of TQM implementation in twenty one UK based organisations. The primary criteria for the selection of these organisations was their level of quality development - they were required to have been using TQM for at least two years. The

⁶⁵other conclusions were presented relating to other aspects of the TQM approaches adopted by the organisations, and these are referred to in the appropriate sections of this literature review.

authors argued that such companies were likely to be experienced with regards to TQM implementation and its effect on business performance. Information was collected through [structured] interviews with the prime steerers and/or implementers of TQM (usually members of the management board). The authors used two prime methods to assist in the analysis of the interviewee responses: (a) data flow diagrams were used to depict how each organisation implemented TQM, supplemented by (b) the compilation of a TQM implementation report for each organisation. The authors concluded that their examination highlighted the variety of TQM approaches that an organisation can use, and that it was evident that there was not an optimum approach. Furthermore, it appeared that approaches that varied from organisations choosing to devise and implement their own approach to others preferring to contact a relevant consultancy to implement an established method could all be equally successful. They also concluded that different TQM approaches bring with them different benefits and problems, and that the success of an approach does depend on many factors. The most common factors identified, because they were cited by more than half of the sample, were: level of quality development; management board's attitude to change; trade union support; employee's attitude to change and middle management's attitude to change. According to the authors, analysis showed that it was the "implementation system" which determined the type of implementation approach. The "TQM implementation system" was classified by the authors into four prime elements:

- the method of steering;
- the type of TQM implementation change agent;
- the TQM implementation driver and
- the TQM implementation and reporting structure.

Mann and Kehoe further reported that it was the steerers of TQM, and/or the TQM implementation change agent, who decide on the rate of implementation, the quality activities to implement and the method of implementation. Overall, for each of the four elements of the "TQM implementation system", they found that a variety of alternative set-ups/approaches were used. Nevertheless, the authors suggested that there were a number of important findings. Firstly, that the method of steering (board steering TQM by existing methods; quality steering team or quality council) was of critical importance to how TQM developed and succeeded. Secondly, quality councils were the most frequently used *implementation change agent*. Thirdly, that because the members of TQM implementation change agents such as quality councils were typically from diverse functions and therefore were unlikely to have a great knowledge of quality activities, it was advisable that a TQM expert/consultant was available for advice and assistance. Fourthly, that in the majority of the organisations the TQM implementation was quality activity driven (*implementation driver*), and

that the most successful quality activity driven approaches occurred when the quality activities and their integration were planned in detail. Mann and Kehoe proposed that the more detailed the planning prior to implementation the greater its understanding by management and the greater the chances of its success. Finally, all companies recommended a gradual implementation approach. The study suggested that on average the planning of implementation took three-quarters of a year, and its implementation 2.8 years.

Harte and Dale (1995a, 1995b) examined the process of TQM implementation in eight professional service organisations, using a semi-structured interviewing methodology. All eight organisations had formally introduced TQM but they were at different stages of their TQM development. The examination was guided by a previously devised framework proposed by Collard (1993). The authors concluded that TQM was appropriate for professional services, but was difficult to introduce because of the autonomous nature of professionals - some of whom may view the concept as patronising. Further, that the basic elements required to develop a strategy for introducing TQM in professional services were: customers, culture and structure; and that to utilise each of these elements, processes had to be developed to suit organisational needs. The study found that a variety of means for launching TQM were used, though most followed the same basic process of: diagnosis; goal determination and implementation. Salient findings of the study relating to the process of implementation were as follows. Firstly, all the organisations had prepared a quality strategy development document. Secondly, during the first diagnostic phase, the senior management team met to discuss and agree the organisation's strategic objectives. Thirdly, when developing their approach for introducing TQM, most organisations did not follow a particular framework or model. Instead, they used a variety of methods developed by themselves or consultants and designed to match their organisational needs. Furthermore, in general organisations attempted to involve all the senior management in the process. Finally, the study found that the manager responsible for facilitating the introduction of TQM was generally from a human resource background. Beyond these generalisations, the main outcome of this study was a long list of do's and don'ts.

Beyond these three contributions, the author was unable to locate other empirically /structured interview based studies that examined the process of TQM implementation in a sample of multiple organisations. One other 'related' study that was located that may be considered to have addressed this issue is that reported by Bessant and Caffyn (1997). It is presented here as a related study, because the focus of the research was on continuous improvement (CI). Continuous improvement

is suggested as a "general/abstract" element of TQM, as was discussed in section 2.6.2. Interestingly, the activities identified within the report as enablers in the implementation of CI closely mirror the activity-level elements of a TQM approach, as discussed in section 2.6.2. Bessant and Caffyn's contribution reported on a five year research programme exploring implementation issues in CI. Based on the cumulative findings from extensive multiple case study research, Bessant and Caffyn concluded that for implementing and sustaining CI each organisation needs to develop its own particular strategy and to make use of firm specific enablers. However, the authors suggested that underlying these firm specific enablers, the process of implementation of CI could be represented as a cyclic learning and development process, comprising seven [sequential] basic sub-cycles within each major cycle. The basic sub-cycles were: (a) preparing the ground; (b) launch; (c) consolidate; (d) focusing CI; (e) spreading the word; (f) devolution of control and (g) development of learning.

2.7.1.2 Questionnaire survey examinations

Despite an extensive literature search, the author was unable to locate any published material that reported examination of the process of TQM implementation through the conduct of a questionnaire survey of a sample of multiple organisations. One related contribution was located, but this concerned implementation, or more accurately development of TQM, from a more macro-level viewpoint. Kim et al (1997) reported that analysis of the quality strategy experience and improvement programmes of thousands of leading firms over a period of ten years, derived from surveys conducted as part of the Global Manufacturing Futures Project (GMFP) indicated the following. That in the development of their total quality approaches, the most successful companies follow a step-by-step course up a "quality staircase", in which each step represents mastery of one critical element of quality. These steps and the associated element of quality were:

- the seven basic quality tools (conformance);
- reliability analysis and design for manufacture (reliability);
- advanced quality tools (performance) and
- quality function deployment (customisation).

2.7.1.3 Conclusions about implementation process drawn by other non-prescriptive contributions

Though the process of implementation was not the central part of the examination undertaken, during the course of their investigations a number of the non-prescriptive (multiple organisation)

studies reported in the literature [GAO (1990), Lascelles and Dale (1990b), Johnston and Daniel (1991), Porter and Parker (1993) and A.T. Kearney and The TQM Magazine (1991)] have indirectly observed and/or drawn conclusions about the process of TQM implementation.

The General Accounting Office study [GAO (1990)] of twenty high scoring Baldrige winners, found that these companies used no "cookbook" approach in implementing a successful total quality management system. Lascelles and Dale (1990b) concluded from their survey of TQM technique usage in the UK automotive supplier industry and other research experiences, that because of the variety of starting points and motivations for quality improvement, it was not possible to identify an implementation plan detailing the order in which techniques should be used⁶⁶. The study jointly sponsored by the *Conference Board of Canada and Industry, Science and Technology Canada* and reported by Johnston and Daniel (1991) found that TQM must be implemented differently in each individual circumstance. Based on the findings of their study of ten UK organisations, Porter and Parker (1993) proposed that their eight originally defined factors critical to the successful implementation of TQM (see section 2.6.1.1) could be arranged into a hierarchical model. In relation to the process of implementation, the authors concluded that an effective implementation strategy could only be developed once the necessary management behaviours have been developed, and that the implementation strategy must then explicitly address how the organisation should approach the latter six critical factors. Furthermore, that a piecemeal approach to TQM based on any of these six lower order critical factors would be unlikely to succeed. The A.T. Kearney and The TQM Magazine (1991) survey concluded that the TQM implementation approach must reflect the stage of development of the organisation - that if an organisation tries to implement TQM on weak foundations, it will fail.⁶⁷

2.7.1.4 Case study examinations

It appears from literature citations, that examination and discussion of the process of TQM implementation in the literature is dominated by single case evidence. Citations suggest that implementation process examinations have been conducted for both large manufacturing organisations [Sohal et al (1989); Wilkinson et al (1991); Williams (1993a); Hunter and Beaumont

⁶⁶On the basis of this conclusion, Lascelles and Dale (1990b) proposed that the only advice they were prepared to offer is that organisations should start with the more simple techniques, then progress to the use of tools and techniques to facilitate teamwork and obtain quality system certification, then attention can be given to the more complex techniques, and ways of extending the quality improvement process into non-manufacturing areas can be examined.

⁶⁷the limitations of these studies were highlighted in sections 2.6.1.1 and 2.6.1.2.

(1993); Whittle and McNiven (1993); Honeycutt (1993); Pitman et al (1994); Roufaiel and Meissner (1995); Rau (1995); Welburn (1996); McCabe (1996) and Gupta and Graham (1997)] and for small to medium-sized enterprises (SMEs) [Edwards and Hodgson (1994) and Bilston and Sohal (1995)], and for service organisations [Cronin and Payne (1993); Levine (1993); Seel (1994); Lakhe and Mohanty (1995); Sohal and Lu (1995) and Wilshaw and Dale (1996)]. Literature citations also point to the examination of TQM implementation processes in the public sector [Coate (1990); Dobbs (1994); Radel et al (1994); Anderson (1995) and Dean and Helms (1996)].

An examination of the reference list for these contributions bears witness to the fact that most of these contributions are contained in the practitioner based literature. When these case study contributions were analysed it soon became clear that the "implementation process" was touched on rather than examined in systematic fashion. In many cases, the "implementation process" was not actually considered, only the "process" for specific components/elements were examined. When studies did examine implementation, this tended to be for organisations that were relatively new to TQM. That is to say, the case evidence appears to refer to the early stages of TQM implementation only. Furthermore, when case evidence was presented for organisations advanced in their TQM implementation, it tended not to be concerned with the process of TQM implementation that was followed, but on the introduction process of specific parts or elements of the case's TQM approach. As such, even within the case based literature that does address the process of implementation, findings and conclusions about the "full" process of implementation appear to be rarely presented.

A brief examination of the more substantial case studies cited above that do deal with the process of implementation [Hunter and Beaumont (1993); Whittle and McNiven (1993); Seel (1994); Edwards and Hodgson (1994); Roufaiel and Meissner (1995); Wellburn (1996) and Wilshaw and Dale (1996)] are presented below.

Hunter and Beaumont (1993) reported on the early stages of TQM implementation at a large UK manufacturer of rubber products (1000 employees), operating as four separate business units on the site. One of the four business areas was the focus of the case. The authors reported that the intention of the organisation was to initially introduce TQM into this business area, then to spread or diffuse TQM to the other three business areas. The authors referred to this as the phased approach. The implementation process started simultaneously with the introduction of new plant

and equipment⁶⁸, then once on stream an experienced quality manager was appointed and the process of TQM training began, starting with the senior management. After the initial concentration on managers, a "diagonal slice" training approach was adopted, bringing together groups of management, production and administrative staff. Hunter and Beaumont suggested that the case study had established that the process of introducing the new plant had essentially been inconsistent with many of the important underlying principles of TQM such as employee involvement and consultation, but concluded that such problems may also point up the advantages of a phased approach. They further concluded that the case organisation appeared to have [correctly] heeded the often quoted view that TQM is not something that can or should be introduced with a 'big bang' or 'blitz' approach.

Whittle and McNiven (1993) outlined the initial introductory TQM implementation process at a large multi-site plastics manufacturer (Wavin). They reported that this process had four stages: diagnosis and preparation; commitment and planning; training and first wave implementation and review. They also reported that the introduction was phased across the thirty sites, with some locations starting in 1990, some in 1991 and some in 1992. The general conclusion was that a company-wide mandatory implementation approach was necessary and worked. It was necessary that operating units started at the right time, that timescales for the various phases were met, and that the right number of people were trained at the right time with the appropriate material. Furthermore, that phased implementation allowed teething problems to be expedited quickly and the development of central supporting skills, and allowed senior management to absorb the implications of change in a gradual manageable fashion. The other conclusions drawn by Whittle and McNiven were presented as a list of suggested 'dos' and 'don'ts' for a multi-site implementation. These included:

- that despite the necessity for a common approach, it was equally necessary to encourage operating units to find ways in which this could be modified to suit their local requirements;
- that it is important to recognise that different operating units will be starting with widely differing knowledge of and attitudes to quality improvement;
- that from early stages the quality improvement process must look towards customers and
- that a limited number of supporting values and behaviours to which all operating units are expected to adhere should be defined.

⁶⁸Hunter and Beaumont reported that the organisation had adopted a relatively conventional approach to the introduction of new technology, namely a design phase overwhelmingly dominated and led by engineers and senior line managers.

Seel (1994) described the process of TQM implementation at a medium sized non-food products distributor to supermarkets (Thomas Cork Limited). The process was essentially top down, starting with a two-day training session for all the directors, followed by (a) redefinition of the company's policies and objectives, (b) setting up a steering group and (c) establishing action teams to tackle pressing problems. Implementation was then spread to management, starting with a conference to promote the programme, and followed by a training programme on teamwork, tools and techniques, and the introduction of ad-hoc action teams to tackle problems and opportunities using those techniques. Finally, TQM was introduced to all staff by holding a quality week, during which all employees attended quality meetings, and the steering team was disbanded in order to integrate the quality programme into the normal management committees. Seel reported that approximately three years after its launch the TQM programme suffered a loss of momentum, which ultimately led to the need for a re-launch. The main conclusion from this case study was that the decision to disband the steering group was wrong because this removed the driving force behind the programme. Seel proposed that this decision had partly been made on the flawed assumption that the organisation had managed to effect a significant and permanent culture change. Seel also concluded that quality programmes are not self-sustaining, that people need to be constantly reminded about the benefits of total quality systems, and that training must be very high on the agenda. Furthermore, that raising expectations beyond what is realistically deliverable only serves to undermine confidence.

Edwards and Hodgson (1994) described the implementation of TQM in a medium sized health science product manufacturer (Amersham International). They reported that the TQM introduction consisted of the following four phases:

- providing the vision [awareness training and definition of key quality success factors];
- management action ['vital few' projects; quality training; quality councils and quality champion];
- increasing the participation [quality circles; quality action teams; facilitators; recognition; rewards and new skills] and
- business alignment [department purpose analysis; benchmarking and ISO9002].

Edwards and Hodgson reported that although in practice overlap between the phases was inevitable, this order of the four phases was both considered to be and proved to be crucial.

Roufaiel and Meissner (1995) described the process of TQM implementation in a one hundred employee business unit of a large capital intensive US manufacturer (Albany International). The

implementation process passed through five broad stages: commitment to TQM; quality steering council; pilot programme; self-managing teams and flat organisation; and focus on full participation and peer evaluation. The authors concluded that although the company had gone through various stages of redundancy in meeting its TQM philosophy, which was primarily caused by attempting to overlay a significantly different operating philosophy on an existing organisational culture by focusing only on quality tools and people behaviours, the overall result was considered as a success. Based on their examination, they concluded by presenting fifteen factors that they suggested can be inferred as main elements required for successful TQM implementation. Finally, they concluded that clear explanation of the TQM philosophy and its implementation and benefits to the whole organisation and each participating employee, followed by full participation and effective communication, may avoid confusion and minimise the resistance to adopting the TQM philosophy.

Wellburn (1996) described the implementation of TQM in a design and manufacturing organisation. Over a period of seven years, the implementation process had passed through three broad stages: 'do-it-yourself (DIY)' TQM, 'off-the-shelf' TQM and review and restart. The main conclusions reached by the author were threefold. These primarily related to the problems encountered in the 'off-the-shelf' TQM stage. Firstly, the phased implementation of quality improvement meetings (QIMs), starting at management level well in advance of lower levels was problematic and led to wide-ranging resentment. This was because initially lower levels did not understand the system that management was attempting to practice and because management found it difficult to cause change since the lower level meetings were not taking place. Secondly, that the 'off-the-shelf' TQM system caused problems by imposing "an alien culture". At first it was thought this was superficial; to do with language and origins of the off-the-shelf system, however it was recognised later that its implementation had occurred without honouring the past. Briefly, (a) it focused training on the bad things of the past without recognising and retaining the strengths and (b) it dictated that the QIMs should be function rather than product oriented in order to focus on how things are done, whereas in practice company strength resided in the indigenous structure of interdisciplinary project and product teams. The third main conclusion reached was that measurement of the system was always a problem. According to Wellburn, this was partly because of a lack of discipline in problem-solving approaches, but was also because the focus of measurement was always on the system rather than the processes which were being improved.

Wilshaw and Dale (1996) reported the process of TQM implementation in a service and marketing

organisation. The process had commenced with the introduction of a number of disparate quality initiatives during the 1980s, before the strategic business planning process indicated the need for a more structured approach. This structured approach commenced with a six month planning period in which an outline plan for implementation was developed, the directors having assumed the responsibility for steering and developing TQM. A steering committee, meeting on a monthly basis was established. In order to make as many employees as possible aware of the company's planning process and commitment to quality, a quality conference was held prior to the roll-out. Examination of the implementation process led Wilshaw and Dale to propose a number of guidelines for introducing and developing TQM in a service and marketing organisation. Primarily, that planning is the key to a successful introduction, that internal and external quality surveys and a quality costing analysis are key inputs to the planning process and that the steering committee must constantly refine their plan in order to constantly improve the overall business process in the company. The main conclusions reached were: (a) the introduction of quality circles as an initial step was not the right thing to do; (b) an organisation ignores customers during implementation at its peril; (c) it is critical that all employees understand what TQM means to them; (d) the time that is required for the need for change to be accepted and for training should not be under-estimated and (e) to obtain results, people must work in an environment which welcomes initiative.

2.7.2 Summary of examination of the non-prescriptive contribution findings

An examination of the findings and conclusions drawn by non-prescriptive research focused on examining the process of TQM implementation does not result in a clear or conclusive picture. Studies that have reached the same conclusions about the process of TQM implementation are difficult to find. This however is not because there is disagreement, but because the studies present conclusions on a wide range of associated issues.

Nevertheless, the more prevalent themes observed from the study of literature are as follows:-

- (a) Three of the four empirical multiple organisation examinations [Newall and Dale (1991), Harte and Dale (1995a/1995b) and Bessant and Caffyn (1997)] concluded that across the sample studied, a common underlying implementation process was discernable. A comparison of these three processes however, indicates little similarity between them.

(b) Examination of the conclusions cited in section 2.7.1.3, which were drawn by studies/surveys not specifically investigating the process of implementation, suggests that the process of implementation must be organisation specific. This appears to be the unique focus of the implementation related conclusions in these contributions.

(c) The empirical multiple organisation evidence and single case study evidence both appear to:

- stress the importance of detailed and careful TQM planning beforehand and
- indicate that an important feature of the TQM implementation process is the establishment of a [visible] top level team to guide and oversee the TQM implementation process.

In addition to these more prevalent findings, there appears to be some support within the non-prescriptive contributions for the following:

- a gradual approach to TQM implementation is recommended;
- for organisations operating on a multiple-site basis or as a set of autonomous business units, a phased (piloted) implementation process appears to be recommended over a simultaneous organisation-wide attempt and
- it is recommended / advantageous that there is prior (up-front) awareness and communication to employees.

2.7.3 Review of the prescriptive contributions

Many authors have contributed to the literature their own perception of what constitutes an effective process for the implementation of TQM. In some cases these authors propose that their perceptions are based on their accumulated experience/observations of TQM implementation processes in practice [Juran et al (1974); Crosby (1979); Cullen and Hollingham (1987); Chase (1989); Robson (1989a); Deming⁶⁹; Steele (1993); Spelcher (1993); Kanji and Asher (1993); Oakland (1993); Sirota et al (1994) and Tolchinsky and Ranney (1994)]. In the majority of other cases it is unclear how the authors have arrived at their offering [Scurr (1990); Lee et al (1992);

⁶⁹cited in Logothesis (1992).

Aquino (1992); Ash (1992); Glover (1993); van Donk and Sanders (1993); Mears (1993); Burr (1993); Haefner (1993); Graves (1993); Ho and Fung (1995) and Beerten (1996)].

For practical purposes, the processes of implementation suggested by these various authors are summarised and presented in table 2.7.3. Despite an extensive literature search, it appears that empirical or other non-prescriptive evaluation of these proposed processes has not been reported. This may imply that by and large their practical application has not taken place. This is with the obvious exception of the processes of implementation prescribed by Deming, Juran and Crosby. As the historical development of TQM review in section 2.2 illustrated, many organisations have used these scholars' proposed implementation processes with measured success. Where, beyond single case evidence, empirical testing has been reported, the empirical testing actually appears to have only related to the applicability of the components described in the implementation processes, rather than to execution of the implementation process itself. For example, Ho and Fung (1995) concluded that the results of a survey among 161 ISO9000 registered companies provided evidence in support of the step-by-step implementation approach of their *LETQMEX* Model. However, close examination of the description of the validation instrument and the results, showed that it was only activities involved that had been tested, with no reference to the actual "process".

2.7.4 Summary of examination of the prescriptively based contributions

Twenty four prescriptive descriptions of the process of TQM implementation were identified and reviewed. As is indicated by the second column in table 2.7.3, these suggested processes of implementation differ in the manner in which it is recommended they are executed. Some authors recommend that the implementation process is phased, others identify stages in the process. However, it appears that in the majority of cases a sequential step-by-step approach is recommended. A number of these latter authors have suggested that the ordering of the steps may vary [for example Juran et al (1974) and Beerten (1996)] depending on the position from which an organisation is starting its process of implementation.

An examination of these various processes of implementation immediately demonstrates the diversity of approaches recommended. The approaches range from the rational systems dominated approaches at one extreme, for example van Donk and Sanders (1993) and Ho and Fung (1995), to the more imprecise behavioural approaches at the other extreme, for example Lee et al (1992) and Haefner (1993).

Table 2.7.3 - Summary of an examination of prescriptive literature contributions describing the process of TQM implementation

Author	Form in which implementation process is presented	Suggested implementation process:
<i>Cumulative experience</i>		
Juran et al (1974)	ten "steps" ('breakthrough' project basis)	(1) build awareness of the need and opportunity for improvement; (2) set goals for improvement; (3) organise to reach the goals (establish a quality council, identify problems, select projects, appoint teams and designate facilitators); (4) provide training; (5) carry out projects to solve problems; (6) report progress; (7) give recognition; (8) communicate results; (9) keep score and (10) maintain a momentum by making annual improvement part of regular systems and processes of the company.
Crosby (1979)	fourteen "steps" (sequential - though ordering of steps may vary)	(1) management commitment; (2) quality improvement team; (3) quality measurement; (4) cost of quality evaluation; (5) quality awareness; (6) corrective action; (7) zero-defects planning; (8) employee education; (9) zero-defects day; (10) goal setting; (11) error cause removal; (12) recognition; (13) quality councils and (14) do it over again.
Cullen and Hollingham (1987)	six "broad phases"	(1) understanding; (2) top management commitment; (3) company-wide awareness; (4) planning; (5) implementation and (6) review.
Chase (1989)	six "stages"	(1) prepare a business implementation plan; (2) implementation top down; (3) develop a detailed implementation plan; (4) implementation; (5) communication and (6) continuous quality improvement.
Robson (1989a)	ten "steps"	(1) establish a steering group; (2) select and train internal resources; (3) plan first steps with steering group; (4) agree (philosophy / mission); (5) communicate TQM concept to all employees; (6) establish internal marketing process; (7) devise recognition programme; (8) set up internal audit teams and implement agreed findings; (9) steering group selects tools which are introduced as appropriate and (10) progressively develop internal resources to self-sufficiency.

Deming	seven "steps" (specific to Deming's fourteen points)	(1) top management agreement on the meaning of the fourteen points, the deadly diseases and the obstacles, their implications and the direction to take; (2) top management adoption of the new philosophy and the new responsibilities with pride and a determination to break with the old traditions; (3) top managers explain to the rest of the organisation employees why a change in everybody's current practices is necessary, through seminars and other means of communication; (4) every activity is seen as a stage in a process, and every stage is seen as the customer of the previous stage and the supplier of the next one; (5) the process is set up for the construction of an organisation to guide continual quality improvement; (6) everybody takes part in a team effort with the aim of improving the input and output of any stage and (7) with the participation of knowledgeable statisticians, embark on an organisation for quality.
Steele (1993)	eight "steps"	(1) strategic policy management; (2) formulate future vision statement; (3) set priorities for <i>dramatic</i> improvement; (4) devise operational measures; (5) train employees in problem solving skills; (6) engage employees in teamwork; (7) provide support - from management or internal/external consultants and (8) recognition.
Spelcher (1993)	ten "steps"	(1) create a vision and values statement; (2) integrate strategic quality goals into the corporate strategic business planning process; (3) select a total quality management model; (4) develop an organisation structure to implement quality improvement; (5) establish a design team to tailor quality process implementation to the company's culture; (6) design training for quality improvement efforts; (7) prepare a communication plan for quality; (8) determine key business processes for cross-functional analysis and improvement; (9) develop quality performance measures for all business processes and (10) benchmark operations.
Kanji and Asher (1993)	four "broad steps"	(1) identification and preparation; (2) management understanding and commitment; (3) scheme for improvement and (4) new initiative with new targets and critical examination.
Oakland (1993)	seven "ordered steps"	(1) gain management commitment to change through the organisation of the top team; (2) develop a shared "mission" or vision of the business or of what change is required; (3) define the measurable objectives, which must be agreed by the team, as being the quantifiable indicators of success in terms of mission; (4) develop the mission into its critical success factors (CSFs) to coerce and move it forward; (5) break down the critical success factors into the key or critical process and gain process ownership; (6) break down the critical processes into sub-processes, activities and tasks and form improvement teams around these and (7) monitor and adjust the process alignment in response to difficulties in the change process.

Sirota et al (1994)	nine "steps"	(1) comprehensive orientation of senior management to TQM; (2) formulation of a vision statement and guiding principles (operating values); (3) assessment against vision and principles; (4) agreement on issues to be addressed (the problems) and strengths to be maintained based on results of the assessment; (5) action plan development focused on the required senior management behavioural change (i.e. delegating authority and responsibility); (6) action plan development at all levels (guided by each level's respective cultural issues); (7) development of organisation-wide policies, programs and systems to support the cultural change such as mechanisms to promote employee involvement, reward and recognition systems, performance measurement systems and training modules; (8) implementation and execution and (9) repeated assessment, feedback and improvement action.
Tolchinsky and Ranney (1994)	six "phases"	(1) setting strategic direction; (2) current state analysis; (3) future state and analysis; (4) implement new organisation; (5) implement a continuous improvement structure and (6) system wide quality planning and deployment.
<i>Source unclear</i>		
Scurr (1990)	four "phases"	(1) diagnosis; (2) management commitment; (3) intensive action and (4) review and restart.
Lee et al (1992)	five "common steps"	(1) determine what quality is (express it in terms of a specific goal or desired outcomes); (2) prepare the organisation (involves communicating top management's strategy of TQM and rallying teamwork among all the personnel who support it); (3) train and empower the personnel (typically statistical training and problem-solving training); (4) provide feedback on performance and take the necessary action and (5) keep the focus on continuous improvement (to ensure that TQM is not abandoned).
Aquino (1992)	six "common steps"	(1) creating awareness of the need to change; (2) organising and training top-level committees to steer and support the process; (3) generating strategic and quality implementation plans; (4) organising and training mid-level planning teams; (5) establishing measurement processes that will identify progress toward the goal of excellence and (6) building communication to maintain total involvement in TQM.
Ash (1992)	8 "steps"	(1) a quality-committed organisation structure; (2) functional responsibilities including quality goals, requirements and measures; (3) workforce considerations, such as internal communication and employee participation and training; (4) customer considerations; (5) supplier quality; (6) self-auditing; (7) corrective action and (8) documentation and review.
Glover (1993)	five "typical steps"	(1) awareness; (2) education; (3) structural change; (4) necessary activities and (5) improvement.

van Donk and Sanders (1993)	three "typical steps"	(1) generally accepted definition of quality is chosen; (2) quality management is elaborated by means of setting standards and norms, formalising of procedures, writing quality manuals, and training and education of employees in using these and (3) getting certification to one of the recognised standards.
Mears (1993)	two "steps"	(1) involve all departments in the process of identifying and adapting to customer needs and then (2) install a quality council to add a focus to improvement efforts.
Burr (1993)	four "general principles"	(1) creating a steering committee to oversee implementation; (2) developing measures of quality and quality costs before implementation begins; (3) providing support to the teams - training team members as facilitators and nurturing the team by following up on its progress and (4) rewarding success.
Haefner (1993)	six "step" guideline	(1) learn in broad terms what TQM is and is not; (2) acquire basic training in the seven quality tools and the seven step improvement process; (3) have management conduct an improvement project; (4) expand learning to staff in a controlled fashion; (5) use staff and management teams to identify critical processes, determine how to measure them, stabilise them and standardize them and (6) when critical processes are stable, carefully consider strategic business planning.
Graves (1993)	thirteen "steps"	(1) establish a quality council to oversee the process, (2) develop an index to measure the company's performance (the TQM process should affect this index); (3) list the processes within the company (be as exhaustive as possible); (4) prioritise the processes in terms important to the health of the business; (5) assign employees who work in the process to a CPI group; (6) educate the group in TQM philosophy and tools; (7) understand the process by preparing a top-level flow chart; (8) establish a process measure; (9) identify underlying causes that contribute to diminished performance of the process and then make changes to the process; (10) measure the impact of the intervention (11) dissolve the CPI group, but continue to monitor the process; (12) report regularly to the quality council regarding the process performance and (13) confirm the cumulative impact of all CPI groups on the company health index.
Ho and Fung (1995)	six "steps"	(1) 5-S practices (organisation, neatness, cleaning, standardization, discipline); (2) quality control in marketing, production and purchasing; (3) quality control circles; (4) ISO9000 series quality management system; (5) total productive maintenance and (6) total quality management.
Beerten (1996)	twelve "steps" (sequential - though ordering of steps may vary with chosen strategy or circumstances)	(1) corporate and quality and participation vision and mission; (2) corporate culture and style; (3) quality and participation technical and social Pareto; (4) quality and participation process management; (5) corporate communications; (6) leadership; (7) customer surveys; (8) benchmarking; (9) re-engineering; (10) quality function deployment; (11) preferred partnership and (12) business literacy.

Another aspect of the diversity of approaches proposed concerns the perceived level of simplicity/complexity involved in the process. In this respect, the proposed approaches range from the simplistic perception, for example Mears (1993), Burr (1993) and Steele (1993), to the complex perception, for example Ash (1992), Spelcher (1993) and Sirota et al (1994). One contribution reviewed suggested that the process of TQM implementation is essentially a project [Juran et al (1974)]. Others suggest that the process of TQM implementation is a continuous cycle of projects, for example Crosby (1979) and Scurr (1990).

It is very difficult to draw clear-cut conclusions about the process of TQM implementation from the prescriptive contributions. A more detailed examination of these various recommended processes of implementation suggests that the following can be considered to be common features of the implementation process:

- **establishing the commitment of management** (6 authors);
- **creating awareness of the need to change / that change will be happening** (8 authors) ;
- **develop / agree organisation's vision / mission** (6 authors);
- **establishment of a top-level team (to oversee implementation process)** (9 authors);
- **review implementation process progress** (7 authors);
- **employee training (in problem solving skills)** (13 authors);
- **development of quality performance measures** (8 authors);
- **business / action plan development** (9 authors);
- **development of recognition or reward processes** (6 authors) and
- **improve / increase internal communications** (5 authors).

Other features of the process of implementation for which there appears to be considerably less consensus are:

- **agree organisation's definition of quality;**
- **organisation structural changes;**
- **cross-functional organisation;**
- **current and future business analysis and**
- **introduction of quality management systems.**

Despite the widely advocated step-by step approach, close examination also suggests that within

these prescriptive contributions there is no clear consensus concerning the sequence or order in which the implementation activities should be executed. Only a very general pattern emerges, where:

- **the initial stage(s)** of the implementation process are concerned with the following: (a) establishing the commitment of management; (b) creating the awareness of the need to change / that change will be happening and (c) establishment of a top-level team (to oversee implementation process) and
- **the latter stage(s)** of the implementation process are concerned with the following: (a) reviewing implementation process progress and (b) rewarding/recognising efforts and success.

Despite numerous attempts by the author to identify further commonality, examination of the sequencing and ordering of the proposed implementation steps between these initial and latter stages proved completely inconclusive. Only the very broad observation that this "in-between" stage appears to be concerned with expanding the participation in the TQM approach was discernable.

Beyond the findings described above, the prescriptive literature contributions relating to the process of TQM implementation provide little consensual agreement on what are the salient features required within the process, or indeed about how such salient features should be sequenced or phased during the process.

2.8 Reasons for Failure of TQM / TQM Implementation Process

In section 2.4.3, the author referred to the extent to which the perceived failure of TQM to deliver on its promises is observed in the more recent TQM literature. A number of authors have suggested that an issue of major concern is organisations' experience that, following the launch of TQM a period of high optimism ensues, to be followed by the slowing down of progress and evidence that improvements are becoming more difficult to achieve [Wilkinson et al (1992); Walker (1992); Coulson-Thomas (1992); Weaver (1993); Longenecker and Scazzero (1993); Foster et al (1994) and Grant et al (1994)]. Another recent trend in the prescriptive literature are the contributions concentrating on or even dedicated to the discussion of problems and difficulties of TQM implementation and sustainment.

2.8.1 Review of the non-prescriptive contributions

A number of non-prescriptive studies have identified problems encountered in the adoption of the TQM approach or have suggested the reasons for failure of TQM. These non-prescriptive contributions are examined under three headings: empirical or structured interview study evidence; questionnaire survey derived evidence and case study evidence. In section 2.8.2 a summary which details findings common to these contributions is presented.

2.8.1.1 Empirical or structured interview study evidence

Duncalf and Dale (1988), Newall and Dale (1991), Wilkinson et al (1992), Longenecker and Scazzero (1993), Wilcox et al (1996) and Dale et al (1997) offer evidence through their empirically or structured interview based TQM investigations.

As part of their development of an analytical method for assessing a manufacturing organisation's approach to quality management, Duncalf and Dale (1988) tested the analytical method they proposed on a sample of five organisations⁷⁰. According to the authors, the results highlighted the various problems which organisations face in managing their product quality. Duncalf and Dale found that in all of the five organisations there had been a failure of the senior management team to develop an effective quality policy relevant to their organisational needs. They concluded that this had contributed to management's further failure to create the extra dimension in management thinking which, they proposed, is important in achieving a total commitment to quality from every person at all levels in the organisation hierarchy. Duncalf and Dale reported that the typical weaknesses caused by this state of affairs included an inadequate framework and communication network, which did not facilitate effective consideration of product quality and failed to ensure that the operations necessary for delivering high quality products were of a high standard. Duncalf and Dale also found that the various decision-making units relative to quality decisions were not always formally organised, nor were the participants readily identified.

In a 1991 article, Newall and Dale (1991) proposed that despite the considerable amount of TQM literature there was a lack of information on the problems that companies may expect to encounter during the introduction, development and advancement of TQM, and the measurement of progress. Their response had been to undertake an examination of problems encountered by eight UK

⁷⁰The analytical method is discussed in more detail in section 2.10.1.

organisations⁷¹. Six of the companies identified a major problem with management commitment, particularly at the senior and middle management level. Four companies cited a lack of understanding as a major barrier. Poor education and training, a general lack of awareness of what the quality improvement process was intended to achieve, and a lack of understanding of customer's needs were the main contributory factors suggested by these four organisations. Other salient barriers experienced were widespread emphasis on short-term profitability; hostility to quality improvement from within various departments and the speed with which the process was introduced. A specific component of the study was examination of the problems encountered in the measurement of quality improvement. In this respect, Newall and Dale reported three main problems: three companies said that they had experienced difficulties in setting targets that were realistically achievable; three companies remarked that in areas that had previously not been subjected to monitoring considerable difficulties were experienced in adjusting working procedures to include measurement and four companies remarked that the lack of initial planning had caused considerable problems in the measurement of quality improvement. These findings led Newall and Dale to conclude that despite the differing perceptions, their findings tended to support the view that poor planning in the introduction of quality improvement was the underlying culprit. They suggested that the companies studied appeared to be either unable or unwilling to plan effectively for quality improvement, leading them to further conclude that a lack of detailed planning before the quality improvement process is introduced has a 'knock-on' effect throughout its development and subsequent advancement. Though the authors acknowledged that it would be misleading to draw any detailed comparisons between the companies due to the contingency variation in the sample companies, the authors reported two further emergent impressions. Firstly, that as a company increases in size the problems associated with the introduction and development of quality improvement appear to escalate. Secondly, that as the sales turnover of an organisation increases so do the barriers to quality improvement.

Wilkinson et al (1992) examined the reasons for the lack of TQM sustainability in three companies that were part of a larger twenty five organisation Department of Employment funded project on Employee Involvement in the UK⁷². Based on their analysis, but also reportedly supported by the wider studies, Wilkinson et al concluded that there appeared to be four major reasons for the lack of TQM sustainability. These were: narrowly conceived and bolted-on TQM approaches, rather

⁷¹the methodological details of this study were reported in section 2.7.1.1.

⁷²whilst the companies studied were consciously pursuing a TQM approach, the authors did point out that none were considered to be at the leading edge of new initiatives nor did they purport to be centres of excellence.

than integrated in key management policies; senior management fear that the attempt to utilise TQM principles is likely to cause as many problems as it solves; the industrial relations aspects of TQM are rarely considered by employers in the introduction of TQM and more broadly, that there is a potential contradiction as well as agreement between TQM and employee involvement, that while the language is about increased involvement, there is also a strong emphasis on reinforcing management control.

Longenecker and Scazzero (1993) reported the results of research conducted to assess why a medium-sized US manufacturing company that had formally introduced a "state-of-the-art" TQM programme was struggling in its quality improvement efforts. A questionnaire survey was administered to all 411 employees approximately 18 months into the programme, which aimed to assess employee perceptions on a variety of quality issues, including a number of management factors considered to be critical for sustainable TQM. The overall response rate was 72 percent. In addition, in-depth interviews were conducted with 41 members of the organisation's management team (80 percent) in order to discern their perceptions of the TQM process. Based on findings from the employee survey, the authors concluded that the organisation had been able to establish a proper and solid foundation for its quality improvement efforts. However, based on combined findings from the employee survey and the management interviews, the authors concluded that the organisation failed to realise its potential for success through TQM primarily because management at all levels did not create a climate for quality by adjusting its style and ongoing management practices. Based on a review of the top ten reasons that management gave as stifling their willingness to practice TQM, the authors further concluded that management were operating in an environment which was not supporting their efforts to implement and practice TQM. Factors contributing to the failure of the process cited by the majority of the interview sample were: lack of top management commitment to TQM; too many changes too quickly; pressure for immediate quality results without reduced production output; too much negative feedback and lack of positive feedback and, fear of being open/honest in confronting problems.

Wilcox et al (1996) reported that fieldwork carried out over a period of three years on an EPSRC funded project had identified a number of issues which impact negatively on the sustainability of TQM in manufacturing organisations⁷³. According to the authors, these issues were initially identified from fieldwork carried out in six organisations (12 sites), then validated and tested using a TQM sustaining audit tool at six different manufacturing sites. The authors identified five

⁷³also reported in Dale et al (1997).

categories into which the issues were grouped⁷⁴, and reported that in all of the six organisations in which the audit tool was tested, that is to say including those with the most advanced approaches to TQM, most of the issues were identified. The issues are too numerous to list here. However, based on their analysis and discussion, the authors summarised the typical pitfalls to include:

- inadequate leadership;
- fear and resistance to change;
- lack of quality management and problem solving skills;
- failure to complete projects;
- break-up of improvement teams;
- lack of resources devoted to quality improvement and
- inadequate information and its analysis.

The authors also reported a number of business policies that tend to conflict with TQM and lead to inconsistencies in the management of an organisation, based on findings of their wider research initiatives [Wilcox et al (1996)]. Their findings led them to conclude [in Dale et al (1997)] that in all cases, it was clear that senior management commitment, motivation, training, data analysis, and effective communications media were on their own insufficient to bring about a continuous improvement ethic.

2.8.1.2 Questionnaire survey derived evidence

ODI (1987); van der Wiele et al (1990); Dobson (1991); Clemmer (1991); Coulson-Thomas (1992); Abram, Hawkes plc and Kingston University (1993); Witcher (1994); Wilkinson et al (1995) and Radovilsky et al (1996) offer evidence through TQM related surveys that have been conducted⁷⁵.

ODI's (1987) survey of British senior executives reported that management focus on short-term goals, and lack of reward for quality efforts, were the two major impediments to quality improvement efforts. van der Wiele et al's (1990) European Commission commissioned multi-sample survey on TQM training and research needs of European business questioned the respondents on the main difficulties [encountered] in getting a commitment to TQM. The six main difficulties identified were: (1) changing behaviour and attitudes; (2) emphasis on short term

⁷⁴internal/external environment; management style; policies; organisation structure and process of change.

⁷⁵The methodological details of van der Wiele et al's (1990), Wilkinson et al's (1995) and Radovilsky et al's (1996) surveys were discussed in section 2.6.1.2 and will not be repeated here.

objectives; (3) a tendency to focus on symptoms rather than root causes of problems; (4) production schedule and cost continue to be given priority; (5) non-management level employees are unsure of what is required of them and (6) barriers between departments. The findings led van der Wiele et al to conclude that changing behaviour and attitudes was the main difficulty in getting a commitment to TQM, but that top management commitment to TQM, whilst apparently not perceived as a major problem, could be improved even in those companies that claim they are at the leading edge of TQM. Dobson (1991) reported findings from a 1989 study of total quality sponsored by the British Quality Association and the Institute of Personnel Management. The survey found that among 1700 firms, ninety one percent cited resistance to change on the part of managers as the major obstacle to TQM implementation progress. According to Dobson, other surveys showed that the US experience was no different. Surveys by the Conference Board's Quality Council [*The Road to Total Quality: Views of Industry Experts*, research bulletin 239, 1990], and the American Society for Quality Control [*Quality: Everyone's Job, Many Vacancies*, 1990] were cited, which both had concluded that the headway of US firms' adoption of TQM was plagued by lack of management follow-through. These findings led Dobson to state that it seems management finds the principles of total quality easier to pledge than to practice. Coulson-Thomas (1992) reported findings from a 1991 survey concerned with quality priorities and barriers⁷⁶. Over 100 organisations were surveyed (mainly at director / manager level), though the response rate was not given. The main barrier reported, by a large margin, was top management commitment. Other salient barriers (ranked as 'very significant' by greater than 25 percent of respondents) were: too narrow an understanding of quality; horizontal boundaries between functions and specialisms; vested interests; organisational politics; cynicism; organisational structure and customer expectations. Clemmer (1991) reported findings from polls of participants at conferences on quality management conducted by Lakewood Research. According to Clemmer, the findings identified five major sources of problems when implementing TQM. These were:

- getting top management support and buy-in. Clemmer suggested that the problem seems to stem most often from a basic misunderstanding of senior management's role in service/quality improvement, coupled with an absence of consistent feedback from the rest of the organisation when it perceives that senior management isn't participating by example;
- most organisations are focused inwardly, that is to say, many systems, procedures, performance measurements and product and service specifications are designed for the organisation rather than to meet customer's needs;

⁷⁶Coulson-Thomas, C. and Coulson-Thomas, S. (1991), *Quality: The Next Steps*, Survey for ODI International, Adaptation Limited, London.

- there are serious misconceptions about skills training, in particular, that knowing what to do is only the beginning, whereas real improvement comes from knowing how to apply improvement technologies and methods;
- too many efforts are short term. Clemmer suggested that seldom is an organisation-wide strategic process developed that truly changes the management system at its core and
- a plan, strategy, or policy is only as good as its use.

Clemmer concluded that the basic problem of TQM implementation was strategic, not tactical. He suggested that until the service/quality improvement effort changes the systems, processes, and daily work habits of the entire organisation, the best training, inspiration and planning in the world will have little lasting effect. As part of Abram, Hawkes plc and Kingston University's (1993) survey of TQM within the UK's 500 largest companies, the eighty eight respondents that claimed to have TQM in their organisations identified a number of problems encountered during implementation. Though the interval points on the five-point rating scale used for this part of the survey were not defined in the report, the five "largest" problems encountered were reported as: lack of middle management understanding; lack of human resources⁷⁷; lack of knowledge of quality; lack of senior management understanding; lack of customer needs knowledge; lack of management support and lack of financial resource. Witcher (1994) reported the results of a survey addressing the adoption of TQM in Scotland. The survey produced 650 useable responses. Part of the survey investigated the difficulties encountered in implementation. Based on examination of the responses from only those organisations reporting to have TQM in place (25 percent of the 650), Witcher noted that the main difficulties reported (as cited by greater than 25 percent of the respondents) were: entrenched attitudes; keeping the momentum going; lack of understanding; lack of resources and poor leadership commitment. As part of their British Institute of Management sponsored (large sample) survey of TQM operation in the UK, Wilkinson et al (1995) investigated the main difficulties faced in the management of quality. The authors concluded that a lack of commitment from particular groups within the organisation can be a barrier. They reported that eighteen percent of respondents saw top management commitment as a major difficulty. Employee, supervisor and middle management commitment was perceived more to be a minor difficulty. Other major difficulties reported⁷⁸ were: lack of resources; cost constraints; an emphasis on short term goals; measuring quality and communication. Radovilsky et al (1996) reported from their (large sample) survey of TQM programme implementation, that the problems most frequently encountered by the respondents in implementing their TQM programmes were: lack of

⁷⁷the report did not clarify what specifically was meant by 'lack of human resources'.

⁷⁸as indicated by more than one quarter of the respondents for the purpose of illustration.

management commitment to quality improvement (37.5 percent of respondents); poor communication between departments (22.5 percent) and perception of TQM as one more "campaign" rather than as a real working system (15.3 percent).

As is reflected in the presentation of the findings of the nine contributions reviewed above, only the methodological details relating to sample size and construction of the surveys by van der Wiele et al (1990), Abram, Hawkes plc and Kingston University (1993), Witcher (1994), Wilkinson et al (1995) and Radovilsky et al (1996) were reported in their articles, or were available to the author. As such, the findings and conclusions reported by the other contributions do need to be treated with caution.

2.8.1.3 Case study evidence

To varying degrees, the TQM case studies reported in the literature have concerned themselves with examining the reasons for the failure of TQM. Causes, problems and difficulties when introducing and/or sustaining the TQM approach have been reported in Dale and Lightburn (1992), Mallinger (1993), Hunter and Beaumont (1993), Pitman et al (1994), Roufaiel and Meissner (1995), Wellburn (1996) and Wilshaw and Dale (1996).⁷⁹

Dale and Lightburn (1992) proposed that not all companies were willing to embrace the fundamentals of TQM, and suggested that it was possible to identify six different levels of adoption, where organisations at level 1 are *"doing everything the quality management experts advocate in terms of TQM and are typified by the Deming Prize and MBNQA winners"* and the initiatives of organisations operating at level 6 are usually limited to gaining BS5750/ISO9000 system series registration and the use of a small number of quality management techniques. Using the evidence of research work carried out in three areas⁸⁰ of an automotive supplier operating at the Level 4 of TQM adoption, Dale and Lightburn concluded that seven common difficulties were evident, and offered the following suggestions as to why they arose: (a) many companies do not recognise that TQM requires a change in organisational culture; (b) there is a failure to develop a long term planning strategy for TQM, which inevitably leads to hesitancy and a search for the latest quality management tools and techniques; (c) organisations are panicked into the use of quality

⁷⁹the main difficulties and problems encountered in the case studies reported in Hunter and Beaumont (1993) and Wellburn (1996) were described previously in section 2.7.1.4, and will not be repeated here.

⁸⁰Initial Sample Inspection Reporting; Statistical process control and Mistake proofing.

management tools and techniques as a result of customer pressure; (d) full discussion on how quality management tools and techniques can be applied effectively to the benefit of the customer and the company is absent and (e) senior management fail to commit resources to developing organisation-wide understanding of TQM.

Mallinger (1993) reported that lack of trust, particularly between senior management and labour, and the absence of commitment to TQM at all levels was, in part, responsible for failure to create change through TQM at a large Fortune 500 manufacturer in the aerospace industry. Pitman et al (1994) reported two major difficulties that arose during the implementation of TQM at a large multinational aerospace defence contractor. These were: (a) learning how to define a problem - Pitman et al noted that while agreement that a problem exists could easily be reached, there was often disagreement of what the problem was and, (b) defining how to measure the processes - Pitman et al noted that while it was relatively easy to identify internal and external customers, it was far more difficult to define and measure some of the intangible engineering and administrative processes. Based on their case examination of the TQM implementation in a small US manufacturing unit, Roufaiel and Meissner (1995) suggested that hindering factors which affect TQM success are generally related to behavioural and diversity issues. The following factors were identified: resistance to change, that is to say, fear of the unknown or that the new system needs would not be met; comfort with the status quo; perception of the old system as being profitable; inconsistency between TQM philosophy and the old organisational structure; bypassing middle and first-line management and focus only on part of the organisation. Wilshaw and Dale (1996) outlined a number of problems that had been faced in the introduction of TQM by the service and marketing organisation they had studied. The problems included: a lack of senior management understanding of TQM and involvement; departments failing to follow through agreed actions and objectives; lack of support to teamwork and a failure to match up improvement projects to the skills and resources in the project teams.

2.8.2 Summary of examination of the non-prescriptive contribution evidence

A close examination of the non-prescriptive literature that has investigated the difficulties and problems encountered in the adoption of a TQM approach suggests that the common undesirable outcomes that characterise TQM failures include the following:

- **wide-ranging lack of understanding of the purpose of TQM;**

- **wide-ranging lack of understanding of how quality principles integrate with normal business;**
- **employees lack understanding of what is required of them;**
- **hostility towards TQM / quality improvement (at all levels) and**
- **fear and resistance to change.**

It should be noted that this listing is not positioned as a consensus view, as a consensus view did not emerge from the examination.

A number of authors have suggested that TQM has a dual make-up: a 'hard side' and a 'soft side', where the 'hard side' focuses on systems, tools and techniques and establishing standards of performance, and the 'soft side' concerns attitudes and values reflecting the emphasis given to mobilising everyone around the goal of continuous improvement and enlisting their active commitment by means of participation and responsibility [Wilkinson et al (1991); Hill (1991); Wilkinson et al (1992); Rigg (1993) and Bright and Cooper (1993)].

A close examination of the non-prescriptive findings reviewed suggests that the main problems encountered in TQM implementation and the main reasons and causes of TQM failure relate to the 'soft side' of TQM. These were:

- **lack of management commitment (disinclination to participate and/or fear of committing to TQM);**
- **lack of internal communication and feedback;**
- **inadequate provision of education and skills training;**
- **inadequate understanding of customer needs;**
- **continued emphasis on short-term objectives/profitability;**
- **under-estimation of need to effect change in culture;**
- **partial / piecemeal implementation and**
- **customer pressure.**

The main problems encountered and causes of TQM failure associated with the 'hard side' of TQM appear to be:

- **failure to develop effective and appropriate quality policy;**

- **poor planning in early stages of TQM;**
- **inadequate formal communication channels;**
- **setting realistically achievable targets;**
- **expanding measurement practices to include 'qualitative' measures;**
- **measuring quality improvement progress;**
- **internal structural barriers and**
- **inwardly focused systems and procedures.**

Indisputably, the main problem with and cause of TQM failure is perceived to be a lack of senior management commitment. Some authors have tried to explain this phenomenon by suggesting that this may be due to senior management's perception of the position that they should occupy in the TQM process [Lascelles and Dale (1990a) and Aubrey II (1993)]. A questionnaire survey of chief executives' awareness and attitudes to quality and their perceptions of their role in quality management carried out between 1984 and 1988 [Lascelles and Dale (1990a)] found that whilst the majority of chief executives responding (eighty three) recognised that they bear the ultimate responsibility for the management of quality in their organisation most had adopted a passive role, perceiving quality management as a functional activity which could be delegated to a specialist with their own role being limited to setting quality policy and objectives, and periodic involvement in the improvement process. The survey also found that a number of chief executives were unsure about the exact status of their organisation's quality management system. A survey by ASQC and the Gallup organisation in the USA reached a similar conclusion [Aubrey II (1993)]. Both top managers and outside directors at American corporations held very firmly to the belief that quality policy was a matter for management, not the board, and that when boards do deal with quality issues, they take a fairly reactive position. The leadership issue in TQM is reviewed in greater detail in section 2.10.2.5.

2.8.3 *Review of the prescriptive contributions*

As part of their broad prescriptive contributions a number of authors have suggested common reasons/causes for failure of TQM, or the consequences/outcomes [Walker (1992); Schmidt and Finnigan (1992); Chang (1993); Myers and Ashkenas (1993); Goodman et al (1993); Kordupleski et al (1993); Sirota et al (1994); Foster et al (1994) and Grant et al (1994)]. A number of other prescriptive contributions have been dedicated to this issue [Holpp (1989); Whiteley (1991); Steele (1993), Summers (1993), Harari (1993a) and Tolchinsky and Ranney (1994)]. Steele's (1993)

study of several unsuccessful TQM companies led him to suggest that the core problem lay with the activity-based implementation strategy used. Chang (1993) reached a similar conclusion. Whiteley (1991) proposed that his organisation's cumulative case based research revealed nine pitfalls that most often sabotage quality improvement initiatives. Holpp (1989) proposed ten commonly found shortcuts around the long-term commitment needed to drive a TQM effort. Summers (1993) suggested seven easily remedied common mistakes underlying the purported failure of TQM. Harari (1993a) proposed ten reasons why TQM often doesn't work even in organisational environments that desperately cry out for quality improvements. Tolchinsky and Ranney (1994) identified five common reasons for the failure of TQM to deliver. Schmidt and Finnigan (1992) suggested twelve barriers to progress that all of the Baldrige winners (to that date) had experienced to some degree.

The observations and suggestions of these authors are presented in table 2.8.3. The causes/reasons for failure that are proposed are distinguished from the proposed consequences and outcomes that result.

2.8.4 Summary of an examination of the prescriptive contributions

It should be pointed out that a fine line exists between what is actually a cause/reason for unsuccessful TQM adoption and what is actually a consequence or outcome of the unsuccessful execution of a TQM strategy. The analysis of the prescriptive literature summarised in table 2.8.3 clearly shows that what one author perceives to be a cause of implementation failure, another considers to be a consequence.

Nevertheless, as the literature is presented, a detailed examination of these prescriptive contributions indicates that the following are positioned as the common causes of TQM failure:

- **lack of management commitment / lack of visible management commitment;**
- **insufficient attention paid to the needs of the external customer;**
- **failure to use a reward strategy aligned to the approach;**
- **pre-occupation with internal processes;**
- **poor (unlinked) objective setting;**
- **un-prioritised / piece-meal implementation and**
- **unrealistic expectations ((a) about capability to change and (b) about what will result).**

Table 2.8.3 - Summary of an examination of prescriptive literature suggestions concerning the causes/reasons for, and consequences/outcomes of failure to achieve TQM success

Author	reasons/causes	consequences/outcome
<i>Contributions dedicated to the issue</i>		
Holpp (1989)	(1) uncorrected vision (uncoupled with behaviours that can be picked out, reinforced and practised by employees); (2) poor (short-term and unlinked) objectives; (3) people using quality as an excuse to establish empires; (4) wandering teams and lost supervisors; (5) non-statistical thinking; (6) failure to integrate quality thinking into day-to-day work; (7) inadequate diagnosis of real training needs; (8) inadequate recognition of importance of cross-functional management; (9) lack of visible senior management commitment and (10) unrealistic expectations of employees.	
Whiteley (1991)	(1) false starts (efforts begin with a flurry of [proclamational] activity but too often this initial burst of energy happens before there are any concrete processes to support the initiative and keep enthusiasm high; (2) despite doing an excellent job of designing, manufacturing and packaging quality products, this is not aligned with customer needs and expectations; (3) companies have a bias for action, rather than for planning and monitoring; (4) often organisations earning good profits view quality improvement as external to their real business and adopt the 'if it ain't broke, don't fix it' mentality; (5) attempting to use [TQM] as a quick fix; (6) executives commit their companies but do not involve themselves in the improvement process; (7) executives don't spend the amount of time needed to successfully master the concepts, learn the skills, and develop the knowledge necessary to lead the implementation of a quality strategy; (8) selecting marginal performers as the organisation's quality champion and (9) making sporadic trade-offs (quarterly results) against quality.	(1) there is an often precipitous drop off in action that creates cynicism and can quickly de-motivate the organisation (2) TQM is disregarded when improved results are not immediately apparent

Steele (1993)	adoption of the activity-based implementation strategy.	(1) exorbitant training costs due to the train-the-masses approach; (2) many if not all teams working on what is important to them; (3) teams working on priorities important to management are scattered, thus are not able to achieve additive, synergistic and dramatic results; (4) quality efforts and "real" business issues are clearly separated and (5) management has either checked out or is on the brink of doing so.
Summers (1993)	(1) failure to align business strategy with TQM techniques; (2) failure of the CEO to personally participate in the TQM process; (3) failure to clearly understand customer demands; (4) failure to secure employee support; (5) failure to change reward structures to reflect new management roles; (6) over-reliance on staff support and (7) failure to benchmark effectively.	
Harari (1993a)	(1) TQM focuses peoples' attentions on internal processes rather than on external results; (2) TQM focuses on minimum standards; (3) TQM develops its own cumbersome bureaucracy as TQM programmes implicitly assume that quality is an orderly, sequential, linear and predictable process; (4) TQM delegates quality to quality experts rather than real people; (5) TQM does not demand radical organisational reform; (6) TQM does not demand changes in management compensation; (7) TQM does not demand entirely new relationships with outside partners; (8) TQM appeals to faddism, egotism and quick-fixism; (9) TQM drains entrepreneurship and innovation from corporate culture because TQM programs attempt to standardise internal processes and make them routine with a carefully developed set of measurements and methodology and (10) TQM attempts to make quality happen via an analytically detached, sterile mechanical path, and as such what is missing is emotion and soul.	(1) pre-occupation inevitably diminishes managers' attention to external factors (constantly shifting perceptions and preferences of customers, market place choices available to them, the technological advances occurring that might positively impact them, and all the potential product and service enhancements that they might respond to); (2) difficult to sell TQM to non-manufacturing, non-operations groups or providing intangible services; (3) TQM seduces people into believing that minimum standards define quality; (4) the resultant quality departments / directors / councils slowly become isolated from the realities of strategy and day-to-day operations while simultaneously taking on the brunt of responsibility for the destiny of quality; (5) TQM allows management to get off the hook simply by "supporting" a discrete programme divorced from any requirement of substantive change in management's personal habits and (6) encouraging risk and tolerating errors in the pursuit of the destruction of the status quo and the creation of the new is neglected.

Tolchinsky and Ranney (1994)	(1) quality efforts are either too focused on the top of the organisation (through quality leadership or strategic planning and deployment) or on the bottom of the organisation (through corrective action teams); (2) work and responsibility for quality improvement are added without understanding their implications for jobs and people; (3) quality efforts are often incremental and focus only on specific processes; (4) the top and bottom of the organisation are working on different things and (5) empowering people has been interpreted by many as hands-off management (managers have gone from directive management, being very involved in the directing and overseeing of their employees' day to day work, to the other extreme).	(1) employees do not understand how the work they do affects quality; (2) employees resist adding quality measurement and improvement activities to their day to day responsibilities; (3) teams run out of things to work on because they do not understand their role in continuous improvement nor fully understand business issues well enough to see what else needs to be addressed and (4) costly decisions are made by employees untrained and unarmed with the necessary information to do the new work.
<i>Other contributions:</i>		
Walker (1992)	(1) efforts stress exhortations to quality improvement with banners and slogans and all kinds of motivational hype, but do not dedicate sufficient resources that actually would foster improvement; (2) too often the production unit is the first and only focus; (3) assuming that anything that is positive is good (e.g. assuming that project-by-project improvement is sufficient by itself to make lasting change); (4) assuming that quality circles are the answer; (5) organisations assuming that if the initial approach is not working, it will be put right by doubling up on the same kinds of efforts and (6) inattention to a reward strategy aligned to the performance improvement process.	(1) although this technique boosts motivation in the short run, in the long run little is improved, and publicity efforts soon are abandoned - not without leaving a wake of cynicism that reduces the credibility of future efforts; (2) quality is implemented in a piece-meal fashion with no sense of priority; (3) the exclusivity of the cross-functional, problem solving teams has a negative effect on other employees and their supervisors in their local work groups and (4) while employees will devote themselves to a programme that offers empowerment and will enjoy the intrinsic rewards of job satisfaction, after several years these employees report that the "psychological payback" and the pat on the back are not enough.

Schmidt and Finnigan (1992)	(1) TQM is seen as just another cost-reduction programme; (2) employees do not believe management has long-range commitment; (3) employees believe that "when push comes to shove", short term marketplace problems and profit pressures will take precedence over total quality; (4) consistent priorities are absent during implementation; (5) cultural resistance exists; (6) senior people are not available, or too busy, to be trained or to practice total quality tools and processes; (7) results are expected too fast; (8) management won't free work groups for training; (9) there is a 'not invented here' attitude regarding total quality processes and tools; (10) the organisation has insufficient resources or funds to implement changes or is told to do it within existing budgets; (11) the perception exists that the process takes too long and (12) there is no perceived change in management behaviour.	
Chang (1993)	(1) the simultaneous introduction of a wide range of TQM-related activities; (2) key-process selection deficiency (focusing on the trivial many); (3) [too] elevated levels of training and (4) [too] high count of quality teams.	(1) confused employees and (2) demanding and time consuming tracking and analysing of inappropriate process performance data.
Myers and Ashkenas (1993)	(1) early stages of TQM efforts focusing heavily on putting processes in place (emphasis too early on "process contributors", such as training, motivational fanfare, involvement, commitment and culture building, standard-setting, measurement and benchmarking).	Organisation gets only modest returns for several years, and consequently: (1) skills developed through expensive up-front training can be lost from dis-use; (2) the passion of employee interest and involvement may become the discontent and cynicism of crushed expectations; (3) previously eager managers may emerge harried from trying harder with marginal outcomes and (4) the reality of organisational politics can shift strategy or operating priorities before much benefit occurs.
Goodman et al (1993)	(1) the operational definition of quality is not customer-loyalty-driven; (2) management does not focus the organisation on a limited number of customer-driven priorities for quality improvement; (3) management does not focus on results at least monthly and (4) the absence of an ongoing, customer-oriented measurement system.	

Kordupleski et al (1993)	(1) pre-occupation with internal processes; (2) not enough attention paid to the external customer; (3) turf protecting by marketing function and (4) under-emphasis of the link between customer perceived quality and business process quality.	(1) customer benefits that arise from quality improvement programme activities are merely incidental.
Sirota et al (1994)	(1) efforts are fundamentally tool and technique-oriented; (2) isolated quality-focused projects and activities that are not systematic attempts to overhaul existing cultures, systems and processes to embody the principles of quality management and (3) rewarding conflicting behaviours.	(1) employees can circumvent supervisors with concerns or ideas for improvement; (2) supervisors become a major point of resistance to adopting a team-based work structure and (3) core management processes undermine team processes.
Foster et al (1994)	(1) lack of understanding together with the absence of management commitment; (2) management reluctance to learn to change and (3) failure to integrate TQM into the business.	(1) falling participation in improvement activities; (2) loss of involvement by senior management; (3) demise of the "facilitator" role and (4) identification of TQM with a particular group of employees.
Grant et al (1994)		(1) disagreements over goals and implementation procedures; (2) upper-level managers turn their attention to other priorities and (3) employee scepticism about organisational commitment to the process.

Further, detailed examination suggests that the following are common consequences or outcomes associated with unsuccessful TQM introduction:

- **creation of cynicism among lower level employees;**
- **loss of credibility and increasing resistance to change;**
- **[middle] management disillusionment / alienation;**
- **un-synergistic improvement team activities;**
- **failure to benefit from extensive education/training efforts;**
- **senior management distraction and**
- **failure to integrate quality activity and normal business activity.**

These findings suggest that the origins of TQM failure are not concentrated at any one particular level within an organisation, nor can they be attributed to one distinct area of organisational activity or responsibility.

Despite the widespread attention given to the failure of TQM in the prescriptive literature there appears to be little consensus about the causes or consequences. The different types of causes put forward are numerous. Furthermore, the close examination of the prescriptive literature underlying the findings presented in section 2.8.3, indicated that in addition to a low level of consensus, there was also some disagreement between the authors.

Few of the authors that have highlighted the reasons/cause for failure presented above have offered any valuable insights into how failings might be overcome. Only the contributions of Steele (1993), Myers and Ashkenas (1993) and Tolchinsky and Ranney (1994) appear to have addressed this issue.

An examination of these authors' offerings suggests that the first two share the view that rather than an activity-based approach to implementing TQM, what is called for is a results-driven strategy⁸¹. Steele (1993) suggested that the results-driven approach translates the up-front top-down organisational objectives, and then provides for the training, engagement and support of those employees who can contribute to those objectives to obtain results relatively quickly. Myers and Ashkenas (1993) propose that substantial results (early on, often, and well communicated) are

⁸¹This view is also shared by Schaffer and Thomson (1992), though in a wider sense of change programmes, rather than specific to TQM.

probably the strongest motivator for climbing to even greater performance heights. They propose that results-driven quality calls for breakthrough action teams, that follow four sequenced steps that should take place in a matter of weeks rather than months or years. These steps are as follows: (a) management identify a bottom line challenge; (b) breakthrough action team is empowered through a single one/two day work session (to ensure that the team members have adequate perspective, information and skill "just in time" and to develop a plan to get started); (c) achieve the breakthrough project (including ongoing communication throughout the organisation) and (d) develop and extend the cycle through new challenges and new breakthrough action teams. The last step includes presenting the results to senior management sponsors, celebrating success, training facilitators for flexibility to provide help to teams and, if necessary, shifting the basic infrastructure of the organisation. In other words, developing new communication, reward, information or decision making systems or, changing organisational structure to reflect changing work patterns. These authors propose that the results-driven approach is not a return to a "quick fix" or "short-term gains at any costs" mentality. Rather, it embraces TQM's long term vision, values and prescriptions while helping managers make immediate, tangible improvements - the short-run improvements then become the building blocks to longer-term transformation and competitive or other success⁸².

Tolchinsky and Ranney (1994) advocate a work design focused approach, but one which overcomes the weaknesses of traditional work design. Weaknesses which they identify as too general an assessment of customer needs, and the time-consuming and costly analysis of all work processes within an organisation prior to re-design. They suggest that TQM approaches: (a) need to involve all levels in the organisation in the design or re-design of the organisation, the design of the daily work system and the continuous improvement structure and (b) should start with the detailed specification of customer requirements, which are then linked to the operations where variation would compromise customer satisfaction the most.

2.9 Contributions That Have Attempted to Understand Why Failure in TQM Occurs and How it Might Be Overcome

It has been suggested that recommendations about the use of TQM have tended to be context independent, that is to say implicitly universal, and that there has been little attention in TQM

⁸²These authors suggest that this approach thrives best when it is directly linked to a well crafted strategic plan and tightly coupled with business objectives.

research devoted to the boundary conditions for TQM applicability, or even how variation in organisational settings might be reflected in TQM implementation [Spencer (1994); Sitkin et al (1994) and Dean and Bowen (1994)].

Despite the fact that there appears to have been few empirical or other primary research studies that have concentrated on understanding why so many TQM programmes seem to fail, there have been a number of contributions to the literature that have attempted to see beyond the immediate causes and consequences and offer a broader perspective and/or potentially important considerations for the TQM designer [Foster et al (1994), Reger et al (1994), Gharajedaghi (1994), Mallinger (1993), Sitkin et al (1994), Grant et al (1994) and Kekale and Kekale (1995)]. These contributions are reviewed in brief below.

Grant et al (1994) propose that underlying the various manifestations and consequences of TQM failure is the fact that TQM is a challenge to conventional management techniques and to the theories that underlie them. That is to say, TQM's impact goes beyond management practice - it represents a challenge also to the assumptions and theories on which conventional practices are based. Therefore it cannot be simply grafted on to existing management structures and systems. They argue that TQM calls for systematic changes in management practice, including the re-design of work, the re-definition of managerial roles, the re-design of organisational structures, the learning of new skills by employees at all levels and the re-orientation of organisational goals⁸³. They argue that TQM's assumptions and theories are quite different from those underlying conventional practices, and therefore TQM will not succeed in a firm unless conventional practices are transformed. More pertinently however, they argue⁸⁴ that the tendency for TQM to create dissension within firms arises not only because TQM conflicts with conventional management ideas, but also because TQM conflicts even more violently with the rationale of the "economic model of the firm". They further argue that TQM and the "economic model of the firm" are inherently incompatible, and that companies [will] need to choose implicitly, if not explicitly, between the two. They warn that attempting to foster quality improvement in production operations and the lower echelons of the organisation while maintaining conventional top down strategic planning, financial control systems and active asset management inevitably creates

⁸³In illustrating their argument, they argue that embedded in the work of Deming, Juran and other TQM theorists, such as K. Ishikawa, is a philosophy that embraces the purpose of the corporation, the role of work and human nature - inevitably therefore, TQM also carries implications for the principles and theories of management.

⁸⁴by contrasting the respective: organisational goals, convergence and conflict, organisational design, the role of information and dynamic vs. static optimisation tendency.

conflict. They also suggest that therefore, the first stage in managing company-wide TQM programmes is to recognise their revolutionary character, proposing that the companies that have been most successful in obtaining long lasting performance benefits from TQM have permitted their quality programmes to drive system-wide changes.

2.9.1 The systems perspective

Gharajedaghi (1994) has suggested that the first obstruction to TQM's potential stems from a failure to appreciate that TQM and its continuous improvement process has been most successful within the context of a throughput process already re-designed for flexibility and control. The second obstruction Gharajedaghi has suggested, is the challenge of managing interactions between increasingly independent members of highly interdependent social systems. In this respect he argued that Deming's challenge was not how to use statistical process control to create teamwork among the Japanese, but how to utilise the existing strong sense of membership and co-operation to implement statistical process control. Gharajedaghi suggested therefore, that for TQM to work, it must be synthesised with systems thinking, and the best strategy is to re-design the system in its totality. This he suggested, must involve the concurrent re-design of:

- the process - to reduce complexity and increase throughput, and produce a single design to satisfy several functions;
- the output (product) - to create value for the user and competitive advantage by differentiating the base of customers and
- the organisation - to create a new platform for effective interactions among the "purposeful" members of the organisation, through a multi-dimensional network of internal and external producers, designers and marketers.

Mallinger's (1993) empirical case experience seems (in part) to support Gharajedaghi's view. Mallinger proposed, based on his observations, that the likelihood of change is greatly reduced when the change agent fails to recognise the importance of a systems approach. While acknowledging that this proposition did not offer a new strategy, his suggestion was that as an intervention is being designed enormous energy must be invested to understand the relationship between the business unit under study and its external components. This is because the business unit interacts with these external networks on a regular basis, so ignoring these networks is likely to create blockage in transformation.

2.9.2 Contingency perspectives

Four of the contributions primarily propagate a contingency approach. Sitkin et al's (1994) contribution primarily relates to the process of TQM implementation, Foster et al's (1994) contribution to sustaining the TQM approach in the long term, and Reger et al (1994) and Kekale and Kekale's (1995) contributions to both implementation process and TQM sustainability.

Sitkin et al (1994) proposed that some of the failures of TQM that have received attention in the popular press may be explained by the fact that TQM has been advocated as universally applicable to organisations and organisational activities [Crosby (1979); Deming (1986) and Juran (1986)] with virtually no attention to the nature of the uncertainty faced by the organisation. Sitkin et al undertook to "*begin to address limitations in the way TQM has been conceptualised and applied in the past*". In response to their perception that the singular emphasis on control that has characterised traditional approaches to TQM implementation are not well suited to conditions of high task uncertainty, they examined the idea that key aspects of the TQM approach may be contingent on the level of situational uncertainty. They proposed that TQM be separated into two conceptually distinct approaches, which they labelled *total quality control* (TQC) and *total quality learning* (TQL). Their suggestion is that when uncertainty is low, control is cybernetically valid (Green and Welsh, 1988), and the assumptions and practices associated with a TQC approach make sense. However in contrast, when uncertainty is high, for example because an organisation is involved in novel or complex efforts, the only reasonable goal may be to try to do a good job of exploration and learning (March, 1991; Sitkin, 1992 and Tamuz, 1988) through the use of a TQL approach. They proposed that this contingency approach provides a basis for predicting the conditions under which the use of different aspects of TQM should be more or less effective and, hence, a framework for understanding the effectiveness of TQM in different situations.

Drawing on Henry Mintzberg's work on modes of strategy formulation, Foster et al (1994)⁸⁵ in their research with collaborating companies identified three types of [current] archetypal approaches to

⁸⁵It appears that these authors first introduced this type of contingency perspective in 1992. In Whittle et al (1992), the authors proposed that many of the problems organisations were experiencing in implementing TQM were due to the models they were using to make sense of organisational culture, and as a consequence how it might be changed. As such, the authors presented a concept for culture change in TQM, not as the installation of a set of traits, but as a continuous process of cultural renewal, arguing that confinement to a particular model for introducing TQM culture change would pay off only so long as doing the same things better is a viable business strategy. The four generic models identified here were labelled: the *total institution* model; the *adaptive/survival* model; the *learning organisation* model and the *transformational/dialectic* model.

TQ which they labelled:

- the *planning* mind-set of TQ;
- the *learning* mind-set of TQ and
- the *visionary* mind-set of TQ.

They stated that they had observed that when organisations implement TQM, most of the practices introduced tend to cluster within a single mind-set, but that if this same mind-set continues to inform post-implementation activity on a permanent basis, the TQ programme will inevitably falter. To these they added a fourth meta-mind-set which they called the 'transformational model of TQ', and which they proposed enables movement between the three archetypes. From their research findings relating to acknowledged quality leaders, they concluded that organisations which manage to sustain their TQ approaches over several years switch TQ mindsets as momentum associated with any one mind-set starts to fade. That is to say, successful TQ implementation comprises (a) learning how to improve quality using one of the three prevalent mindsets and (b) learning how to change mindsets which requires a meta-perspective to inform and enable movement between the prevalent mindsets. These authors suggest that the *transformation* mind-set provides such a perspective, and that activities directed at enabling managers and hence companies to break out of their existing paradigms for implementing TQ include: futuring/playing/scenario planning; seeking quality and other performance awards; benchmarking and collaborative/informal ventures outside own industry; encouraging managerial self-development through reading; employing personal coaches and other external sources of ideas; partnerships with and acquisitions of other companies; managers stepping into the shoes of customers and employees for substantial periods of time and senior management mentoring.

Reger et al (1994) noted that as instances of TQM failures begin to surface, the weaknesses are usually, though not exclusively, attributed to implementation problems. They further noted that several TQM experts have suggested that successful implementation of TQM requires *metamorphosis*, that is to say total change [Dobyns and Crawford-Mason (1991)], *radical change*, that is to say a change in the basic philosophy of everyone in the company [Munroe-Faure and Munroe-Faure (1992)], or a *paradigm shift* similar to the re-framing that occurs during scientific revolutions [Blackburn and Rosen (1993) and Kuhn (1970)]. Drawing on key concepts from three related cognitive self-concept theories⁸⁶, they developed a cognitive theory which they proposed explained why fundamental change such as TQM is often misunderstood, resisted and, ultimately, doomed to failure. They proposed that the implementation of TQM often flounders because it is

⁸⁶organisational identity theory; personal construct theory and self-discrepancy theory.

improperly framed by top management (Pondy and Huff, 1988). Their argument centred around the fact that a new management initiative, such as total quality, can only be understood by managers and employees via interpretation through existing schemas. Therefore for example, because schemas are composed of a finite set of constructs, (i) individuals may be unable to comprehend fully the meaning of the change or (ii) changes that are framed in concepts opposed to positively valued elements of organisational identity are likely to be resisted. They suggested that key consequences of their cognitive model, may be that (a) TQM programmes should rarely be presented as radical change requiring revolutionary metamorphoses and (b) that it is also unlikely that fundamental change should be framed as incremental fine-tuning to the organisation's current identity. Instead, they suggested an implementation approach that occupies a middle ground between incremental (Quinn, 1980) and synoptic (Camillus, 1982). That implementation may be best accomplished through a series of middle-range changes that are large enough to overcome cognitive inertia and relieve organisational stress, but not so large that members believe the proposed change is unobtainable or undesirable. In this respect, they proposed that: *"successful implementation begins tectonically, with those aspects that are most aligned with members' positive beliefs about the organisation's ideal identity. Innovations that are framed as radical improvements are apt to threaten the organisation's core identity and thus, are likely to be misunderstood, resisted and fail. Innovations that are framed as incremental fine-tuning are likely to be met with apathy and therefore, are unlikely to overcome inertia"*. Then, successful implementation is achieved by "reframing" TQM as members learn about TQM. That is to say, they proposed a dynamic model in which successful implementation of fundamental organisational transformation is partly dependent on management's ability to reframe the change over time.

The contingency perspective propagated by Kekale and Kekale (1995) relates to the fit between an organisation's cultural assumptions, and the background assumptions of the TQM approach to be implemented. Kekale and Kekale argued that the concept of organisational culture suggests that an organisation will tolerate change better if the change happens within a change acceptance zone, without severe clashes against the shared assumptions and beliefs in an organisation. In this respect, they proposed that managers should evaluate any new management tool or technology to be implemented in advance, to understand how well the culture promulgated by the new approach matches the culture of the company. With reference to TQM, Kekale and Kekale proposed that the various quality tools available to an organisation were not themselves born in a cultural vacuum, but originated from a given environment where there had been some kind of cultural values and assumptions that have therefore been "baked-in" to these approaches. The authors

proposed that (a) different types of cultural assumptions and (b) different types of TQM approaches could be "typologised" into a model, hence enabling an organisation to identify the "least resistance" TQM approach for its given cultural background. The model proposed drew on three types of definition of TQM put forward by the British Quality Association, for which the authors suggested three different sets of basic assumptions (one set for each definition) could be discerned. Thus, the authors suggested that the first TQM definition focused on "soft" qualitative characteristics, leading to open management styles, delegated responsibility and increased staff autonomy, and hence this type of TQM approach would provide the least resistance in an environment with "cognitive" basic assumptions. The second definition they suggested placed emphasis on the production aspects such as systematic measurement and control of work, setting standards of performance and using statistical procedures, and hence this type of TQM approach would provide the least resistance in an environment with "behaviouristic" basic assumptions. The third definition, they suggested was a mixture of both "hard" and "soft" features, where key ingredients are an obsession with quality, the need for scientific approach, and the view that all employees are part of one team, and hence this type of TQM approach would provide the least resistance in an environment with "humanistic" basic assumptions. Kekale and Kekale concluded that it is important to find [TQM] solutions valid for the given organisation and its unique culture, and that therefore the implementation of quality tools should in practice be carried out after an unbiased analysis of the organisation's culture. It should be pointed out however, that whilst this contingency perspective appears to be useful for understanding the likely scale or magnitude of the task of implementing a certain TQM approach in a certain environment, for practical purposes it appears to assume that finding the least resistance approach to implementing TQM will be an organisation's main concern. That is to say, it appears to overlook the fact that companies may be willing to put themselves through a difficult cultural transformation based on their underlying motives and reasons for seeking to adopt a TQM approach in the first place.

2.10 Other Important Issues in the TQM Domain

During the process of reviewing the literature that has previously been presented in sections 2.6 to 2.8, a number of other important issues in the TQM domain came to light. This prompted more specific examinations of the TQM literature which were focused on these other issues. These issues are organised and are discussed here under four headings: Practical guidance for designing the appropriate TQM approach; Issues relating to the effect of TQM on facets of organisational behaviour; Issues relating to the effect or impact of various interventions on TQM and External

range of applicability of TQM.

2.10.1 Practical guidance for designing the appropriate TQM approach

A suggestion that has frequently been made in the literature [GAO (1990), Johnston and Daniel (1991) and Benson (1992) for example] is that the TQM approach adopted by an organisation must be relevant and appropriate to the specific needs of the organisation. In this respect a number of researchers and authors have noted that for all the attention TQM has been given, there appears to be an apparent neglect of the design issue [Glover (1993); Tolchinsky and Ranney (1994) and Mann and Kehoe (1995)]. That is to say, that there appears to have been little research attention devoted to the development of practical diagnostic instruments that can provide guidance to the TQM designers in their endeavours to appropriately customise their organisations' TQM efforts. Beyond the self-assessment frameworks propagated by the quality award bodies (section 2.6.5), the author's investigation of the TQM literature revealed only six contributions that in some way have attempted to help organisations overcome the *poor design* issue through the development of a practical diagnostic tool or framework that can be used as an aid when devising their TQM implementation plans [Duncalf and Dale (1988), Saraph et al (1989), Bossink et al (1993), Dale and Boaden (1993), Mann and Kehoe (1995) and Ahire and Rana (1995)]. These are briefly reviewed below.

Duncalf and Dale (1988) concluded from their research into the various ways that British manufacturing companies manage their product quality, that there was little consistency of understanding of the terms: quality management, quality assurance and quality control. Furthermore, the information generally available did not provide clarity in respect of the roles and functions of managers in the management of quality. They also concluded that the literature on quality-related decision-making fails to examine the important focus of the decisions being made, decision makers and decision processes. In response, Duncalf and Dale developed an analytical method for assessing a manufacturing organisation's approach to quality management. According to the authors, in simple terms, the "method" uses a quality-oriented decision-making approach which focuses on the reality of staff making decisions which impact on product quality. The method involves three stages:

- a. providing an example of the typical results arising from use of the method. This also illustrates the type of information required and the recommended presentation;
- b. outlining the procedure for administering the investigation and data collection. This involves

identifying individuals in the decision processes connected with functions⁸⁷, and the communication links and methods with reference to quality cost information and marketplace feedback. The authors noted that this process may well have to be repeated for different products in a multi-product organisation and

- c. providing managers with a sharper focus on the areas requiring attention, where this is catered for by a list of questions that are designed to test and evaluate the evidence collected in the survey. The authors note that individual companies are encouraged to develop the list to suit their own needs.

Duncalf and Dale proposed that this approach and the provision of the "test questions" affords managers the opportunity to identify and examine the strengths and weaknesses of their quality activities, enabling them to prescribe improvements relative to their specific quality needs. The value of the method, they suggested, was that it should minimise references to existing quality procedures and the quality manual and instead, concentrate on the reality of the existing management of product quality. The method was evaluated through its application in five organisations, which led the authors to conclude that it could provide a useful basis for companies understanding more about how they manage quality. The authors acknowledged that testing of the method uncovered three weaknesses however. These were: (a) the survey stage of the "method" can be very time-consuming and needed to be modified, (b) limitations may result when the "method" is used in organisations which do not carry out the full range of functions indicated in the survey and (c) the "method" although flexible, requires the correct understanding of its use in order to effect the modifications often necessary in its application.

Saraph et al (1989) concluded from their own review of the quality related literature that little guidance was provided concerning how to measure any of the critical factors of quality management. They concluded that no operational measures of overall organisational quality management or of any individual critical factor were available or had been proposed. In an attempt to close this gap Saraph et al derived seventy eight operational measures of the eight critical factors of quality management they had identified from the quality literature⁸⁸. The measures were successfully tested for reliability and validity using perceptual data collected from a sample of 162 general managers and quality managers in twenty large service and manufacturing firms. Saraph et al proposed that managers could use the instrument to evaluate the perceptions of quality management in their organisation. In turn this could help decision makers to identify those areas

⁸⁷design, purchasing, incoming material control, manufacturing, quality and warehousing, and despatch.

⁸⁸the derivation of these eight critical factors was described in section 2.6.1.3.

of quality management where improvements would be beneficial. Furthermore, they proposed that the instrument could be used by researchers to examine certain hypotheses concerning quality management.

The "model" of TQM developed by Bossink et al (1992), which identified eight basic elements of TQM⁸⁹ was translated into a diagnostic instrument which the authors proposed could be used for the determination of the status of TQM within (part of) an organisation [Bossink et al (1993)]. The resulting diagnostic instrument was built up around two checklists: (1) a *management commitment* checklist and (2) a *quantitative and qualitative application of concepts, methods and techniques* checklist. The suggested diagnosis process consisted of six phases: orientation; compiling of questionnaires; first round of interviews; second round of interviews; TQM diagnosis and implementation plan, and should be performed by an independent auditor. Application within two departments of the organisation which had originally generated the commercial need was used to evaluate the usefulness and practicability of the instrument. The authors concluded that the initial results were encouraging, notwithstanding that evaluation had been carried out for the first five steps of the procedure only. The authors also suggested that the use of the instrument was appropriate in organisations which had already attained some results in the area of quality management, however, use in a department which had only just begun to apply quality management would be less profitable, since the diagnosis will not indicate any specific areas for improvement actions.

Dale and Boaden (1993) concluded from their cumulative research on a number of aspects of TQM, that a comprehensive and integrative framework for the introduction and development of a process of continuous quality improvement was lacking, particularly for those organisations attempting to develop quality improvement plans and controls across a number of sites. This prompted Dale and Boaden to develop [such] a planning, control and discussion framework. In essence, their framework comprises of four elements: Organising; Systems and Techniques; Measurement and Feedback; and Culture Change⁹⁰, all of which the authors propose need to be

⁸⁹the derivation of this model and its limitations were described in section 2.6.1.3.

⁹⁰Organising - foundation stage concerned with the motivation for starting a process of quality improvement and the resultant strategies and plans necessary to introduce and develop the process; Systems and Techniques - involves the development of a quality management system to provide the necessary controls and discipline, and the standardisation of improvement; Measurement and Feedback - enables the 'voice of the customer' to be translated into measures of performance with which the organisation can identify and improve upon and Culture Change - [recognises that] the current status from both management and employee perspectives should be established before firm plans for change are developed.

addressed once the motivation for starting quality improvement has been identified and the overall strategic direction of the process set. The authors propose that the framework should be used as part of a six stage process:

- a. review the organisation's adoption of TQM to date;
- b. consider the features of each section of the framework and customise it to suit the individual organisation and its business;
- c. assess which features are already in place;
- d. prioritise the features not already in place in accordance with overall strategy of organisation;
- e. develop plans to introduce the prioritised features identified in the previous stage and
- f. identify any potential problems in putting the plans developed at stage five into place.

Unfortunately the methodological development of the framework was not described. The authors' explanation of the framework, though dominated by prescriptive statements, suggests that detailed consideration and planning is required before action is taken. The authors indicated that the framework had been used in a number of organisations and presented a number of positively-oriented outcomes derived by those organisations.

Mann and Kehoe (1995) proposed that it was common sense that TQM should be tailored to an organisation's needs, but concluded that little research had been conducted identifying which organisational factors should be considered when planning TQM introduction. In an attempt to fill this perceived gap, Mann and Kehoe undertook to identify the factors which predominantly affected the implementation of TQM. They called these quality critical organisational characteristics (QCOCs). Structured interviews were undertaken at twenty one organisations that the authors considered to be leading exponents of TQM, in which interviewees were questioned (a) about the characteristics of their organisation that [they felt] influenced the implementation stage of TQM or the effectiveness of a particular quality activity and (b) the difficulties experienced during implementation. Based on their analysis of the experiences of the twenty one companies interviewed, Mann and Kehoe (1995) concluded that all QCOCs change with time, QCOCs vary for each quality activity, and QCOCs vary depending on the stage of quality activity development. The findings led the authors to develop a guideline in the form of a 'low expected difficulty' to 'high expected difficulty' profile illustrating how each of twenty four QCOCs (representing seven broader primary QCOCs⁹¹) usually affected the implementation of TQM. The

⁹¹(1) process factors; (2) type of employees; (3) shared values; (4) management style; (5) organisational structure; (6) number of employees and (7) industrial relations, where management style and shared values were reported as the most common primary factors, and management board's attitude to change and trade union support were reported as the most commonly reported secondary factors (though the authors acknowledged that it had not been possible to quantify the level of *criticality* of each QCOC).

authors recommended that organisations evaluate their "level of difficulty" with regard to these factors, and that in this way, by identifying their most critical factors, methods could be developed to minimise the difficulty.

Ahire and Rana (1995) proposed that as with any new concept, the extent to which TQM will be successful in any organisation is determined by its initial impact and its perceived worth as a new way of operating. According to Ahire and Rana, the literature dealing with participative decision making and organisational dynamics, points to the fact that any new technical or management approach is either accepted sincerely or rejected based on the first few experiences with it. This led them to postulate that the first impression of the initial phase of TQM implementation contributes significantly to the long-term confidence and support of all participants in a TQM approach. They suggested that a recognised means for helping to ensure acceptance of the TQM philosophy within an organisation was to prove its worth through a set of carefully selected pilot projects. That is to say, that selection of appropriate business units for pilot testing of TQM in any organisation was of strategic importance to the success of full-scale TQM implementation. Ahire and Rana argued that the TQM pilot-project selection problem possessed all the elements which made it amenable to multiple-criteria decision-making (MCDM) modelling. In response Ahire and Rana developed and presented an MCDM model using a modified analytical hierarchy process (AHP) for this purpose. A detailed explanation of the model is beyond the scope of this review. However, according to Ahire and Rana the selection process using the model consists of three major steps: identifying a decision hierarchy; deriving weights of relative importance of criteria and sub-criteria and rating the alternatives along each criterion. Ahire and Rana suggested that the top management of an organisation should form a cross-functional advisory council or committee to develop and implement the model. This committee should typically consist of members from various levels to permit an integrated and broader analysis of the various selection criteria. Further, they proposed that the model could be generalised and adapted to any type of organisation and any type of project, and was applicable to manufacturing as well as service organisations. They reported that the model had been tested in a US hospital and that the user had found the results of the selection process to be very logical, leading the user to the conclusion that the approach could serve as a valuable tool for prioritising TQM projects.

2.10.1.1 Summary of findings

Four of the seven diagnostic tools/frameworks described above were in some way tested, one

through survey validation [Saraph et al (1989)] and three through practical application [Ahire and Rana (1995), Duncalf and Dale (1988) and Bossink et al (1993)]. In these latter two cases, some limitations of the tools' use were identified and acknowledged. Despite these seven contributions, it appears that there have been no studies based on experience of practitioners (perhaps with the exception of Mann and Kehoe (1995)) that have specifically sought to determine what is the full range of factors that an organisation should consider when designing their TQM approach. Furthermore, it appears that Dale and Boaden's (1993) contribution is the only tool devised specifically to support design of an appropriate TQM implementation process.

2.10.2 Issues relating to the effect of TQM on facets of organisational behaviour

Many of the "new" issues that were identified for further examination in the literature (section 2.10) related to the effects that TQM has on features of organisational behaviour. These issues broadly pointed to the following five concerns: effect of TQM on organisation structure; effect of TQM on management style; effect of TQM on organisational culture; effect of TQM at the strategic level and effect of TQM on the leadership role. Reviews of the literature in each case are presented in turn in the following five sections.

2.10.2.1 Organisation structure

The organisation theory literature that deals with organisation structure, for example [Mintzberg (1979), Butler (1986), Hodge and Anthony (1991), Hannagan (1995) and Hatch (1997)], suggests that there are essentially four types of organisation structure: *functional*; *matrix*; *network* and *self-contained unit*. Each have their inherent strengths and weaknesses to varying degrees.

The *functional structure* brings together all those engaged in related activities into one department. This 'traditional' structure is often seen as the most 'logical' method for dividing up the work of the organisation. It can bring together specialists and specialist equipment in order to develop high quality products and services from their particular department. Line management control, leadership and authority are usually all very easily understood within this structure. A particular advantage is that managers and employees can communicate easily with other people with similar backgrounds and working on similar tasks. However, functional departments can encourage bureaucracy and empire building. Managers and other staff may become reluctant to pass specialised information to people not in their own department. In addition, there may be slow

responses to changes in customer needs, particularly from those departments which have little contact with the final customer. Tasks which cut across departments may take a long time because they have to move sequentially from one department to another (Hannagan, 1995). With the *self-contained unit structure*, organisational activities are organised on the basis of products, services or customers. The self-contained unit structure comprises of divisions or units which, unlike a functional department, resemble a separate business. There is a unit head who is responsible for the operation of the unit and may be accountable for its profitability, however unlike a separate business, the unit has to conform to the company requirements and is accountable to it. A self-contained unit type structure has the advantage of combining all the activities, skills and expertise required to produce and market particular products/services or a product in a particular market place. The whole process can be easily coordinated and decisions can be reached quickly because unit decisions are made relatively close to the point of implementation. This type of structure usually affords managers a high degree of autonomy and responsibilities and accountabilities are usually clearly defined. In addition, units are able to focus on the needs of their particular customers. However, there are disadvantages. The unit may not place organisational objectives in quite the same order of priority as the central organisation, and may place its short term interests above the longer term interests of the whole company. Conflicts of interest may develop between units and consequently, local innovation may be stifled by central control (Hannagan, 1995). The *matrix structure* is intended to combine the efficiency of the functional structure with the flexibility and responsiveness of the self-contained unit structure (Hatch, 1997). The purpose of the matrix structure is to promote across company groupings of people and skills to provide a team in order to produce a product or service. Matrix teams work on relatively narrowly defined projects, while individuals retain the link with the functional structure of the organisation (Hannagan, 1995). A major advantage of this structure is the flexibility to take on new projects. Structurally at least, starting a new project only entails finding a project manager and recruiting a team. Another advantage derives from the matrix structures unique ability to maximize the value of expensive specialists (Hatch, 1997). By working together, people from various functions can understand the demands placed on other people from different areas of work. However, an effective matrix structure generally requires a high degree of co-operation and flexibility from everybody at all levels, and there needs to be open and direct lines of communication horizontally and vertically, and high levels of confidence between managers and between employees. Problems can arise over shared responsibility, the use of resources and the question of priorities (Hannagan, 1995). Perhaps the greatest difficulty in using the matrix structure is managing the conflict that arises from the dual lines of authority to which matrix employees are subjected. Matrix employees face the often

contradictory pressures of performing difficult tasks to high quality specifications while at the same time facing pressure to perform quickly in order to avoid duplicating effort (Hatch, 1997). The *network structure* replaces most, if not all vertical communication and control relationships with lateral relationships. Thus the formal ties that bind the functions of an organisation together are replaced with a partnership among several networked partners. It is the network at large that is the product/service producer or provider. The use of market mechanisms to co-ordinate activities eliminates much of the need for the vertical hierarchy of traditional organisations and this reduces administrative overhead. Other advantages associated with the network structure are that they can encourage information sharing, liberate decision making, and inspire innovation. However, many of the advantages the network structure enjoys depend upon members working voluntarily together to innovate, solve problems of mutual concern and coordinate their activities. This demands a level of organisational teamwork that cannot be taken for granted. Exploitation by partners who have critical information or by certain suppliers who are able to create and take advantage of dependencies in the larger system is an inherent danger (Hatch, 1997). In addition to these four types of organisation structure, two other forms of organisation structure can be identified. These are essentially representative of the extent to which the organisation is vertically structured: *flat structure* and *multi-layered structure*.

Many of the relevant publications suggest that TQM has an effect on organisation structure [Fenwick (1991); Coulson-Thomas and Coe (1991); Saraph and Sebastian (1993); Wason and Bhalla (1994); Anon (1994a); Anon (1994b); Ehrenberg and Stupak (1994) and Wilcox et al (1996)]. The general perception of these authors appears to be that for the TQM approach to take root and work effectively two changes in particular need to occur: (a) where the traditional functional structure exists it must be modified in some way to reduce cross company boundaries and (b) where a multi-layered (hierarchical) structure exists it must be flattened to reduce vertical boundaries, usually by removing layers of upper or middle management.

Non-prescriptively based TQM studies have also reported that the introduction of TQM affects organisation structure, or have suggested that there is a need for organisations to modify their structure as a part of the transition to TQM. For example, Duncalf and Dale (1988), based on their findings of the quality management problems encountered by the five organisations they examined, proposed that the weaknesses identified pin-pointed a problem that exists in many organisations - that the structure is often inadequate to co-ordinate the many functions, levels and stages of decision making for quality management issues. Harte and Dale (1995b) noted that most

professional service organisations in their study completed some form of restructuring as part of TQM, and in many cases this involved substantial modifications, though no details about the changes were given. Roufaiel and Meissner (1995) in their case study of a US manufacturer (described in section 2.7.1.4) reported that the main inhibitor to the TQM implementation process was the organisational structure. They reported that the tall hierarchical structure, with five layers of management for a relatively small organisation of 100 people resulted in poor communication flow with bottle-necks, little knowledge of internal customers' needs and inefficient co-operation between functional areas. The strategy for resolution was to re-distribute the functional areas into customer focused areas: five different business units and four shifts formed a matrix organisation.

Brown and van der Wiele (1997), through an investigation of Western Australian organisations, examined questions that arise when quality programmes exist within a context of corporate restructuring programmes (i.e. downsizing), and concluded that restructuring has a mixed impact in terms of TQM. Beyond this one broadly related study however, and although many authors have suggested that TQM has an effect on organisation structure, there appeared to be no study that has mapped the organisational structure changes that occur as a result of the introduction of TQM.

2.10.2.2 Management style

The organisation theory literature that deals with management style, for example [Handy (1985), Blake and Mounton (1985), Bennett (1991), Huczynski and Buchanan (1991) and Hannagan (1995)] suggests that managers can adopt several different management styles. Close examination suggests that there are essentially five types of management style: *exploitative autocratic*; *authoritarian*; *middle-of-the-road*; *participative* and *democratic (team)*. With the *exploitative autocratic* style, managers tend to have no trust or confidence in their subordinates. Decisions are imposed on subordinates and delegation very seldom occurs. This type of management style motivates employees by threat and has little concern for communication and teamwork involving subordinates. The *authoritarian* management style displays superficial, condescending confidence and trust in employees and motivates by reward, but like the autocratic style, imposes decisions on employees and very seldom delegates. Sometimes subordinates are involved in solving problems (Huczynski and Buchanan, 1991). *Authoritarian* management scores a high concern for production and efficiency and a low concern for people. This management style is task oriented and stresses the quality of the decision over the wishes of the subordinates. Such managers believe that group-centred action may achieve mediocre results. Often described as a paternalistic style,

managers can be conscientious, loyal and capable, but can become alienated from their subordinates who may do only enough to keep themselves out of trouble (Hannagan, 1995). *Middle-of-the-road* management scores a moderate amount of concern for both people and production. Managers applying this management style believe in compromise, so that decisions are taken but only if endorsed by subordinates. These managers may be dependable and support the status quo, but are not likely to be dynamic in leadership and may have difficulty facing up to innovation and change (Hannagan, 1995). Managers displaying the *participative* style tend to have a high but incomplete confidence and trust in their employees and are willing to listen to subordinates, however still preferring to control decision-making. Opinions and ideas of subordinates are used constructively (Huczynski and Buchanan, 1991). As such, a *participative* management style can improve organisational effectiveness by tapping the ideas of people with knowledge and experience and, by involving them to a certain degree, in a decision-making process to which they then can become committed. This style can thus lead to better quality decisions which are then more effectively implemented (Hannagan, 1995). The *participative* style motivates by reward. The *democratic (team)* management style displays complete confidence and trust in subordinates, and allows employees freedom to make decisions for themselves. *Democratic (team)* managers motivate by reward for achieving goals set by participation and are willing to share their ideas and opinions (Huczynski and Buchanan, 1991). As such, this management style scores high in concern for both people and production. These managers believe that concern for people and for tasks are compatible, and that tasks need to be carefully explained and decisions agreed with subordinates to achieve a high level of commitment. Blake and Mounton (1985) argued that this management style provides the most effective leadership.

The published literature frequently suggests in passing, that TQM has an effect on management style [Robson (1989b); von Rutte (1989); Heilpern and Nadler (1992); Wright and Kusmanadji (1993); Anjard (1995); Coulson-Thomas (1992) and Wilcox et al (1996)]. Wheatley (1992) reported on a British Institute of Management commissioned survey exploring the future role of middle managers, which purportedly drew on the views of over 1000 middle managers and 150 employing organisations. Asked which of a number of new management techniques or approaches were likely to have the greatest impact on individual managers, both groups - employers and managers - regarded total quality management as likely to have the biggest impact (48 percent and 38 percent respectively). Coulson-Thomas (1992) reported on a 1991 ODI International sponsored survey involving over 100 UK organisations exploring quality priorities. Asked to indicate the priority they felt would be placed upon certain areas of quality over the following five year period,

"quality of management" and "quality behaviour, attitudes and values" were considered by the participants to be the areas of highest priority demanding increased attention.

A number of authors have gone beyond acknowledging that TQM affects management style, to *indirectly* suggest what constitutes the appropriate style of management. This they have done by presenting their own views of what should be the roles or behaviours of managers in a TQM environment. For example, Schmidt and Finnigan (1992) suggested twelve critical managerial behaviours in a total quality environment. Steele (1993) suggested five "additional" key roles of managers that would be required in organisations that adopt the results-based TQM approach. Tolchinsky and Ranney (1994) proposed six managerial conditions for success with total quality through a work design approach.

An examination of the prescriptive contributions in this area points broadly to the fact that the autocratic management style is not compatible with the TQM approach. Instead, these authors prescribe a participatory approach in which: (a) management conduct their decision making processes by consensus through cross-functional processes and team style management forums and (b) employees at lower levels in the organisation structure are accepted as potentially valid contributors in these processes. That is to say a management style which moderates the inherently adversarial relationship between management and employees so often observed in conventional management practice.

The non-prescriptive research and literature appears to have given little attention to the implications of TQM for the role of the manager. In particular, there appears to have been no empirical research evidence specifically concerning the determination of the management style necessary for TQM. Two related contributions [Wilkinson et al (1994) and Coulson-Thomas (1992)] are briefly reviewed below.

Wilkinson et al (1994) proposed that they had begun to address the subject of managers in quality management with their British Institute of Management (BIM) sponsored survey entitled *Quality and the Managers*, administered as a self-completion questionnaire survey of 4000 BIM members. Usable returns were reported to have been received from 880 members. The authors concluded from their findings that quality management was having an important impact on managers' jobs. Based on their sample, the most pronounced effects appeared to be to place greater emphasis on team work and to make greater demands on the managers' time. Quality management appeared

to make managerial jobs more demanding, requiring more in terms of both people-management and technical skills. They further reported that a majority of managers felt that quality management made employees more questioning of managerial decisions, while just under half said that it placed managers under greater scrutiny from their superiors, leading them to further conclude that managers appear to be pressurised from above and from below. Beyond these findings however, impact was examined further only in terms of the amount of quality training received and the extent to which incentive pay was received. Coulson-Thomas (1992) also reported on a BIM sponsored survey purportedly of over fifty nine organisations (*The Flat Organisation: Philosophy and Practice*), part of which asked the participants (mainly CEOs) to rank in importance the management qualities which would enable organisations to implement the changes that are desired in order to respond more effectively to challenges and opportunities within the business environment. Management qualities considered to be very important by more than half of the respondents were: ability to communicate; flexibility and adaptability.

Despite an extensive literature search, the author was unable to locate any study that mapped the management style changes resulting from the introduction of TQM.

2.10.2.3 Organisational culture

There would appear to be fairly broad agreement in contemporary management literature that culture is a key factor underpinning success, in terms of developing the necessary commitment to any form of change. Peters and Waterman (1982) and Deal and Kennedy (1982) told managers that the key to corporate success and competitive advantage lay in having a strong culture⁹². Ouchi (1981) argued that for corporate managers, culture could be its most useful tool in uniting the activities of employees through a common understanding of goals and values, and thus leading to both increased productivity and supportive relationships at work⁹³. Kanter (1989) and Kotter and Heskett (1992) have more recently re-iterated such views.

Lewis (1996a) noted that while TQM has a separate origin from the culture movement, the two fields have recently converged with the idea that to achieve "excellence" and "quality" it is necessary either to change or work with the culture of an organisation. There appears to be broad agreement for Lewis's suggestion. According to Heilpern and Nadler (1992), on the basis of their

⁹²see Lewis (1996a).

⁹³see Harber et al (1993).

experience with more than twenty companies in the 1980s, success is predicated on understanding, positioning and managing TQM as a large-scale organisational change that involves fundamental dimensions of corporate culture. SEPSU⁹⁴ (1994) concluded from the findings of its investigation into UK quality management policy options, that successful implementation of a programme of quality management demands close attention to company culture - both internal arrangements and external relations. Whittle et al (1992) argued that the implementation of TQM is fundamentally a process of culture change. Hames (1991) went so far as to suggest that TQM was nothing less than a revolution in management culture - that the corporate transformation to a quality-appreciative environment, like most other strategies for change, was inherently a journey affecting organisational culture. van Donk and Sanders (1993) proposed that a basic reason for much of the delay in implementing quality management was that top managers and external consultants were insufficiently aware of the basic issues and values which support the daily practices in the organisation, in other words, the organisational culture.

Organisational culture appears to have become the one thing that is almost universally mentioned by authors contributing to the TQM literature. It is frequently mentioned in passing, for example [Johnson (1991); Westbrook (1993); Ehrenberg and Stupak (1994); Higginson and Waxler (1994) and Alpander and Lee (1995)]. Other authors have specifically dealt with culture change to achieve TQM [Linkow (1989); Atkinson (1990, 1991); Hames (1991); Lang and Lefebvre (1991); Rubin and Inguagiato (1991); Saraph and Sebastian (1993); Bright and Cooper (1993); van Donk and Sanders (1993); Sinclair and Collins (1994) and Smith et al (1994)]. For the most part, these are anecdotal/prescriptive contributions.

Evidence from non-prescriptively grounded TQM studies points to the need for culture change as a component of the TQM approach. For example, Harte and Dale (1995a, 1995b) in their study of eight professional service organisations found that all had undertaken some form of culture change as part of their TQM initiative, leading them to conclude that it is essential for organisations to identify their existing culture prior to developing any change process and indeed continually reassess the situation once it is initiated. The US GAO (1990) study found that a common feature of the TQM efforts of the companies examined was a company-wide effort to develop a flexible and responsive corporate culture. Nevertheless, there appears to be a paucity of literature with some form of empirical or non-prescriptive grounding that has specifically addressed either the effect of TQM on organisational culture, or the effect of organisational culture on TQM. Hames

⁹⁴Science and Engineering Policy Studies Unit (UK).

(1991) suggested that organisational culture was one of the most seminal, yet relatively neglected and misunderstood concepts underlying the implementation of quality management. The few related studies located by the author [Harber et al (1993), van Donk and Sanders (1993), Emery et al (1996) and Morrow (1997)] are briefly discussed below.

Harber et al (1993) examined the effect on organisational culture when a TQM programme is adopted, by means of a comparative analysis of two business units of a large Australian organisation three years after their separation. One business unit had opted for the adoption of TQM at separation, the other had opted to maintain existing cost effectiveness programmes. Using significance testing on the 'scaled agreement' survey data collected (n=450 for TQM business unit; n=432 for non-TQM business unit), Harber et al concluded that relative to the second business unit, the TQM programme at the first business unit was successful in developing a climate conducive to change, and employees attitudes and perceptions were more positive on a number of key dimensions. However, within-sample differences indicated that the TQM business unit employees had a wider dispersions of attitudes. In this respect the authors proposed that as a TQM programme stabilizes and gains greater acceptance by employees, the dispersion of attitudes should decrease.

van Donk and Sanders (1993) examined the relationship between quality management related organisational practices and culture, from the perspective of employee values related to the work of the organisation. The primary aim of the study was to develop an approach to help organisations practising quality management measure their culture. The study took the form of a questionnaire survey administered to sixty members of each of twenty different organisational units in ten organisations, supplemented by in-depth interviews with a smaller sample from each unit. Unfortunately, further methodological detail and results, including the extent to which the sample were consciously pursuing a TQM approach, were not presented in any great detail. Based on their finding that practices within the twenty units varied along six statistically independent dimensions⁹⁵, the authors were able to conclude little more than that some dimensions of culture may support quality management and others may hinder the quality process.

In a retrospectively based study, Emery et al (1996) explored how pre-implementation perceptions of organisational climate factors can effect the success or failure of TQM implementation. A large

⁹⁵(1) process-oriented versus results oriented; (2) employee-oriented versus job oriented; (3) parochial versus professional; (4) open system versus closed system; (5) loose control versus tight control and (6) pragmatic versus normative.

sample of employees from each of thirteen large US defence contractors in the aerospace industry⁹⁶ that had all initiated TQM programmes, were surveyed twice for their perceptions about various aspects of work climate and their job satisfaction. Emery et al judged seven of the organisation's implementations as having been successful, while six were categorized as unsuccessful, based on the progress of the organisation's internalisation of TQM principles after 18 months. The two samples were compared. The authors reported that employees within the successful organisations perceived a more positive initial climate than employees in unsuccessful companies, based on chi-square statistics computed for each of twelve questionnaire survey items specifically assessing organisational climate. However, regardless of their 18-month rating of TQM internalisation, all organisations revealed an improved climate eighteen months after implementation. Finally, a comparison of the means of the climate attributes for the two sub-samples appeared to suggest the possibility of a "flashpoint", a point at which the organisation possesses the capabilities or cultural readiness to accept change with a minimum of resistance. Emery et al concluded that organisational climate plays a significant role in the sustainability of TQM implementations, and thus proposed that interventions to improve climate may be needed before implementing TQM in order to increase the likelihood of success⁹⁷.

Morrow (1997) proposed measures of the extent to which three TQM principles - customer focus, continuous improvement and teamwork - had become an integral part of an organisation's culture, subsequently using them to examine the relationship between the implementation of TQM and culture from the viewpoint of work related outcomes. Four measures for each principle were derived from review of the literature. The work related outcomes selected for inclusion in the study were: job satisfaction, communication and perceptions of the work environment⁹⁸. A

⁹⁶the authors reported that all the companies contained a large number of corporate-level commonalities, including position in the value chain, contractual mix, size, hierarchical structure and span of supervisory control and competitive environment, and that no significant or traumatic events occurred during the time period of the study.

⁹⁷McNabb and Sepic (1995) reached similar conclusions for their public sector investigation. Their study attempted to relate the concepts of organisational culture and operating climate, and the moderating principle of organisational policies and practices, with measures of a multi-unit federal agency's readiness to adopt a major change in its operating environment. Findings led the authors to conclude that the agency would encounter great difficulty in achieving acceptance of a TQM programme, given the nature of perceptions of existing policies, high levels of employee dissatisfaction, and the agency's current direction. This led them to further conclude that a first step an organisation must take when implementing TQM is to thoroughly examine its culture, the results of which identify a baseline of values held by the organisation's personnel, and if the measured climate runs counter to a TQM philosophy, measures should be taken to change the underlying values before proceeding with TQM.

⁹⁸The origins of the measures used for these work related outcomes are described in detail in Morrow's paper.

questionnaire survey instrument was administered to employees within a US transport agency, with 2249 employee responses. The author pointed out that the organisation's TQM development was at an early stage. Nevertheless, based on the findings from correlation, factor and regression analysis, the author concluded that (a) reasonably reliable and distinct measures were developed and (b) that the adoption of TQM principles was associated with more favourable work-related outcomes. With only three exceptions, each of the twelve TQM measures was found to be separately, significantly and positively related to the work attitudes.

Broadly speaking the focus of these four "TQM - culture" studies had been distinctly different. van Donk and Sander's (1993) study proved inconclusive. Emery et al's (1996) study suggested that existing culture may impact the success of TQM. Harber et al (1993) and Morrow's (1997) studies suggest that TQM impacts on organisational culture in a positive way.

Despite the apparent paucity of non-prescriptive "TQM - culture" research, there does appear to be support for the proposition that in any kind of change process, including TQM, culture change is necessary. Moreover, that there may not necessarily be a definable right or wrong TQM culture, but the change in culture is necessary in order to make the organisational change permanent [Lang and Lefebvre (1991); Saraph and Sebastian (1993); Sinclair and Collins (1994); McNabb and Sepic (1995) and Kim et al (1995)]. The TQM literature appears to support the proposition that, regardless of the actual culture, in order to change the culture an organisation needs a set of channels that facilitate the change [Whittle et al (1992); Harber et al (1993) and Saraph and Sebastian (1993)⁹⁹]. Whittle et al (1992) proposed that culture change is not an event but an ongoing sequence of changes, although it may be achieved through events. Harber et al (1993) suggest that there are three fundamental processes underlying the formation of organisational culture: observation; communication and interaction. Saraph and Sebastian (1993) concluded from their combined literature/interview study that a myriad of methods can be deployed to form a quality-culture. SEPSU (1994) concluded that agents for culture change include role models, quality awards, systematic self-assessment, benchmarking and partnership sourcing, though attention to human factors is also crucial.

A closer examination of the variables used within the non-prescriptive contributions reviewed

⁹⁹The broader organisational culture literature would appear to support the TQM literature in this respect. Lewis (1996a) concluded from her review of the organisational culture literature, that most authors who explicitly address the question of whether culture is a variable or a root metaphor of an organisation see culture as a variable, which may be affected by both external and internal stimuli, and which may consciously be managed by the organisation itself.

above, in conjunction with an examination of the anecdotal/prescriptive literature in this area [for example, Lang and Lefebvre (1991) and Kim et al (1995)], suggests that other appropriate and pertinent channels through which a culture conducive to TQM can be shaped are:

- teamwork;
- training and development;
- interdepartmental co-operation;
- channels that increase the level of trust within the organisation and
- channels that help clarify goals and objectives across the organisation.

Despite an extensive literature search however, there appears to be no empirical study that has specifically attempted to discern the channels that facilitate organisational culture change as part of the TQM approach. Wilkinson et al (1991), Bright and Cooper (1993) and Lewis (1996b) have drawn the same conclusion, Lewis (1996b) noting that while much of the literature on culture change deals with pitfalls (inhibitors), there is very little on the facilitators - information that managers would find just as useful.

2.10.2.4 Strategic level processes and considerations

Over the past few decades many authors have postulated on how an organisation should organise and conduct its strategic planning processes [Ackoff (1970); Hofer and Schendel (1986); Ansoff (1984) and Mintzberg and Quinn (1991)], and on what basis it should make its strategic choices [Porter (1980); Pearce II and Robinson (1988) and Johnson and Scholes (1989)]. Belohlav (1993) noted that before the 1970s there was more or less equal consideration of market attractiveness and company strength as the basic components of corporate strategy. In the 1970s many firms tended to see market growth as the means to apparently boundless growth, and consequently corporate strategies tended to shift away from developing company strengths and began to emphasize market attractiveness as the major component of corporate strategy. As such, the 1970s witnessed the ascendancy of the strategic portfolio models of corporate strategy. One prominent approach was the Growth Share Matrix provided by the Boston Consulting Group (BCG). In late 1970s the perspective shifted away from emphasis on market attractiveness toward placing more emphasis on company strength. As a result of his book *Competitive Strategy*, Michael Porter's ideas became the standard for a different style of thinking on competitive strategy in the 1980s. More recently, the emphasis in strategic management thinking appears to have shifted away from industry structure and competitive positioning, toward internal firm-specific or within strategic group factors. The resource theory of the firm appears to have accelerated this shift, asserting that

economic rents may stem from any strategic factor - internal, external, economic, behavioural, tangible or intangible - that meets the tests of value, scarcity and imperfect imitability (Powell, 1995).

Many researchers have mentioned or acknowledged that the introduction of TQM has an impact either on the strategy making processes of an organisation (i.e. strategic planning and its inputs), on the content of the strategies chosen by an organisation (i.e. the focuses of strategic direction) or on the organisations capability to effectively execute their strategic choices [Raynor (1992); Hendricks and Triplett (1989); Powell (1995) and Wilcox et al (1996)]. However, of all the issues raised and addressed in this section of the literature review (with the possible exception of *organisation structure*), the relationship between TQM and organisations' strategic level processes and considerations would appear to be the area most neglected by the TQM literature, a conclusion that recently has begun to be recognised by other authors. Powell (1995) suggested that despite TQM's apparent widespread dissemination, its role as a strategic resource remains virtually unexamined in strategic management research. On the basis of their findings from a variety of TQM research initiatives, Wilcox et al (1996) suggested that in the literature there was confusion about whether TQM was a strategy in its own right or a means of implementing strategy, and whether or not TQM has a major influence on strategic planning.

Only the prescriptive literature appears to have dealt with the application of TQM to the strategic level processes and considerations of organisations. A number of authors have offered their own views on the relationship, some based on their interpretations of the reasons for certain demonstrated commercial successes [Belohlav (1993); Schonberger (1992); Hiam (1993) and Butz Jr (1995)]. In relation to important strategic considerations, Belohlav (1993) drawing on the experience of Xerox and Lands' End but primarily Motorola, contended that a quality focus shifts the managerial perspective from a macro to a micro viewpoint. That is to say, that rather than concentrating on the industry, the focus of a quality-oriented company is on examining its competitors. In relation to the content of strategy, this led Belohlav to propose that what makes quality the touchstone of competitive strategy is that it creates choices and opportunities not available to an organisation's competition, a view re-iterated by Tillery and Rutledge (1991) who proposed that firms can and do choose to pursue a differentiation strategy based on quality. Hiam (1993), drawing on his studies of management practice of successful quality practitioners, suggested that the adoption of TQM decentralizes strategic thinking in the organisation, as a natural consequence of the shift in emphasis from externally oriented "what" questions to internally

focused "how" questions. That is to say, where strategic planning once concerned a small group of senior managers and a handful of major decisions, under TQM it includes the deliberations of dozens, even hundreds, of teams of employees and hundreds or thousands of smaller strategic decisions. Schonberger (1992) proposed that as TQM reshapes business practices, it tends to nudge every firm toward a few common strategic planning objectives, namely: continuous improvement in quality of goods and services, responsiveness and flexibility of internal and supplier processes, and waste and cost elimination. In relation to TQM's effect on the strategic planning process, Schonberger (1992) further suggested that the basics of TQM, which he proposed may be reduced to a few principles, can effectively govern much of what conventionally required executive-level strategic planning and goal setting. Butz Jr (1995) suggested that because of very different evolutions of TQM and formal strategic planning, full integration of strategy and quality has largely not taken place in practice, and that this dichotomy can result in four distinct problems¹⁰⁰. Butz Jr proposed nevertheless, that TQM can sharpen the strategic planning process. He suggested that rethinking the strategic planning model based on the principles of TQM would result in a new method that is substantially better at dealing with turbulent times. Furthermore, that strategic planning can provide focus for TQM. That is to say, that fully integrating TQM with strategic planning provides the direction, justification and context for a successful TQM initiative.

However, there appear to have been no non-prescriptive studies that have attempted to discern the nature of the impact or effect of TQM at the strategic level of an organisation. That is to say:

- TQM's effect on the inputs to an organisation's strategic planning process;
- TQM's effect on the execution of the strategic planning processes;
- TQM's effect on the content of strategy or
- in broad terms how TQM affects the execution of strategy.

2.10.2.5 Top leadership role

Examination of the findings of the contributions referred to in sections 2.6, 2.7 and 2.8 clearly points to leadership as a salient but irresolute issue in the TQM debate. In the first instance, the literature suggests that leadership is a core element of the TQM approach and an important driver in TQM implementation. However, the evidence also suggests that ineffective leadership represents one of the main barriers to the successful adoption of TQM.

¹⁰⁰TQM becomes activity centred; ambiguity results within the organisation; the organisation does not take full advantage of the workforce and strategic planning becomes internally driven.

It appears that a considerable amount has been written about leadership and TQM, most however based on opinion rather than research. Contributions that have specifically dealt with leadership to achieve successful quality management or TQM but at a very superficial and cursory level are widespread, for example [Cound (1987); Townsend and Gebhardt (1989); Zenger (1989); Adamson (1989); Maccoby (1990); Butler (1990); Atkinson (1991); Harari (1993b) and Roth (1991)]. Many sets of recommendations about what are the leadership requirements or the necessary roles of the leaders in a TQM environment are to be found in such prescriptive literature. It is evident however that some recommendations, though prescriptive, have been derived through a more substantial and fastidious treatment of the subject [Lascelles and Dale (1990a); Oakland (1993); Preston and Saunders (1994) and Dale and Cooper (1994a, 1994b)]. A brief review of these contributions follows.

Based on the findings of their survey of chief executives' awareness and attitudes to quality, Lascelles and Dale (1990a) concluded that it was clear that whilst chief executives attitudes had become more positive towards quality improvement, and awareness of the importance of quality management had increased, traditional perceptions of quality still prevailed in practice. In response, Lascelles and Dale outlined their views on the role of the chief executive. Suggesting that strong forces or change agents must be present to precipitate the process of change, Lascelles and Dale argued that the chief executive is the prime internal change agent and that in this capacity, the chief executive has two key roles: shaping organisational values and establishing a managerial infrastructure to actually bring about change. In support of these key roles, Lascelles and Dale argued that a *transformational* leadership style was required rather than a *transactional* leadership style (reacting to events). Using their own model of TQM (the S-P Model) as a facilitating device, Preston and Saunders (1994) analysed the potential for connection between existing leadership theory - transformational and transactional proposed by Bass and Aviola¹⁰¹ - and TQM¹⁰². This led them to conclude that a transformational style is critical in supporting the basics of TQM and in the generation of motivation for improvement. However, they also concluded that provided an overall transformational strategy was in place, transactional leadership could still have important roles, for example in developing, communicating and enforcing standard operation procedures. Dale and Cooper (1994a) outlined some of the common mistakes which senior managers make in

¹⁰¹Bass, B. M. and Aviola, B. J. (1990) *Transformational Leadership Development - Manual for the Multi-factor Leadership Questionnaire*, Consulting Psychologists Press, Palo Alto, CA.

¹⁰²five components of their model were considered: common understanding of quality; use of data and understanding of variation; internal customer focus and team focus; understanding of processes and the environment.

relation to TQM, purportedly based on observations of the activities and behaviour of senior managers and on holding discussions with them. Dale and Cooper (1994b) argued that embarking on a TQM initiative is a strategic decision, and one which can be taken only by senior executives. Arguing further that there is a very strong relationship between on the one hand the business achievements and ambitions of an organisation and, on the other senior executives understanding of the TQM philosophy, Dale and Cooper (1994b) proposed that the CEO and senior managers must demonstrate to the organisation that they really care about quality, and suggested a number of activities where their involvement would display this. Dale and Cooper further suggested that senior executives have a key role in: (a) helping employees through crises in confidence which may result when TQM appears to be making little progress, (b) providing continuity within the organisation in order for it to hold the gains and (c) breaking middle management out of their resistance to change.

A number of studies have been reported in the literature which have attempted to non-prescriptively delineate the roles, requirements and/or orientations required of an organisation's senior executives in leading a successful TQM approach [Whiteley (1991); Longenecker and Scazzero (1993); Zairi (1994) and Choi and Behling (1997)]. Brief reviews of the findings of these non-prescriptive studies follow.

Whiteley (1991) concluded that his organisation's ongoing research into relevant issues of customer focused quality had found that a key component in the implementation of a quality strategy was the combined attitudes, skills and beliefs of the leaders in an organisation. Whiteley reported that in a recent interview-based study, senior executives from fifteen manufacturing and eight service companies, some of whom were the largest of the Fortune 500 industrial and service companies and some of whom were MBNQA and CAFE winners, identified seven leadership priorities. These were: put customers first; promote the vision; invest in people; make teamwork work; live and breathe quality; students for life and stay the course.

Longenecker and Scazzero (1993) proposed six "critical behaviours" that top managers need to be effective in performing, if employees are to be committed to the quality process and produce results. These were:

- leading by example;
- helping management personnel to redefine their roles and duties;
- providing managers with effective feedback to help them to learn and to focus their efforts;

- sending consistent signals to avoid creation of confusion;
- encouraging openness in confronting problems and
- minimising unnecessary meetings and paper work, so that managers can have the time to display appropriate quality behaviour to their employees.

These behaviours were proposed, based on the findings and conclusions they drew from their study of the factors affecting the failings of a TQM programme in a medium-sized US manufacturing company.

Zairi (1994) argued that in the 1990s competitive context, any effective style of leadership would have to have great impact on behaviour modification and changing people's attitudes, and proposed that TQM requires a special kind of leadership. In an attempt to determine the role of senior managers in TQM implementation, Zairi presented¹⁰³ seven short case studies of companies that had won prestigious quality awards such as the MBNQA and the EQA, which to varying degrees highlighted how leadership was defined, what kinds of activities and initiatives were sponsored by senior executives, and the level of activity they are involved in. Zairi proposed that analysis of the case studies, in conjunction with the review of another author's work¹⁰⁴, suggested eight areas where quality leaders needed to focus the core of their activities, and which could be the pre-determinants of their effectiveness. These were: setting the vision and strategic choice; communicating the vision and generating corporate commitment; developing a process-based culture; recognition of people as assets; performance management; developing partnerships; external ambassadors and developing leadership in the organisation. Zairi further suggested that these areas could be used as a measure of the quality leaders performance.

Choi and Behling (1997) examined the orientation of senior managers at six US suppliers of components to automobile manufacturers in an attempt to help explain the widely reported failings of TQM programmes. Based on the comparative examination of case records for each company, Choi and Behling suggested that the orientations of the top managers at the companies fell into three categories: *developmental* orientation (one company); *tactical* orientation (four companies) and *defensive* orientation (one company). The cases had been constructed through the conduct of semi-structured interviews with approximately fifteen managers and employees from each company. The authors concluded that their research indicated that top managers' attitudes towards

¹⁰³it is unclear whether Zairi compiled the case studies through his own empirical research, or [simply] extracted the leadership related issues from existing case studies.

¹⁰⁴Easton, G. S. (1993), "The 1993 State of US Total Quality Management: A Baldrige Examiners Perspective", *California Management Review*, Spring, pp. 32-54.

time, goals and customers differ from firm to firm, that these differences yield distinctly different approaches to TQM, and that these approaches, in turn, influence TQM's chances of success. Furthermore, that TQM leads to long term success only when top managers operate from the developmental orientation¹⁰⁵. The authors proposed that underpinning these conclusions, their study had revealed a clear relationship between the orientation of top managers and the likelihood that their firms would have an active TQM program. This proposition was based on the reported findings that (a) the organisation with the *developmental* orientation was using more of twenty one pre-identified TQM-related practices than the organisations with the tactical or defensive orientations and (b) that compared to the *tactical* and *defensive* oriented companies, the developmental company, by introducing new TQM practices each year demonstrated that its introduction of TQM extended to a long term commitment.

These non-prescriptive studies broadly suggest that senior executives in successful TQM organisations should adopt the transformational leadership style roles, as advocated widely in the prescriptive literature. Nevertheless, it is reasonable to suggest that non-prescriptive research in this area is sparse. A research avenue which appears to have been given little attention is examination of the reasons why top management seem reluctant to give TQM the level of commitment that it would appear it requires. Only the work of Dale and Cooper (1994a) was located in this respect. The underlying reason, though not explicitly highlighted by Dale and Cooper, appeared to be senior management lack of understanding of the nature and scope of TQM. A second research avenue which appears to have been neglected, under the assumption that the observed lack of commitment on the part of senior managers is not entirely an "attitudinal" problem, is why they find it difficult to provide the required level of commitment. Preston and Saunders (1994) have suggested that most of the quality literature on leadership is in the form of the authors collected thoughts about the topic of leadership, and not based on rigorous data on the importance of leader behaviour. This lack of data from quality organisations, and the lack of connection with theory and data on leadership from empirical research they suggest, is a major limitation in research into quality leadership. Based on the empirical / non-prescriptive evidence located by the author, Preston and Saunders' suggestion appears to be well-founded.

¹⁰⁵These authors did acknowledge the fact that generalising to all firms from such a small number of firms in a single industry was risky.

2.10.3 Issues relating to the effect or impact of various interventions on TQM

In addition to the issues discussed in the previous section, the literature appears to highlight a number of salient issues of debate in the TQM field. Two such issues that appear to be a primary concern are: (i) the use of external consultants and (ii) the relevance of quality assurance systems. In these cases, it is the effect or impact that they have on TQM that is the issue, rather than the effect that TQM has on them.

2.10.3.1 Use and role of external consultants

Many authors have commented on the use of external consultants by organisations attempting to bring about worthwhile change through the introduction of a TQM approach, for example, Main (1986); Lascelles and Dale (1988); Newall and Dale (1991); Glover (1993); Haefner (1993); Harari (1993a); Marash (1993); Davies (1994) and Harte and Dale (1995b).

Main (1986) noted that the corporate appetite for advice about quality seemed to be insatiable. He suggested that large organisations especially, appear to want to hire every expert they can catch, lest they miss the one with the real secret. TQM related surveys suggest that the use of external consultants is widespread [Abram, Hawkes plc and Kingston University (1993); A.T. Kearney and The TQM Magazine (1991)]. Abram, Hawkes plc and Kingston University's (1993) study found that of the eighty eight respondents claiming to have a TQM programme, fifty seven percent used external quality consultants to help with implementation. A.T. Kearney and The TQM Magazines's (1991) study reported that 73 percent of all respondents used consultants to assist them with their total quality programmes. The survey also reported that the perceptions of the contribution of consultants varied widely, that the companies that achieved tangible results although more likely to use consultants, were more likely to rate their contributions as of insignificant value.

Davies (1994) proposed that it is often advisable for an organisation thinking of introducing TQM to speak to several TQM consulting organisations to obtain advice, as it may be helpful to employ an experienced TQM expert in the early stages of implementation. Similarly, Glover (1993) suggested that outside change agents can be helpful in some TQM design and implementation situations. Nevertheless, both authors agreed that the consultants must hand over quickly to the organisation's employees. Glover suggested that too often such projects become overly identified with the consultant or their company, and the result is a system implementation process which

eventually must be transferred to the people in the organisation. Furthermore, that the longer the organisation waits to accept responsibility for TQM the greater the potential for problems and even failure.

However, despite the apparent widespread use, comment on the applicability of using external consultants has clustered mainly towards negative perception. Lascelles and Dale (1988), Newall and Dale (1991), Haefner (1993), Harari (1993a) and Marash (1993) have all warned about the use of external consultants. Lascelles and Dale (1988) pointed out that management's chase of the "quick fix" is a theme which occurs with increasing frequency in the literature on management in general, not just quality management. They further suggested that in general, quality management consultants have a tendency to emphasise the tools with which they are familiar, whereas it may be another technique which the company they are advising really needs. Likewise, Harari (1993a) suggested that the proliferation of consultants aggravates the problems rather than solves them because each consultant and consulting company preaches its own pet strategies and techniques and insists that the company adhere to them. Harari reported that an Ernst & Young study found 945 different quality-management tactics being peddled in the TQM market. Newall and Dale (1991) argued that companies subsequently find that the "package" chosen is not suited to their needs and is either rejected or extensively modified, adding that the choice appears to be greatly influenced by the aggressive marketing and 'hard sell' techniques employed by some consultants. Marash (1993) observed that the poor reputation of some outside experts had caused many company executives to actually shy away from consultant help and instead, attempt to implement changes on their own.

The non-prescriptive literature provides little in the way of clarification. Mann and Kehoe (1994c) concluded from their study that it was advisable that a TQM expert/consultant is available for advice and assistance. Conversely, Harte and Dale (1995b) concluded from their study that management consultants were not the starting point for introducing TQM in professional service organisations. Rather, they proposed that if a TQM initiative was to be successful it must be owned, designed and implemented by an organisation's senior management team.

Notwithstanding the widespread negative perceptions, it appears that no studies have specifically been undertaken to substantiate the various claims, or in order to discern the recommended scope and recommended role(s) of external consultants' involvement in the introduction or sustainment of TQM. In addition to the A.T. Kearney and The TQM Magazine (1991) findings reported above,

the author was able to locate only one related contribution. Bemowski and Kelly (1992) surveyed consulting ASQC members worldwide in an attempt to ascertain the attributes perceived to be important in an external consultant for helping an organisation in their quality improvement process. *Knowledge in the quality field; experience and communication skills* ranked the highest. Only a small proportion of respondents appeared¹⁰⁶ to regard *commitment and technical competence/expertise* as important attributes.

2.10.3.2 *Relevance of BS EN ISO9000 to TQM approach*

In 1979 the British Standards Institute modified the DEF STAN 05 and NATO AQAP quality systems standards to create a series of quality systems standards identified as BS5750 Part 1, Part 2 and Part 3. This was done in order to transfer the perceived benefits of the quality assurance schemes developed by the defence industry into the wider commercial sector. It was recognised soon after that a quality system requiring contractor audits could result in multiple companies visiting each contractor's site to assess the existence and implementation of a documented quality system in compliance with the appropriate standard. The concept of registration/certification¹⁰⁷ was developed to minimise multiple audits. These third-party audits were designed to assure prospective customers that appropriate quality systems were in place and that they need not perform their own assessment. Recognizing the value of quality system standards, the International Organisation for Standardization published the ISO9000 series in 1987 (Marash, 1993).

The review of the literature presented in section 2.6 suggested that quality systems such as ISO9000 are considered to be an element/component of a TQM approach. Furthermore, it has been suggested that the ISO9000 series of standards is a useful entry step for an organisation wishing to adopt a total quality approach [Marash (1993)]. This is because they can be considered to be a completely contained sub-set of TQM, and one that has a measurable achievement, that is to say certification. According to Terziovski et al (1997) there appears to be consensus in the literature, for example, Binney (1992), Brown (1994) and Bredrup (1995) that certification is a potential path to TQM. Askey and Dale's (1994) case study examination of the lessons learned by a large UK based manufacturer in using ISO9000 registration as a foundation for developing TQM, however, suggested the contrary.

¹⁰⁶lack of methodological detail in the report precludes a definitive account.

¹⁰⁷Registration is carried out by an accredited organisation - that is, an organisation that has demonstrated to an accrediting agency that it has a documented system, and has trained and certified lead assessors who can perform an independent assessment.

It appears, from references cited in the wider 'business' literature, that the business value of quality assurance systems [certification] is very unclear. Mixed reports have been cited in for example Campbell (1994) and Brecka (1994). Examination of the more specific TQM literature provides an almost equally inconclusive picture, though here, the non-prescriptive evidence appears to point more towards an overall negative perception than a positive perception. Evidence identified primarily in support includes Benson (1992), SEPSU (1994) and van der Wiele et al (1996), and evidence located primarily in opposition includes IDS (1990), Newall and Dale (1991), Wilkinson et al (1995) and Terziovski et al (1997). The positive and negative perceptions are briefly discussed below.

Evidence primarily in support of quality assurance systems

SEPSU (1994) investigated the evidence on ISO9000 certification by examining a large number of other authors' surveys on various aspects of quality management. This was supplemented by additional survey data collected by the British Quality Foundation, and a number of interviews with organisations. SEPSU concluded that companies were more likely to seek ISO 9000 registration as part of their marketing strategy than as part of their quality management strategy but, nevertheless, ISO9000 can bring benefits to a company in terms of greater awareness of quality issues and internal and external cultural changes. SEPSU further concluded that if unimaginatively implemented, it can however multiply bureaucracy and become a tool for codifying and freezing current practices. The International Quality Study (IQS), which studied quality practices of over 500 organisations from four industries in the US, Canada, Germany and Japan (see section 2.6.1.2), concluded that some quality practices, particularly supplier certification and processes improvement, did have a significant effect on performance (Benson, 1992). van der Wiele et al (1996) reported on a six European country questionnaire survey examination of quality management self-assessment. Part of the survey asked the company respondents for their perceptions about ISO9000 series through a number of prepared statements. 407 responses were received from the 1600 questionnaires distributed. According to van der Wiele et al, the sample of companies in each country were selected because they were known to have a good understanding of quality management. Based on the findings, the authors concluded that it was clear that the respondents had a positive perspective about ISO9000 series with regard to the value of registration. The authors reported that respondents clearly believed that there were clear business benefits from the registration, and that there was some agreement that the cost of getting

ISO9000 series registration was not excessive in comparison to its value¹⁰⁸.

Evidence primarily in opposition to quality assurance systems

IDS (1990) concluded from their empirical examination of the TQM approaches of five recognised total quality companies, that there were significant differences between the BS5750 approach and total quality, and in some ways they may even push in different directions. IDS suggested that while accreditation under BS5750 may provide improvements in a company's quality standards, it would be misleading to describe it as *"the first rung of the total quality ladder"*. IDS added that it may however open managers' minds to further possibilities. Newall and Dale (1991) reported findings from their study of TQM in eight UK companies. They reported that only one of the seven companies that had either gained or were seeking to gain BS5750/ISO9000 certification, had considered that it was an essential stage in the development of their quality improvement process. Another company believed that the work needed to gain certification would ultimately help to hold together their quality improvement process. However, for five companies, quality system certification was sought simply in order to show to their customers and suppliers a 'visible' commitment to quality improvement and to meet the order qualifying criterion. These findings led Newall and Dale to conclude that certification is not regarded as a particularly important element in the quality improvement process, and to suggest that a large number of companies already have a quality system and procedures which exceed BS5750/ISO9000 system series requirements. Wilkinson et al's (1995) BIM member survey of TQM operation in the UK reported that BS5750/ISO9000 in particular was criticized by some managers for being overly bureaucratic and for placing an additional burden on organisations while adding little value. Terziovski et al (1997) undertook a study to examine the strength of the relationship between ISO9000 certification and organisational performance under different conditions¹⁰⁹. Data were collected for one independent variable: ISO9000 certification, and for 13 organisational performance dependent variables, by questionnaire from 962 Australian and 379 New Zealand manufacturing firms. Multivariate analysis of this data suggested that there was no significant positive relationship between ISO9000

¹⁰⁸van der Wiele et al did point out however, that their findings were somewhat different from those arising from other surveys that had been carried out in the UK, for example Bethell (1993), Campbell (1994) and Commerce (1994), which had outlined the high cost of implementation and registration, particularly for smaller companies.

¹⁰⁹three hypotheses were tested: (a) *there is a significantly positive relationship between ISO9000 certification and organisational performance*; (b) *there is a significantly positive relationship between ISO9000 certification and organisational performance in a 'strong' TQM environment* and (c) *there is no significant positive relationship between ISO9000 certification and organisational performance in a 'weak' TQM environment*.

and organisational performance, even when moderated by a 'strong' or 'weak' TQM environment. This led Terziovski et al to conclude that over a population, or for a single firm, the validity of ISO9000 as an indicator of superior performance in any respect must be seriously questioned.

A review of the TQM literature suggests that to date, ISO9000 certification does not have a strong relationship, either perceived or statistically demonstrated, with improved performance. That is to say there appears not to have been a significantly positive performance impact from its adoption. Rather, it appears that where ISO9000 certification is implemented effectively, it is perceived that it may then act as a foundation on which to build a quality organisation. The principal motivation to pursue ISO9000 appears not to be because it is considered an essential component of a TQM approach, but because of pressure from customers. Arguments for and against the adoption of quality assurance systems as a necessary element of a TQM approach, for example Tsiotras and Gotzamani (1996) and Seddon (1997¹¹⁰), continue to appear in the literature. Nevertheless, many organisations, particularly SMEs, remain under pressure to gain registration to a standard quality assurance system (Anon, 1993b). Despite an extensive literature search the author was unable to locate any published material that has non-prescriptively examined why and how organisations have realised performance benefits from the introduction of quality assurance systems.

2.10.4 External range of applicability of TQM

In section 2.2 the origins and historical development of TQM were described. The early work in the field of quality tended to suggest that the quality management approach, as the underpinning management strategy of an organisation, was universally applicable to all types of organisation. Examination of the works of the quality gurus (described in section 2.2.1.2) time and time again has led researchers to the conclusion that the concepts and approaches recommended are presented as being universally applicable. This is despite the fact that the published works of the gurus of quality, such as Crosby, Deming, Juran and Feigenbaum fundamentally reflect their experiences at large manufacturing multi-nationals.

¹¹⁰Seddon (1997) reported some results from an extensive 1993 opinion survey of 647 ISO9000 registered organisations, which led him to conclude that they were not results which encouraged confidence about ISO9000 registration (it should be pointed out however, that this author acknowledged that the survey had suffered problems of reliability and validity). According to Seddon, subsequent research projects conducted by Manchester Business School and by Surrey University ("ISO9000 - does it work? A report by Manchester Business School 1995", commissioned by SGS Yarsley International; and "Fitter Finance. The Effects of ISO9000 on Business Performance", commissioned by LRQA Ltd.), both on behalf of assessing organisations, found similar results though naturally these results were reported with a more positive 'spin'. (Unfortunately, the author did not manage to obtain further details of these three studies in order to substantiate Seddon's claims.)

Since these early works, both the development of TQM and practice of TQM do clearly indicate and confirm that TQM is appropriate for (a) large organisations and (b) manufacturing organisations. The evidence for (a) small to medium-sized enterprises (SMEs) and (b) service organisations has been less pronounced. In both cases, it also appears that the TQM literature has been and remains little concerned with any possible differences or contingent requirements in their needs for effective TQM. In the two sections that follow, findings from the literature relating to the applicability and requirements of TQM in SMEs and service organisations respectively are presented.

2.10.4.1 SME applicability

There appears to be a general consensus in the literature that SMEs have been slower than their large counterparts to embrace the TQM concept¹¹¹. Nevertheless, the perceived importance of quality management and TQM to SMEs has been highlighted by a number of authors [Penzer (1991); Wernick (1991); Axland (1992); Moreno-Luzon (1993); Price and Chen (1993) and SEPSU (1994)]. SEPSU (1994), considering UK quality management policy options, concluded that a small company has the same need as any other for an effective approach to quality management.

With the exception of some single case evidence, it appears that such perceived importance has only recently started to be demonstrated through the findings of non-prescriptive studies [GAO (1990); Shea and Gobeli (1995); Ahire (1996); Ghobadian and Gallear (1996) and Ghobadian and Gallear (1997)]. The GAO (1990) examination of the impact of TQM practices on the performance of twenty high scoring Baldrige winners concluded that the diversity of companies studied showed that TQM is useful for small companies (not more than 500 employees) as well as large (500 or more employees). Shea and Gobeli (1995) reported on an exploratory study of ten US small businesses all employing fewer than fifty employees which, according to the authors, were all consciously pursuing a TQM approach. The study comprised questionnaire driven personal interviews with leaders of the TQM implementation effort. The authors reported that all ten organisations endorsed the decision to learn and adopt TQM concepts, and that all had benefited. It should be pointed out that evidence substantiating the latter claim was not however presented. Based on their findings the authors concluded that TQM principles and tools can be applied to

¹¹¹For example, Lascelles and Dales' (1990b) UK motor industry survey finding that companies with greater than 500 employees (i.e. large) were more likely to use a wider range of TQM techniques and to engage in advanced quality planning and process improvement activities than companies with fewer than 500 employees, would appear to provide non-prescriptive justification for this view.

improve small businesses. Ahire (1996) concluded that the existing TQM literature was oriented towards applicability of various TQM elements in large firms, and may not serve the needs of small firms. In an attempt to examine the applicability of quality management elements to small firms, Ahire proposed eleven hypotheses to be tested, ten hypotheses relating to ten quality management implementation constructs¹¹², and one relating to the operational performance outcome construct *product quality*. These were tested through the administration of a postal survey instrument to small firms (less than 150 employees) in two industries, electronics (SIC 35) and motor vehicle parts and accessories (SIC 37). The response was segmented into those indicating they had implemented a formal TQM campaign (68 responses) and those who hadn't (113 responses). Based on the results of one-tailed t-tests, Ahire concluded that small firms that have successfully adopted the TQM strategy make a conscious, well co-ordinated effort to better execute the ten implementation elements, and that they also produce superior quality products as compared to small non-TQM firms. Ghobadian and Gallear (1996) concluded that their inductive research supported the hypothesis that SMEs can readily adopt the TQM principles. This study is reviewed in greater detail below.

However, as recently as 1994, there were suggestions that SMEs themselves may still be questioning the applicability of TQM. For example Goh and Ridgeway (1994), having surveyed thirty small and medium-sized manufacturing companies by interviewing senior quality representatives, concluded amongst other things that: (a) the majority viewed BS5750 as the end-point in their quality drive; (b) top management in most of the companies felt that TQM was inappropriate, viewing it as being applicable only to large companies and (c) companies which have been BS5750 certified were apprehensive of embarking on yet another quality programme. Goh and Ridgeway did report though, that the economic climate at that time had resulted in some companies shelving plans for TQM implementation because of financial constraints.

Literature on small businesses highlights the differences between them and large firms in terms of managerial, operational and organisational competencies, and has also shown small firms to be different from large firms in terms of their operational policies (Ahire, 1996), for example [McMillan (1975), Deeks (1976), Welsh and White (1981) and d'Amboise and Muldowney (1988)]. In view of such differences a number of authors have argued that TQM principles, procedures and tools that work for large organisations may be ineffective in the smaller

¹¹²top management commitment; customer focus; supplier quality management; design quality management; benchmarking; SPC usage; internal quality information usage; employee involvement; employee training and employee empowerment.

organisation [Price and Chen (1993); SEPSU (1994); Zetie et al (1994); Huxtable (1995); Shea and Gobeli (1995) and Ghobadian and Gallear (1996)]. Various perceived advantages and disadvantages for small as compared to large organisations in terms of adopting TQM have been proposed.

A small number of recent studies have also been undertaken to examine the TQM strategies adopted by SMEs in an attempt to delineate the salient components and tactics appropriate to them. In some cases [Ahire and Golhar (1996) and Ghobadian and Gallear (1996, 1997)] this has included a comparison of the SMEs' TQM strategies against those that have been used by larger organisations, and which have been considerably more widely documented.

Ahire and Golhar (1996) examined whether a firm's size affected the TQM strategy used. Using a similar approach to that described above for Ahire (1996), perceptual data on the implementation of various TQM elements and the resulting product quality in the motor vehicle parts industry (SIC 3714) were collected through a postal survey. Of the 499 responses received, 116 were judged to represent large organisation that had formally implemented TQM and 133 were judged to represent small organisations that had formally implemented TQM. The cutoff for small firms was 250 employees. Based on the results of one-tailed *t*-tests applied to the data, the results indicated that with the exception of *Customer focus* and *SPC Usage* there were no operational differences in TQM implementation attributable to firm size. This led the authors to conclude that while small firms are constrained by their clout in the market, by inadequate resources and by lack of managerial expertise, they can utilise their relative strengths such as flexibility and innovation to implement TQM elements as effectively as large firms and benefit from a resultant high product quality.

Ghobadian and Gallear (1996, 1997) examined the effect of organisation size on the implementation of TQM using case based research. Through deductive research primarily using secondary source data, the authors analysed the relationship between the inherent characteristics of TQM and size of organisation in order to form a series of research questions. The relevance of these research questions was examined [Ghobadian and Gallear (1997)] through the conduct of four case studies, two in SMEs and two in large organisations. The authors acknowledged that the four case studies were not sufficient to explore all of the large number of variables deductively identified. However, the authors concluded from the findings that basic concepts of TQM used in large organisations were equally applicable in the SME context, although, the findings showed that

the detail and method of implementation differed. For example, the size of organisation was found to influence the type of strategies adopted for obtaining greater cross-functional integration, nature and substance of management leadership, communication methods, the content and extent of training programmes or the nature and extent of organisational changes. That is to say, implementation of TQM in SMEs was considered to have some specific requirements.

Nevertheless, as far as it has been possible to ascertain it would appear that there is still a significant paucity of research questioning and examining the universal applicability of TQM with respect to *size* of organisation. Of the sixteen non-prescriptively based contributions reviewed and described in sections 2.6.1.1 and 2.6.1.2, none consciously attempted to derive and present findings for both large organisations and SMEs as sub-samples. Beyond the few contributions reviewed in this section, and despite the widely known differences between large organisations and SMEs referred to above, published research on TQM appears to overwhelmingly treat small and large firms the same. This deficiency has been highlighted by a number of authors [Shea and Gobeli (1995), Ghobadian and Gallear (1996) and Ahire (1996)]. Shea and Gobeli (1995) argued that this is a major deficiency, especially because the SME sector is so important for its job creation potential. Ghobadian and Gallear (1996) add the high degree of interdependence in the modern economic infrastructure, as is particularly evident in the extensive practice of out-sourcing, to this argument. It is interesting to note that the US MBNQA, European and Australian Quality Awards described in section 2.6.5 use the same criteria to evaluate quality management effectiveness in both large and small organisations.

2.10.4.2 Service industry applicability

There appears to be a general consensus in the literature that historically, the service sector has been slower to take up TQM than the manufacturing sector¹¹³. A number of recent surveys [Lascelles and Dale (1990a); Wilkinson et al (1995); Heller (1994) and Mohrman et al (1995)] appear to confirm that the situation remains the same, with service sector organisations lagging manufacturers in the practice of TQM. Wilkinson et al's (1995) BIM sponsored survey of TQM in the UK led them to conclude that while quality management campaigns were to be found in all sectors of the economy, they appeared to be more widespread in the manufacturing industry and primary sector, but rather less common in the service sector. The survey reported by Heller (1994) found that in general, service businesses lagged behind manufacturing, and non-production

¹¹³see section 2.2 Origins and Historical Development of TQM.

departments behind production-related departments. Presenting the findings of their study of chief executives awareness and attitudes to quality, Lascelles and Dale (1990a) commented that it was of interest to report that based on the comments made in the covering letters which accompanied the questionnaires returned uncompleted, a number of service organisations did not perceive quality management as relevant to their business activities.

The perceived importance of TQM to the service sector has been highlighted by a number of authors, for example Ross and Shetty (1985), GAO (1990), Clemmer (1991) and Lakhe and Mohanty (1995). Ross and Shetty (1985) commented that the perceived importance of quality was not confined to manufacturers, citing the chairman and CEO of American Express' Travel Related Services to the effect that "quality" was the only way his organisation could differentiate their product in the marketplace. The GAO (1990) examination of the impact of TQM practices on the performance of twenty high scoring Baldrige winners concluded that the diversity of companies studied showed that TQM is useful for companies that sell services as well as for companies that produce and sell manufactured goods. Clemmer (1991) suggested that the service sector may have even more to gain from service/quality improvements than manufacturers, citing that the American Society for Quality Control (ASQC) had found that whilst the cost of quality for manufacturers was typically 20-25 percent of operating revenue, this cost jumps to 30-50 percent of revenue for service organisations. A number of case studies of high profile service sector organisations that have introduced and used the TQM approach successfully can be found in the literature [Partlow (1993); Pitmann (1993); Anfuso (1994); Cowling and Newman (1995); Ghobadian et al (1998)].

As with the *size* of organisation contingency, differences exist between the structuring, operations and managerial competencies of service organisations and manufacturing organisations. It may be argued that these differences exist primarily as a consequence of the differences between a "product" and a "service". Literature on service industry highlights these differences [Lockyer (1986); Hakes (1991); Ghobadian et al (1994a) and Lakhe and Mohanty (1995)]. Hakes (1991) outlined ten commonly held perceptions about what makes a service different from a product. Ghobadian et al (1994a) outlined four salient differences. Lakhe and Mohanty (1995) outlined ten major distinctions between service and manufacturing systems.

A number of authors have proposed that these differences are likely to impact on the approach and substance of quality management, and consequently that service organisations may require a different TQM approach than that which is applicable in the manufacturing setting [Ghobadian et

al (1994a) and Lakhe and Mohanty (1995)]. A number of authors have offered their perceptions about the broad differences that are likely to impact on the approach [Hakes (1991); Bright and Cooper (1993) and Sullivan-Taylor and Wilson (1996)].

Sullivan-Taylor and Wilson (1996) and Hakes (1991) have both pointed out a paradox concerning implementing TQM in the services sector. They suggested that on the one hand a perception exists that implementing service quality in services is easier than implementing product quality in manufacturing. This is because the moments of truth between employee and customer are more frequent and visible in the service setting, and therefore it is assumed that the ability to control them is easier. On the other hand, implementing TQM in the service sector is seen to be more difficult because the nature of service quality is intangible, measurement perceptual and the frequency of interfaces leaves the organisation open to a higher risk of inconsistencies and more difficulties in control (Butterfield, 1991). According to Bright and Cooper (1993), three features make service quality an abstract and elusive construct: intangibility, heterogeneity and inseparability of production and consumption. They argue that it differs from product-based approaches to quality in that it is not possible to pre-specify all aspects of service quality and, that measurement of service quality must focus on the gap between what consumers feel organisations *should* offer versus their perceptions of what organisations actually provide¹¹⁴. Similar perceptions were expressed by Lakhe and Mohanty (1995) and led them to conclude that service system management was always likely to face difficulties in its attempt to implement TQM.

In section 2.3.1 the author referred to the growing body of literature relating to the dimensions of and models of service quality. Drawing on service quality case evidence, and relating this to relevant literature of the theory of service quality, Cronin and Payne (1993) presented an analysis of the factors which may act as barriers to service quality. However, in terms of the TQM approach's applicability in service organisations, and in terms of any specific requirements, there appears to remain a paucity of consideration. Of the sixteen non-prescriptively based contributions reviewed and described in sections 2.6.1.1 and 2.6.1.2, only four [Powell (1995); Wilkinson et al (1995); Mohrman et al (1995) and Ho and Fung (1995)] consciously attempted to derive and present findings for service organisations and manufacturers as sub-samples. The findings of these four contributions in this respect are reviewed briefly below.

¹¹⁴Their argument drew on the following works: Parasuraman et al (1985), Zeithaml et al (1988), and Berry et al (1990).

In their study of the largest US firms, Mohrman et al (1995) found that both (a) in terms of usage and (b) in terms of impact some of the twelve practices tested varied significantly between service and manufacturing organisations. In the former case, predictably it was found that manufacturing firms made more extensive use of the four production-oriented practices and of collaboration with suppliers and cost of quality monitoring, while service firms exceeded manufacturing firms in the use of customer satisfaction monitoring and direct employee exposure to customers. In the latter case, where regression analysis was used to determine which of the twelve practices were having the strongest impact, predictably it was reported that only the core practices that were non-production oriented were related to positive outcomes for the service organisations. Powell (1995) reported the finding from his study of the practice-performance association of twelve elements comprising the TQM approach. Powell reported that although the intangible elements were demonstrated to be universally important to TQM success, other factors were context-dependent, in particular closer supplier relationships appeared to promote TQM performance among manufacturers but not among service firms, and process improvement appeared to promote TQM performance among service firms but not among manufacturers. An examination of the findings of Wilkinson et al's (1995) BIM sponsored survey suggests that only in relation to the quality management practices of just-in-time and statistical process control (SPC) were there major differences between the TQM approach of manufacturers (the high percentage users) and service organisations. Ho and Fung (1995) reported from their survey of BS5750 registered companies in the UK that, for all ten of the core TQM elements that were included in the survey, there were no significant differences in their perceived importance based on the views of the manufacturing organisation and the service organisation sub-samples.

In sections 2.6.1.3 and 2.10.1 the author described the development of an instrument for measuring the critical factors of TQM by Saraph et al (1989). Using this instrument, Benson et al (1991) undertook a study to examine the effects of organisational context on quality management, where *organisational quality context* was defined as a business unit manager's quality environment. Specifically, the study investigated two hypotheses, H1: managers' perceptions of actual quality management are influenced by organisational contextual variables and H2: managers' perceptions of ideal quality management are not affected by organisational contextual variables¹¹⁵. Two of the organisational quality context variables tested were company size and company type. Based on

¹¹⁵where: *ideal quality management* was defined as a business unit manager's beliefs concerning what quality management should be in the business unit, and *actual quality management* was defined as the manager's perceptions of the current practice of quality management in the business unit; and where both were measured in terms of the eight critical factors of effective quality management contained in the instrument referred to.

the multivariate analyses of the responses of 152 managers from 77 business units of 20 US manufacturing and service companies, Benson et al found that managers' views of ideal quality management were not related to either their company type (manufacturing or service) or company size. Benson et al concluded that the study therefore supported the idea that beliefs concerning ideal quality management do not systematically differ according to organisation type or size. However, the results did signal a difference in the effects of other contextual variables on the practice of quality management depending on whether the organisation in question was involved with manufacturing or service. Examination of the statistics suggested that actual quality management in manufacturing organisations was affected by both internal contextual factors: corporate support for quality; past quality performance and management knowledge, and external contextual factors: extent of entry barriers and degree of external quality demands. In the service sub-sample however, only internal factors: corporate support for quality, past quality performance and product complexity were correlated with actual quality management. The authors acknowledged that they could only speculate on the reasons behind these findings, but nevertheless suggested that they indicated that manufacturing and service firms may have differing needs in terms of the quality management approach.

One literature contribution was located that has indirectly examined the appropriateness of various TQM approaches to service organisations [Shadur (1995)]. As part of an examination of issues relating to the development of 'standards-based' and 'culture-based' total quality programmes, Shadur (1995) examined the experiences of two companies that had attempted to implement them. One organisation, a manufacturer, had introduced a standards-based approach and the other, a service organisation, had introduced a culture-based programme. Indirectly, Shadur was testing the proposition put forward by Albrecht (1990) that the standards-based approach was more appropriate to manufacturing organisations and the culture-based approach was more appropriate to service organisations. Based on the findings, Shadur concluded that standards-based approaches were generally more easily applied to manufacturing organisations, but that the service organisation case had shown the variable nature of culture-based approaches. This led Shadur to suggest that irrespective of manufacturing or service orientation, it might be preferable to initiate a standards-based system and use cultural interventions in a supporting role.

Beyond the few contributions cited above, and despite the widely known operating differences between service organisations and manufacturers, published research on TQM appears to overwhelmingly treat service and manufacturing organisations the same. The author was unable

to locate any study that specifically sought to comparatively examine the TQM approach requirements of service and manufacturing organisations. As was the case noted for organisation size, the US MBNQA, European and Australian Quality Awards described in section 2.6.5 use the same criteria to evaluate quality management effectiveness in both manufacturing and service organisations.

CHAPTER 3: METHODOLOGY - RESEARCH DESIGN

3.1 Introduction

In this chapter the methodological approach adopted for the investigation is described and discussed. On the subject of research methodology and business decisions, Buckley et al (1976) commented:

"The rich context of methodology creates both opportunities and pitfalls in research. On the one hand the researcher can choose from among a variety of strategies, domains and techniques. On the other hand such freedom of choice imposes a responsibility on the researcher."

In this respect, they asserted that it was important that the researcher give evidence that a methodology was selected with a full understanding of the alternatives which were available.

The ultimate objective of a research project's methodological considerations is the selection of the appropriate method(s) or technique(s) for collecting and analysing the data. Gummesson (1991), on the subject of the quality of research, asserted that the methods/techniques used are considered to be of critical importance. In the field of 'organisational behaviour' to which this study pertains, the research methods/techniques available were very wide-ranging.

According to Homans (1951), *"there are neither good nor bad methods, but only methods that are more or less effective under particular circumstances in reaching objectives on the way to a distant goal"*. There is a need to be aware of both the opportunities and limitations associated with particular methods of data collection (Bryman, 1989), and that different methods have differing inherent strengths and weaknesses (Gill and Johnson, 1991), which need to be taken into account in relation to the goals of the research. The aim is to try and reconcile research *problem* and research *method* as far as possible in order to maximize damage limitation (Bryman, 1989).

With these observations in mind, it was clear to the author that in selecting the methods/techniques to investigate a research problem, guidelines relating to methodological choices would be very useful. Much has been written on the subjects of research and methodology, but as Buckley et al (1976) further pointed out:

"the wealth of information may have actually served to hamper the novice researcher. A bewildering maze of terms, definitions and philosophical arguments confronts the answers to even straight-forward question[s]."

They are not alone in their view. Gill and Johnson (1991) offered a note of caution that the rational research model put forward in the traditional research methods textbook - which presents the research process as an idealised, neat series of logically directed steps - does not provide a description of the way in which research is actually conducted. They likened the rational research model to the managerial process - which until recently was idealised by textbooks as a logical, orderly one of planning, controlling and the like. They further made the observation that some writers [for example Becker (1965); Kulka (1982) and Martin (1982) and Pettigrew (1985a)]¹¹⁶ have even gone as far as to "suggest" that the research process is best designed in the course of execution. Morgan (1983) took a similar stance, proposing that if research models are interpreted too literally they can exert a confining and diversionary hold on imagination, as interest in the classification "map" replaces interest in the "territory". A wider review of the literature further substantiated these views. In addition however, the review (a) revealed no "concrete" alternatives to the aforementioned 'rational research model', but (b) suggested that most guidelines were underpinned by essentially the same issues, and (c) suggested that an important aspect of methodological considerations often overlooked, was consideration of the research *design*, as distinct from the research *methods/techniques*.

At this point the author would like to make this distinction:

- research *methods/techniques* refers to the methods/techniques of data collection and analysis, whereas
- research *design* refers to the overall structure and orientation of the investigation (Bryman, 1989) - this structure provides a framework within which data are collected and analysed.

The author concluded that to overcome the apparent hurdle of effectively reconciling research

¹¹⁶Becker, H. S. (1965), "Review of P. E. Hammond's *Sociologists at Work*", *American Sociological*, Vol. 30, pp. 602-63.; Kulka, R. A. (1982), "Idiosyncrasy and circumstance: choices and constraints in the research process", in McGrath, J. E., Martin, J. and Kulka, R. A., *Judgement Calls in Research*, Sage, London; Martin, J. (1982), "A garbage can model of the research process", in McGrath, J. E., Martin, J. and Kulka, R. A., *Judgement Calls in Research*, Sage, London; Pettigrew, A. M. (1985), "Contextualist research: a natural way to link theory and practice", in E. E. Lawler, A. M. Mohrman, G. E. Ledford, T. G. Cummings and Associates (Eds.), *Doing Research that is Useful for Theory and Practice*, Jossey-Bass, San Francisco.

problem and *method/technique* in the absence of generally accepted guidelines, greater consideration should be given to the manner in which methodological guidelines are used. In the author's view, a sensible approach would be to focus on addressing research *design*, and to consider it in a non-prescriptional, non-sequential manner. This approach was adopted by the author.

Buckley et al (1976) offered "*a basic framework to aid the researcher in designing and conducting [their] work in a systematic way*" which could be used in the manner described above. The framework is reproduced in figure 3.1. The framework proposes that having identified the research *problem*, five decisions/judgments need to be resolved before the research can effectively be embarked on. These relate to:

- choice of *mode* of study;
- choice of one or more research *strategy*;
- choice of research *domain*;
- decision about using formal or informal *technique(s)* and
- choice of actual *method(s)/technique(s)* to be used.

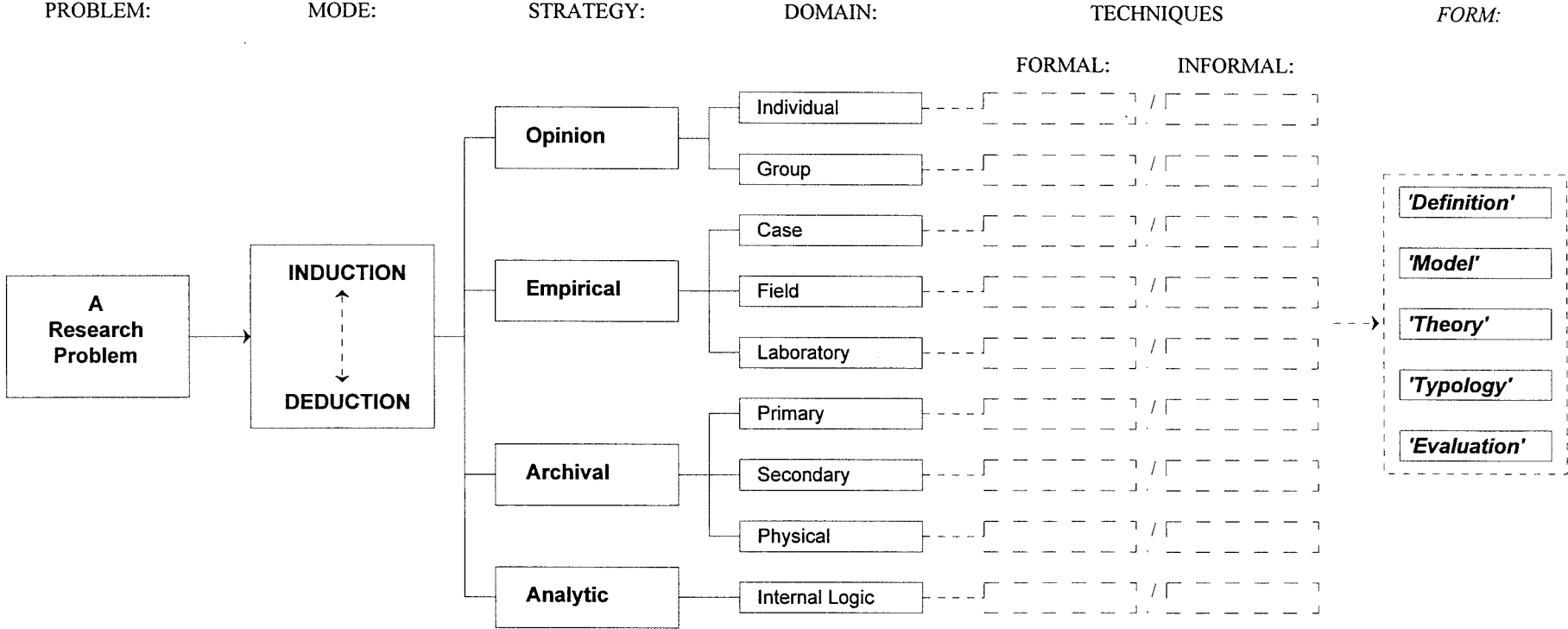
The latter was referred to at the beginning of this section as the ultimate objective of methodological considerations. Essentially, the four former decisions/judgements guide the researcher to accomplishing this objective, but the choices can be viewed and addressed as 'issues to be resolved' rather than as 'logical steps'. The author would add a sixth decision/judgement to the framework. This was:

- a notion of the *form* of the desired outcome,

and stemmed from the view, prompted by Anthony (1973)¹¹⁷ and Buckley et al (1976) that in taking up the challenge of a research problem, an objective of the researcher must be that the findings make a potential contribution to knowledge, and in this respect the researcher should have a broad conception of how the findings can eventually be communicated, used and lead to a better understanding.

¹¹⁷cited in Buckley et al (1976).

Figure 3.1 - A framework for Research Methodology (adapted from Buckley et al (1976))



3.1.1 Structure of chapter

The gaps in knowledge and understanding identified in section 1.1 and subsequently elaborated on in chapter 2 guided the development of the aim and objectives of this study. The aim and objectives of the study in turn determined the shape of decisions that would influence the six research *design* decisions/judgements alluded to in the previous section.

The remainder of the chapter comprises of four parts. Sections 3.2 to 3.4 describe the resolution of the six research *design* decisions/judgements. In section 3.2, the author elaborates on why it has been decided to build a theory of TQM, and in so doing, identifies the required constituents and desirable characteristics of a good theoretical contribution, and desirable characteristics of a theory building process. The discussion is therefore also concerned with establishing what does not constitute theory.

Section 3.3 discusses the *modes* of research employed by the study. In section 3.4, arguments and conclusions are presented relating to the choice of research *strategy*. The research *technique* appropriate to the chosen research *strategy* is subsequently discussed. Section 3.5 summarises the complete research *design*.

In chapter 4 an account of the actual research process that was followed, as was determined by the research *design*, is presented. This includes discussion of the selection criteria and demographics of the study's sample. In addition, some pertinent technical guidelines, and an overview of the various data analysis techniques used in the investigation are presented.

3.2 A Theory of TQM

In section 1.3 the author proposed that the desired outcome of addressing the research *problem* was the development of a theory of TQM. Emory and Cooper (1991) suggested that while theory development had not historically been an important aspect of business research, it was becoming more so. Actual 'definitions' of theory appeared to be sparse in the literature. Of fifteen discussions of theory located in the literature, only three put forward a definition of theory. Unlike "TQM" nevertheless, there appeared to be broad agreement in the literature as to what constitutes a theory. According to Gill and Johnson (1991), in its narrowest sense, a theory is *a network of hypotheses advanced so as to conceptualize and explain a particular social or natural*

phenomenon. Similarly, Bacharach (1989) described a theory as *a collection of constructs which are related to each other by propositions*. Bacharach (1989) further explained in more detail that a theory may be viewed as a system of constructs and variables in which the constructs are related to each other by propositions and the variables are related to each other by hypotheses, with the whole system bounded by the theorist's assumptions. Emory and Cooper (1991) defined theory as *a set of systematically interrelated concepts, definitions, and propositions that are advanced to explain and predict phenomena (facts)*.

It could be inferred from these "definitions" that theory is characterised by an attempt at explaining observations and then, from those explanations predictions or expectations might be generated (Gill and Johnson, 1991). These definitions also highlighted the three important constituents of theory: (a) *concepts / constructs*, (b) *relationships* and (c) explanation of *underlying logic*.

3.2.1 *Constituents of theory*

Concepts can be regarded as the 'whats' of a theory (Whetten, 1989). If one is to understand and communicate information about objects and events, there must be a common ground on which to do it, and *concepts* are used for this purpose. According to Emory and Cooper (1991), a concept is *a bundle of meanings or characteristics associated with certain events, objects, conditions, situations and the like*. They suggested that there is no sharp demarcation between concepts and constructs, but proposed that if there is a difference, it is simply that constructs are more complex, built by combining [the] simpler concepts, especially when the idea or image intended to be conveyed is not directly subject to observation. Other authors have offered a similar meaning for *concepts*. For instance, Krausz and Miller (1974) described *concepts* as *abstract ideas which are used to classify together things sharing one or more common properties*. Bacharach (1989) further distinguished between *constructs* and *variables*. A *construct* may be viewed as a broad mental configuration of a given phenomenon, while a *variable* may be viewed as an operational configuration derived from a *construct*. This distinction is important, and is returned to in chapter 10.

Thus, a *concept / construct*, is an image or idea specifically invented for a given research and/or theory building purpose - they are the building blocks of theory (Bacharach (1989) and Gill and Johnson (1991)). As Bryman (1989) advanced, *concepts*:

"have a synthesizing function in that they summarize and afford a sense of coherence to an otherwise amorphous mass of relatively unsystematic observations."

Concepts are created by classifying and categorizing objects or events that have common characteristics beyond the single observation (Emory and Cooper, 1991). On their own, concepts tend to be of limited use. The structure of a theory goes beyond the identification of a set of concepts, and aspires to answer the question of 'how' the concepts are inter-related. Considering and addressing the links between concepts introduces association and/or causality (i.e. *relationships*) and adds order to the conceptualisation. The concepts and the association or causality between concepts form the typical base structure or domain of a theory.

It is largely the third constituent of theory that differentiates it from other *forms* of output. Whetten (1989) suggested that the essential ingredients of a value-added theoretical contribution are explicit treatments of: who, what, where, when, why, and how, and that the greatest of these questions is *why?*. This is because an important aspect of the process through which people extract the meaning of events is how they understand the underlying forces that cause events to occur (Cantor and Brown (1981) and Harre (1981))¹¹⁸. Therefore, revealing the **logic underlying** the domain of the theory requires asking the '*why?*' question.

3.2.2 *How a theory differs from other forms of output*

Theory differs from other *forms* of output. *What* and *how* describe; only *why* explains (Whetten, 1989). Bacharach (1989) agreed, suggesting further that the primary goal of a theory is to answer the three questions of *how*, *when* and *why*. This is unlike the goal of other *forms* of output, for instance that of description which is to answer the question of *what*. The following paragraphs seek to clarify this point, by contrasting theory against the two most common forms of output in the organisation and management field - *description* and *models*. These *forms* of output are especially prevalent in the narrower field of TQM.

- *theory versus description*

According to Bacharach (1989) *description* should be distinguished from theory, because in the organisation and management literature the two are often confused. Specifically, Bacharach (1989)

¹¹⁸cited in Meinol and Ehrlich (1987).

suggested that this applies to three modes of *description*:

- *categorization* of raw data, whether qualitative or quantitative;
 - *typologies* - while typologies are more abstract than a categorical description of raw data, such typologies are limited to addressing the primary question asked by descriptive researchers, the questions of *what*, rather than the more theoretical *how*, *why* and *when* and
 - *metaphors* - a statement that maintains that two phenomena are isomorphic (have certain properties in common) are powerful literary tools, but to be of use in the development of theory in organisational behaviour, a metaphor must go beyond description and be a useful heuristic device. In this context, metaphors are not theories (but may well serve as precursors to theories, and should be judged on that basis).
-
- *theory versus a model*

As the literature review revealed, a large number of contributors to knowledge in the field of TQM have tended to develop and put forward a model of TQM. Emory and Cooper (1991) suggested that the term model was used throughout the various fields of business and allied disciplines with little agreement as to its definition, and that this may be because of the numerous functions, structures and types (e.g. descriptive; explicative and simulative) of models. However, the literature would appear to support the observation that models represent phenomena through the use of analogy. A *model* was defined by Emory and Cooper (1991) as *a representation of a system that is constructed to study some aspect of that system or the system as a whole*. The key differentiator between theory and model is that a theory's role is "explanation", whereas a model's role is "representation". However, this does not mean that a theory cannot contain a model.

3.2.3 *The value of a theoretical contribution*

Thus, a theory in its correct form, offers structure to a subject that goes beyond prescriptions (Anderson et al, 1993). A good theory goes beyond establishing empirically observed patterns, that is, it tries to explain what caused them (Van de Ven, 1989). The author believes that it is the absence of consideration of the theoretical constituent *underlying logic* that has contributed heavily to much of the confusion surrounding TQM.

A very important aspect of a theory is that it can be used to guide practical actions. As Pugh (1971)¹¹⁹ claimed, every managerial act rests upon "*assumptions about what has happened and conjectures about what will happen; that is to say it rests on theory*". Good theory is practical precisely because it advances knowledge in a scientific discipline, it guides research toward crucial questions, and it enlightens the profession of management (Van de Ven, 1989). Theories are a means by which we generate expectations (Gill and Johnson, 1991), and thus they influence (tacitly or otherwise) how we set about future interactions.

3.2.4 *Structure of theory adopted for this investigation*

Based on examination of the literature presented in sections 3.2.1 to 3.2.3, the structure of a theory adopted for this study could be broken down into three basic components:

- ▶ the first component was the *concepts*, the building blocks of theory;
- ▶ the second component was the *association or causality relationships* between concepts and
- ▶ the final component was the *underlying logic* of the theory that makes sense of concepts and their inter-relationships.

These discussions suggested that the clarity of concepts is critical to the value of a theoretical contribution. As Bacharach (1989) stated, the purpose of theoretical statements is twofold: to organise (parsimoniously) and to communicate (clearly). Further, Emory and Cooper (1991) proposed that the success of research hinges on how clearly we conceptualise and how well others understand the concepts we use. To this end, an appropriate concept structure was developed. This structure and its development is presented in chapter 10 section 10.3¹²⁰.

3.2.5 *Some views on the theory building process*

Like many other processes in the organisational or management domain, actual (i.e. past use) and recommended approaches to theorizing range from those that can be viewed as "narrow" because

¹¹⁹cited in Gill and Johnson (1991).

¹²⁰To ensure congruence and consistency between the data collected and the theory developed, the concepts structure was developed after the findings had been gathered, and as such the description of the concept structure formation is presented in chapter 10. The reader is referred to section 10.3 should they wish to consult this description at this point.

they are hemmed by methodological strictures, to those that can be viewed as "wide" because they are primarily influenced by imagination.

For all intents and purposes, provided the appropriate choices have been made as part of the research *design*, and these are not significantly violated during execution of the research, the "executionable" details of the theory building process are at the discretion of the individual researcher. The literature did however offer some pertinent and useful views that can aid researchers in their theorizing efforts.

Van de Ven (1989) noted that many scholars report either that the standard theory building guidelines provided in standard methodology textbooks [for example Dubin (1969); Kaplan (1964); Kerlinger (1973) and Stinchcombe (1968)]¹²¹ do not apply in many topical areas of management, or that the guidelines are too standardized and formalized to accurately reflect their theory-building experiences. Weick (1989) offered additional weight to Van de Ven's assertion, suggesting that most existing descriptions of the theorizing process assume that validation is the ultimate test of a theory, and as such most descriptions of theory construction sound like conventional linear descriptions of problem solving. He argued that instead, researchers should view theory construction as sense making, and that theorizing could be substantially improved if the researcher adopts principles of disciplined imagination and views it as an evolutionary process. Van de Ven (1989) also commented that Tsoukas (1989) had cautioned that theoretical explanations are inadequate when they focus solely on the empirical domain, by only examining associations between observed organisational characteristics.

Eisenhardt (1989) acknowledged that a priori specification of constructs can help to shape the initial design of theory building research. However, Eisenhardt strongly advocated that theory building research is begun as close as possible to the ideal of no theory under consideration and no hypotheses to test. Because preordained theoretical perspectives or propositions may bias and limit findings, investigators should formulate a research problem and possibly specify some important variables, with some reference to existing literature, but avoid thinking too much about specific relationships between variables at this early stage. Bacharach (1989) expressed a similar view, noting that during the early stages of theory building, there may be a fine line between

¹²¹Dubin, R. (1969), *Theory Building*, Free Press, New York; Kaplan, A. (1964), *The Conduct of Enquiry*, Chandler, San Francisco; Kerlinger, F. N. (1973), *Foundations of Behavioural Research* (2nd ed.), Holt, Rinehart & Winston, New York; Stinchcombe, A. (1968), *Constructing Social Theories*, Harcourt, Brace & World, New York.

satisfying the criteria of the internal logic of theory and achieving a creative contribution. He asserted that a good theorist walks this line carefully.

These views supported the proposition that theory building should not be viewed as a strict mechanistic process. Rather, that provided the theory builder is not un-disciplined in their approach, common sense and imagination are valid contributions in the theory building process.

3.2.6 *Evaluation of a theoretical contribution*

When setting out to build a theory, irrespective of the field of study, it is important not only to consider and understand what the constituent parts of a theory are, but also the criteria against which it is likely to be evaluated. Generally speaking evaluation applies to two concerns:

- (a) what is included in the theory and
- (b) application of the theory, that is to say, to what the theory can be applied.

The literature indicated that there are four main criteria which apply to evaluating the theoretical contribution. For judging the extent to which the right factors have been included in the theory the criteria are *comprehensiveness* and *parsimony* (Whetten, 1989), and for judging the practical applicability of the theory the criteria are *falsifiability* and *utility* (Bacharach, 1989).

There are no hard rules governing how these criteria should be applied. As Whetten (1989) proposes in the case of *comprehensiveness* and *parsimony*, neither factor has an absolute ruling, rather judgement must be made about the relevant concepts having been included, and whether some concepts should not be included because they add little additional value to the understanding. He added that sensitivity to the competing virtues of *comprehensiveness* and *parsimony* is the hallmark of a good theorist. Poole and Van de Ven (1989) illustrated this quandary, arguing that a good theory is, by definition, a limited and fairly precise picture - it does not attempt to cover everything and would fail to meet the *parsimony* criterion if it did.

Bacharach (1989) explained that *falsifiability* determines whether a theory is constructed so that empirical refutation is possible, and in order to do this the theorist must try to avoid constructing vague theories in preference to those that are coherent enough to be refuted. *Utility*, refers to the usefulness of theoretical systems, and accordingly, a theory is useful if it can both explain and

predict - an explanation establishes the substantive meaning of constructs, while a prediction extends the explanation by comparing it to empirical evidence. In both cases, Bacharach (1989) proposed that no matter how the data are collected, researchers have the obligation to present them in a way that allows other scholars a fair chance at using and or disproving the data:

"The message to the theorist should be clear. If it is not testable, no matter how profound or aesthetically pleasing it may be, it is not a theory."

3.3 Mode(s) of Research

Mode of research refers to whether a study is primarily *inductive* or *deductive* in nature. In simple terms, it is generally accepted that *induction is the process by which theory is generated*; and *deduction is the process by which theory is tested*, though deduction also has its proponents as a theory building approach. Nevertheless, as Buckley et al (1976) proposed, both modes are present to some degree in all research. Indeed, both *modes* of research are employed in this investigation. The following sections (3.3.1 and 3.3.2) explain the *inductive* and *deductive* elements of the investigation. In section 3.3.1, the rationale for following the generally accepted view and approach described above is explained.

3.3.1 Theory building - induction

The rationale for developing theory through an *inductive* approach tends to revolve around two related arguments, as Gill and Johnson (1991) explained. First, for many researchers working within the inductive tradition, explanations of social phenomena are relatively worthless unless they are grounded in observation and experience. They cite Glaser and Strauss's (1967) rendition of this view in their book *The Discovery of Grounded Theory* as perhaps the most famous. Glaser and Strauss argued that in contrast to the speculative and a priori nature of *deductive* theory, theory that is inductively developed is more likely to fit the data and thus is more likely to be useful, plausible and accessible. The second, and related, rationale articulated in support of an inductive approach, Gill and Johnson (1991) explained, arises more overtly out of a critique of some of the philosophical assumptions embraced by what has been termed "positivism". One of the main themes of positivism and of much of the deductive tradition in the social sciences (to which the field of organisational behaviour and hence TQM pertains) is a conception of scientific method constructed from what is assumed to be the approach in the natural sciences, particularly physics:

"This entails the construction of covering-laws that explain past and predict future observations, through causal analysis and hypothesis testing. At the risk of oversimplifying, many supporters of induction in the social sciences reject this model because they consider that this kind of explanation is inappropriate. Although it may be adequate for the subject matter of the natural sciences, it is not adequate [for theory building] in the social sciences. This is because there are fundamental differences between the subject matter of the social sciences (human beings) and the subject matter of the natural sciences (animals and physical objects) from which the covering-law model came."

The point they were making was that positivism has the tendency to reduce human action to the status of automatic responses excited by external stimuli. They added that this position is illustrated by Laing (1967), who pointed out the error of blindly following the approach of the natural sciences in the study of the social world:

"The error fundamentally is the failure to realise that there is an ontological discontinuity between human beings and it-beings . . . Persons are distinguished from things in that persons experience the world, whereas things behave in the world."

Induction, is learning by reflecting upon particular past experiences and through the formulation of abstract concepts, theories and generalisations that explain past experience and predict future experience (Gill and Johnson, 1991). That is to say it is the construction of explanations and theories about what has been observed. *Inductive* research facilitates answers to *What, How, Why, Who, and Where* types of questions. That is to say it facilitates an open spirit of inquiry. The need for *deductive* research is indicated by the need to answer *Will, Is, and If* types of questions (Buckley et al, 1976). Since the desired *outcome* of this investigation was to develop a theory of TQM, and hence in so doing answer the "*why*" question, the fundamental emphasis for this research study was *induction*.

3.3.2 *Enhancing the theory - deduction*

The study contains an important element of *deductive* research. When making a theoretical contribution it is not necessary for the researcher to test the resultant theory (Bacharach, 1989). Providing the *falsifiability* criteria has been met, testing the theory can be the task of others. However, the extent to which available evidence supports the theorists answer to the "*why*" question only serves to strengthen the proposed theory's credibility (Bacharach, 1989). If further research ultimately shows the concepts to be valid, and if the propositions that specify the connections can be supported, the theory can be considered to be significantly strengthened, and

to be a sound basis for organisations wishing to introduce or refine TQM to learn from.

An important part of the *inductive* theory building process is operationalisation of the concepts. Since concepts are abstract, they are not readily observable. Through operationalisation, a concept becomes defined in such a way that rules are laid down for making observations and determining when an instance of the concept has empirically occurred¹²². This is the process of *deduction*.

In this investigation, assertions put forward by the theory are compared with factual evidence collected. Provided that the aspects of factual evidence that need to be measured are properly defined, appropriate and accurate comparison methods are devised and the results of the comparison are objectively interpreted, then correct conclusions about the theoretical contribution should emerge. The steps involved in this *deductive* element of the investigation, and the findings from this *deduction*, are described in chapter 11.

3.4 Research Strategy, Research Domain and Research Method/Technique

To recap, in the previous sections the resolution of the decisions/judgements concerning *form* of desired outcome, and *mode* of study were described. This section addresses the choices of research *strategy* and research *technique*.

According to Buckley et al (1976), *strategy* refers to the process by which data is found and analysed, and this decision is important because it largely determines the essential nature and source of the data, and the *methods/techniques* for collection and analysis. The framework in figure 3.1 proposed four general *strategies*: opinion research; empirical research; archival research and analytic research. Each *strategy* has its relevant *domains* and *techniques*. As the framework suggests, *strategy*, *domain* and *technique* are very closely related, and to a large extent, inter-dependent.

3.4.1 Research strategy and domain

In this study, resolution of the questions of which research *strategy* and which research *technique* should be employed was heavily influenced by the choice of research *domain*, rather than vice-versa. This was because *domain* had already largely been determined by definition of the aim of

¹²²This would enable the testing of new hypotheses evolved from an *inductive* theory.

the study. *Domain* refers to the data source and environment. Through the literature review it was established that there were gaps in the existing knowledge of TQM, but also that there were perceived methodological shortcomings of previous TQM research investigations. These findings guided the author to the following conclusions about the required *domain* for this investigation:

- a great deal more could be learnt from organisations that had achieved a high level of TQM success than from organisations that had either failed or made little progress, and therefore the nature and source of the data should be **best practice TQM organisations**;
- there would be a greater likelihood of reaching a greater degree of consensus about TQM if a **large and wide ranging sample** was used;
- the sample should be **international** and
- there was a need to identify pertinent differences according to *size* and *class* of organisation, and the accuracy with which this could be done would be enhanced by a relatively **large sample**.

Thus, the required *domain* of the investigation was clearly a **large group** of practitioners in the context of this study drawn from **best practice TQM organisations**.

Essentially, this judgement concerning the required research *domain*, selected the research *strategy*. Two of the possible strategies, *analytic* and *archival* were eliminated immediately. *Analytic* research relies on the use of "internal logic" on the part of the researcher - the researcher has the resources required *within* him/herself, and no explicit reference to external data sources is necessary (Buckley et al, 1976). Clearly, the *analytic* research strategy was totally in-appropriate as it is used in conjunction with a completely inappropriate *domain*.

Archival research is concerned with the examination of documented facts. Its main advantage lies in the ability to access and manipulate a vast quantity of hard data, and very often factual information. However, it was inappropriate as the main *strategy* for this investigation because: (a) *archival* research predominately relies on historical data thus limiting the scope for consideration of current or very recent issues; (b) the type of information required to build the TQM theory was most certainly not documented for general public observation in primary archives and (c) the

literature survey has already shown that little clarity surrounded the subject under investigation, so secondary archives (consisting of abstractions and summaries which allow the researcher to analyse situations on the basis of condensed and much reduced quantities of data, but inherently susceptible to selective retrieval and editorialising) would be of limited benefit and use.¹²³ It could be argued that *archival* research was present to some degree in the study however. This was as an augmentational strategy, where the author asked the participants to supply supporting / clarificational documentation.

These eliminations left the possibility of employing an *empirical* strategy, or an *opinion* strategy. Both could be used in conjunction with best practice TQM organisations.

Buckley et al (1976) noted that the strength of *empirical* research lies in its contact with reality. It focuses on behaviour instead of opinion, and to the extent that there is a difference between these items; empirical research examines what actually happens, as opposed to what people say has happened, is happening, or may happen. From this point of view, it could be argued that in seeking to obtain the most accurate information for the study, an *empirical* research strategy should have been the primary strategy employed. However, *empirical* research also has obvious disadvantages which heavily outweighed the advantages in this instance, and these arise due to the principal technique incident to all empirical research, "observation". The purpose of observation is to witness factual situations and perceive reality without intermediation (Buckley et al, 1976). As such, it is deficient with respect to analysis of the past or of future plans. That is to say, it is largely limited to the "present". Further, in practical research execution terms, it is very resource intensive - it requires a lot of time. Though theoretically it can still be applied to the group domain - as "observation" is not restricted to a single entity - the inherent resource intensity also means that only a relatively few situations can be studied, they must be proximate to the researcher, and consequently, the ability to generalise is greatly restricted (Buckley et al, 1976).

The inherent advantages of *opinion* research, would surmount the inherent failings of the three research strategies discussed thus far, and in so doing, catered for this investigation's requirements concerning *domain*. As Buckley et al (1976) pointed out, the salient advantage of *opinion research* is its ability to capture people's impressions - about themselves, their environments, and their response to changing conditions. Further, its strengths are that:

¹²³for a discussion of the more generic deficiencies of archival research, see Buckley et al (1976).

- (a) large samples can be drawn, which facilitates inference to large populations;
- (b) it is the easiest methodology to devise and administer and
- (c) it lends itself to data analysis via a wide variety of standard statistical procedures.

Proponents of the *empirical* research strategy might argue as their justification for using this strategy over the *opinion* research strategy, that opinions are non-factual and hence *opinion* research can never come to grips with reality. However, the author would propose that this is a very narrow view and interprets "opinion" unrealistically literally. In reality, if steps are taken to minimise the influence of the commonly cited methodological weaknesses of *opinion* research¹²⁴, *opinion* research can very closely reflect reality. This is because, the domain from which the opinions are being drawn, that is to say the participants, are basing their opinions on factual experience. Furthermore, it is important to reiterate that *deductive* research - testing the assertions put forward by the developed theory against factual evidence of TQM efforts in the participant organisations - could significantly enhance the accuracy and hence credibility of the resultant theoretical contribution.

3.4.2 *Research method/technique*¹²⁵

With the choice of *opinion* research as the investigation's research *strategy* resolved, then all but two of the research *design* judgements/decisions had been made. The two outstanding decisions/judgements were whether or not the *design* should employ informal or formal information gathering technique(s), and which actual information gathering technique(s) should be employed. *Technique* refers to the technique and instrument(s) used to gather the theory building data and information. For all intents and purposes, the former decision is consequent on the latter decision.

In the introduction to this chapter, the author stated that in the field of organisational behaviour, the research information gathering techniques available are very wide-ranging. Resolution of

¹²⁴For example: biases inherent in the design of survey instruments; systematic biases in the way in which people respond; and systematic biases inherent in the administration of survey instruments. (Such deficiencies, and steps that can be taken and where possible were taken to minimise their influence are discussed in greater detail in the following passages concerning choice of research *technique*, and also in the results chapters.)

¹²⁵for the remainder of the discussion, *technique* is used in preference to method/technique.

research *domain* and *strategy* significantly narrowed the options available. In the *group* domain of *opinion* research three dominant information gathering *techniques* were identified. These were the "informal" techniques of (a) personal interviews and (b) brainstorming, and the "formal" technique of (c) survey research.

There appeared to be no standard guidelines for selecting amongst research *techniques*. Rather, it is up to the researcher to assess the feasibility of potential *techniques*, and the *technique's* capability to deliver the research objectives. Hence, in selecting *technique*, the author consulted the literature and where possible critiques of the above *techniques* as applied in previous studies. Two important determinants were used to make the assessment. First it was necessary for the author to return to the issue of the *technique's* "practicalness" given the study's research *domain*. Secondly, the author returned to the issue of the *technique's* "capability" given the objective of consensus building. The findings are illustrated in table 3.4.2 and explained below. As shown, the review suggested that only the formal technique of *survey research* fulfilled both qualifying criteria.

Table 3.4.2 - Comparative assessment of potential research *techniques*

	BRAINSTORMING	PERSONAL INTERVIEW	SURVEY RESEARCH
"practicality" to the research <i>domain</i>	: low	low-medium	high
"capability" as a vehicle for drawing <i>consensus</i>	: low - medium	high (but provided highly structured, and dealing with a limited scope)	medium - high

A simple review of the properties of brainstorming eliminated it as a possible consensus building technique. Ayres (1969) proposed these simple guidelines for brainstorming sessions: (a) focus on a single, well-defined problem, (b) consider any idea, regardless of apparent relevance or feasibility, (c) do not criticise any idea and (d) do not explore the implications of any idea¹²⁶. Quite simply, the ability to draw conclusions from brainstorming is very limited, and hence so is the ability to refine findings. Brainstorming also has a low degree of practicality to the *domain* of a relatively large sample, as it requires participants to be gathered together.

The practicality of personal interviews also fell short of that for postal survey research. Bryman (1989) offered observations that constitute a comprehensive summary of the disadvantages of

¹²⁶cited in Buckley et al (1976).

personal interviews over self-administered survey questionnaire research. Amongst his observations were the following salient points. Firstly, self-administered questionnaires are invariably cheaper than personal interviews, especially when there is a large number of respondents and if respondents are geographically dispersed. Personal interviews are much more costly. Secondly, self-administered questionnaires are usually quicker than interviews. The former can be distributed *en masse*, but interviews cannot be conducted in the same way unless many interviewers are employed¹²⁷. Thirdly, there are several problems associated with the presence of interviewers. Here, Bryman (1989) cited Sudman and Bradburn's (1974) work to the effect that characteristics of interviewers such as their age, appearance, race, gender and social class, have been shown by researchers to have an effect on the preparedness of respondents to answer questions in the interview situation and on the nature of responses they provide¹²⁸. The obvious point, is that if there is no interviewer present as in the case of a self-administered questionnaire, such sources of error may be eliminated.

Thus, these observations suggested personal interviews scored low in terms of practicality to the research *domain*. Steps can be taken to limit the influence of the last of these issues. Nevertheless, both the first and second issue are unattractive when dealing with large samples. On the second dimension - capability to draw consensus, personal interviews scored much higher than brainstorming. However, the review did indicate that interviewing's capability to draw consensus was on the proviso that the interviews were highly structured, and in terms of scope of the subject area were limited to well defined, narrow problems.

Therefore, questionnaire survey-based research appeared to be the most appropriate research *technique* given the required research *strategy* and *domain*.

3.4.3 Delphi technique

Given that the desired outcome of the investigation was a theory of TQM, two issues concerning *technique* required special attention. Firstly, the desire to find a way of improving the consensus building ability of survey-based research. The second issue concerned the author's observation from the literature that many authors had commented that survey-based research often suffers from

¹²⁷the use of multiple interviewers may itself lead inevitably to inconsistencies.

¹²⁸It should be noted that telephone survey research is also prone to these shortcomings. In addition it is prone to the introduction of analyst bias. This is discussed in detail in section 3.4.6.

a lack of structure. Bryman (1989) noted that most survey research entails the collection of data at a single juncture, but can be extended to include further questioning of respondents, at which point the research becomes elaborated into a *longitudinal* survey design. The author proposed that it was in such circumstances - the need to follow up on inconclusive data through further questioning - that this criticism frequently arose.

The Delphi technique was identified as a research technique which could alleviate both of these concerns. The fundamental purpose of Delphi is to build consensus. In addition, the technique offers excellent structure to the information gathering process.

The next three sections examine the Delphi technique. In section 3.4.4 the purpose and past use of the technique are discussed and the advantageous attributes of the technique which made it particularly appropriate given the needs of this investigation are examined. Section 3.4.5 describes the principles of the Delphi process. In section 3.4.6 potential shortcomings of the Delphi technique are addressed, and measures that could be taken to minimise any potentially undesirable methodological effects in this study's application are advanced.

3.4.4 Purpose and attributes of the Delphi technique

The Delphi technique was developed at the RAND Corporation in the early 1950s, for systematically soliciting, organising, and structuring judgements and opinions on a particularly complex subject matter from a panel of experts, until a consensus on the topic is reached, or until it becomes evident that no further convergence is possible (Helmer and Rescher, 1959). In essence it is an iterative process.

Investigation of past use showed that the Delphi technique had primarily been used for long-range forecasting purposes, especially on the subject of defence technology, and had thus tended to be labelled as a forecasting technique. Other forecasting applications included: anticipating high-technology development [Ushio (1993)]; directing the development of advanced manufacturing techniques [de Hann and Peters (1993)]; deriving productivity management policy options [Ray and Sahu (1989)]; determining future research needs [Linstone and Turoff (1975)] and setting priorities for the IT industry [Madu et al (1991)]. However, Delphi had successfully been applied to a variety of other application areas outside of the forecasting domain. For example: exploring the perceived advantages and disadvantages of electronic data interchange [Scala and McGrath

(1993)]; evaluating budget allocations problems [Linstone and Turoff (1975)]; assessing the training needs of executives [Olshfski and Joseph (1991)]; identifying problems confronting administrators [Brooks (1979)]; assessing needs for staff development [Brooks (1979)] and location planning [Azani and Korramshamgol (1990)]. The Delphi technique had even been used for gathering current and historical data not accurately known or [otherwise] available [Fischer (1970)]. Investigation of recent use supported Brooks' (1979) observation that the applications of Delphi have continued to expand.

Linstone and Turoff (1975) argued that it is not the explicit nature of the application which determines the appropriateness of utilising Delphi, rather it is the particular circumstances surrounding the associated group communication process. Delphi consists of a formal procedure for obtaining the opinion of experts on a given subject, while avoiding the problems associated with conventional committee structure (Buckley et al, 1976). The technique replaces direct debate by a carefully designed programme of sequential individual interrogations, best conducted by a series of questionnaires, interspersed with information and feedback or results gained from earlier parts of the programme (Fulmer, 1993).

A number of attributes of Delphi suggested that the technique was very suitable for this investigation. As Linstone and Turoff (1975) articulated, Delphi lends itself to applications where:

- more individuals are needed than can effectively interact in a face-to-face exchange;
- time and cost make group meetings unfeasible;
- the research *problem* does not lend itself to precise analytical techniques, but can benefit from individual judgements on a collective basis and
- the heterogeneity of the participants - avoiding domination by quantity or by strength of personality of individuals - must be preserved to assure validity of the outcomes.

Other researchers and authors shared these views. For instance Fulmer (1993) pointed out that the Delphi technique eliminates committee activity in order to reduce the influence of certain psychological factors, such as: an unwillingness to abandon publicly expressed opinions; the persuasive power of an articulate, powerful or loud advocate; and the bandwagon effect of majority opinion. The technique is applicable to situations which do not have precise and exact analytical solutions (Anderson et al, 1993). As Brooks (1979) pointed out, the Delphi technique is best suited to intuitive judgements on topics for which reliable objective data are impossible or difficult to

obtain. Inductively developing a theory of TQM is such a situation. In this respect, of primary importance to the investigation was that through the Delphi technique, a group opinion is reached in an equitable manner. That is to say each individual expert would have the same input opportunity. Brooks (1979) further pointed out that a major strength in the technique is the flexible (though limited) time parameter that individuals have in which to respond at their convenience. The problem of gaining access to organisations tends to preoccupy organisational researchers a great deal (Bryman, 1989). Brooks (1979) cited flexibility as critical, allowing persons to participate who are not willing to share their time under other conditions.

Delphi appeared to offer structure to the task of survey-based research. The inherent flexibility of the Delphi technique would also enable the content of the information gathering plan to be modified should circumstance necessitate, while retaining the overall structure of the plan.

3.4.5 The Delphi process

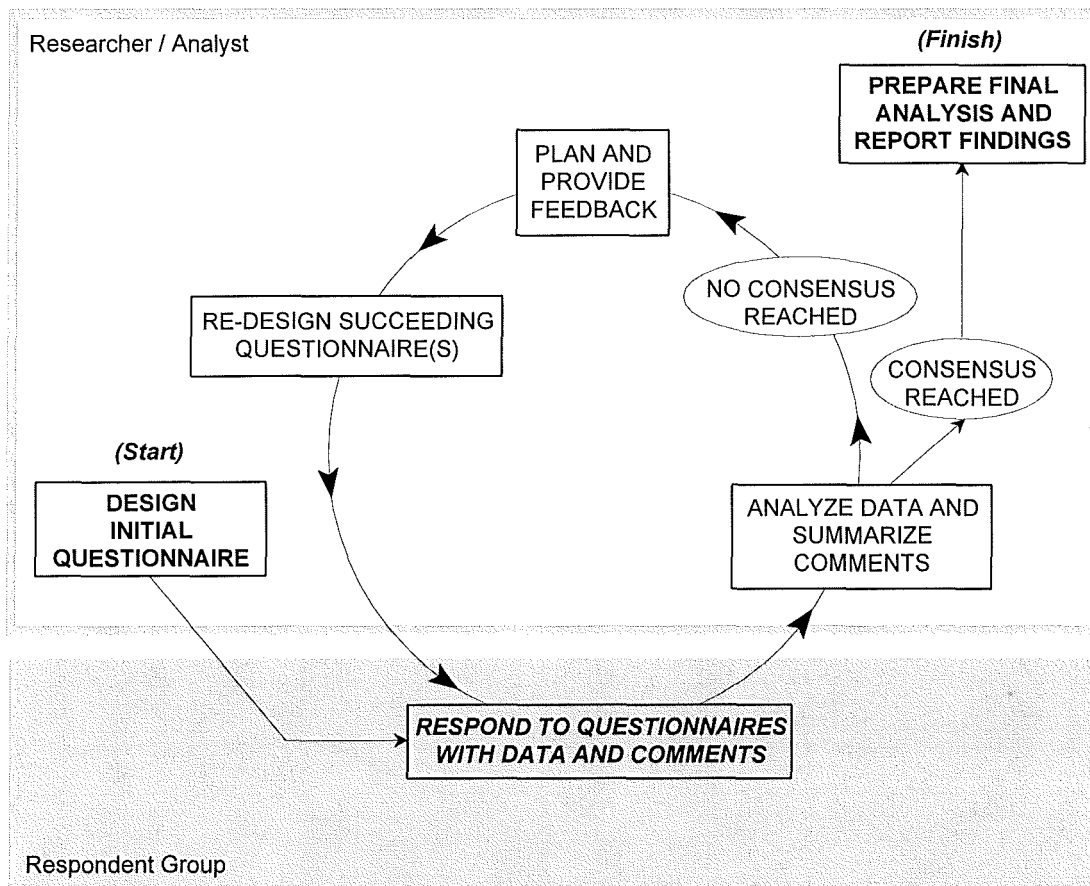
There are four basic components involved in the Delphi process: exploration; understanding; reconciliation and evaluation (Kharbanda and Stallworthy, 1990). Essentially, these phases translate into the cyclic iterative process shown in figure 3.4.5.

The process proceeds as follows:

- (1) having developed the initial survey instrument, the researcher/analyst issues it to the Delphi panel (this could be viewed as the first of five phases, *'preparation'*);
- (2) each expert in the panel expresses a written, anonymous opinion on the subject (*exploration*);
- (3) the opinions are collated and analyzed to see if a consensus exists, often as measured by standard statistical methods (*understanding*);
- (4) if a consensus is lacking, the written opinions are circulated among the experts with an invitation to revise their opinions (*reconciliation*) and
- (5) the process is repeated until a consensus is reached or until it is concluded that no consensus can be reached (*evaluation*).

The actual application of these phases of the Delphi process to this investigation is described in chapter 4.

Figure 3.4.5 - Illustration of the Delphi process



Source: adapted from Couper (1984, p. 72).

3.4.6 Concerns about Delphi and corresponding recommendations

A number of authors have suggested shortcomings of the Delphi technique. For instance, Linstone and Turoff (1975) offered a checklist of common pitfalls associated with Delphi, *"to serve as a reminder which the Delphi designer should bear in mind"*.

Many of the suggested shortcomings are only an issue when Delphi is applied for pure forecasting purposes. That is to say, they are associated with Delphi applications where the desired outcome are predictions about the future. The following discussion concentrates on suggested shortcomings that are generic - they pertain to any application of the Delphi technique. Examination showed a pattern, in that the majority of the shortcomings cited related to the following three areas: (a) selection of the participants; (b) how participants respond and (c) execution of the Delphi study (including the potential for the analyst to introduce bias involuntarily). Examination also suggested

that these shortcomings were not necessarily exclusive to the Delphi technique, but apply to survey-based *opinion* research and many other research *techniques* in general. For instance, many of type (c) shortcomings reflect Buckley et al's (1976) criticisms of *opinion* research that concern the bias which is introduced in the design of survey instruments - that the researcher defines the questions, the response sets, decides who will participate, and when and under what conditions they will participate.

Here, the relevant shortcomings are presented, and measures that could be taken to minimise any effects are advanced.

a. selection of participants

Linstone and Turoff (1975) cited the pitfall of poor selection of participants. Buckley et al (1976) suggested that Delphi suffers from the need to distinguish 'experts' from 'non-experts', and that there was no valid way in which to assure that the experts are knowledgeable on the precise questions at stake. In a similar vein, Brooks (1979) made reference to the capabilities of the panel, suggesting that an inadequate panel can produce no more than pooled and manipulated ignorance. Linstone and Turoff (1975) also made reference to "illusory expertise" - that in the application of Delphi reliance is almost invariably placed on panels of experts or specialists, however, a group of experts, each knowledgeable about one aspect of a complex system, does not necessarily constitute expertise about the total system. Bryman (1989) suggested that the researcher can never be certain who has answered a self-administered questionnaire. He explained that when questionnaires are sent to chief executives of firms for example, it is impossible to know whether the person to whom it was sent has answered it. Indeed, in view of the propensity of managers to delegate, there is a fair chance that a questionnaire will be passed on. As a result, there may be a good deal of variety in the roles and status of respondents, a factor that may have implications for the comparability of the data. From these issues the author elicited the need for careful and informed selection of the participants who make up the panel. The participant selection process and measures that were taken to minimise the effects of the shortcomings described above are discussed in more detail in section 4.2.3.

Buckley et al (1976) also raised the point that there is some doubt whether a group response is necessarily better than that of one expert in the field. This point is not an issue to this investigation. The literature review advanced that one of the main problems with the lack of understanding surrounding TQM was that much of the existing knowledge was based on individual perception

and as such was a chief reason why this very investigation was being undertaken.

b. how participants respond

Buckley et al (1976) suggested that there is no way in which to assure that the experts take their task seriously. Linstone and Turoff (1975) suggested that this problem may be exacerbated by respondents' impatience to 'get the job over with'. Bryman (1989) suggested that in the eyes of many commentators, the most fundamental drawback of self-administered questionnaires is that they can generate lower, and in many instances much lower, response rates than interview-based research. He noted that the problem with refusals is that they may introduce an element of bias as respondents and non-respondents may differ from each other in terms of characteristics relevant to the research. Bryman (1989) also suggested that many organisations are resistant to being studied, possibly because they are suspicious about the aims of the researcher. Further, those persons who act as *gatekeepers* between the researcher and the organisation (usually fairly senior managers) are likely to be concerned about the amount of their own and others' time that is likely to be consumed by the investigation.

Undoubtedly, care in selecting the right participants should help minimise these effects. However, these shortcomings more pressingly suggested the need for the researcher to take care in how potential participants are approached to participate in the Delphi study, and in how their interest and genuine commitment can be maintained. Inherent to the Delphi process is the provision of feedback to the panel between successive rounds. This represents an element of reciprocity, and hence an opportunity to maintain the participant's interest in the study, and to confirm the potential value of the study to themselves, in addition to the value to the researcher. Bryman (1989) noted that there is a voluminous literature drawing attention to the ways in which refusals can be minimised. Such literature was consulted, for example Lockhart (1984), and the actual measures taken are described in the next chapter. The use of feedback reports in this study is discussed in section 4.3.6.

The above shortcomings related to the response of participants to the study in general. The following shortcomings more closely relate to how the participants respond to the actual content of the questionnaire(s).

Bryman (1989) made the point that with survey-based research respondents have the opportunity to read the whole questionnaire before starting to answer the first question, and consequently

answers to early questions may be influenced by their knowledge of the later ones, perhaps making answers more consistent than they would otherwise be. Linstone and Turoff (1975) suggested that most human beings have a strong predilection for certainty and a dislike for uncertainty. In this respect, Fulmer (1993) making observations on a Delphi study, noted that the impact of asking for a justification of extreme positions caused a respondent without reasons or strong convictions to move an estimate closer to the median, but that those respondents who felt they have a good argument for a 'deviant' opinion tended to keep their original estimate and to defend it. Linstone and Turoff (1975) also observed that as certainty is preferred to uncertainty, so simplicity is preferred to complexity. This they termed the "simplification urge". In relation to the "simplification urge", a number of other observations have been made. Buckley et al (1976) reported (i) Sletto's (1937) findings that respondents will more frequently endorse a favourable statement and disagree with its opposite, exhibiting a phenomena known as "acquiescence response set", and (ii) Webb et al's (1972) observation of ideosyncrasy - that there is a preference for strong statements rather than weak ones. Linstone and Turoff (1975) added that some respondents are inherently optimistic, others pessimistic, and hence there may be an optimism-pessimism bias in the response. Finally, Linstone and Turoff (1975) pointed out that an individual asked to list his preferences on a sheet of paper may well develop responses significantly different from those he would actually give in a real life/real-time setting.

In reality, these observations and suggestions - concerning how participants respond to the actual content of the survey instrument(s) - relate to the researcher/analyst's ability to design the survey instrument(s) effectively and in doing so pose questions effectively. An important measure in minimising these effects is the use of independent qualification (or piloting) of survey instruments by other experts (who are representative of the primary respondent sample) prior to distribution to the primary sample. In this study a panel of experts was formed that vetted the survey instruments against a comprehensive set of measures of suitability. The piloting process is discussed in greater detail in section 4.3.5.

Emphasis must be on making every effort to ensure that the survey instruments are reliable prior to their distribution so that accurate data and opinions are collected. Nevertheless, it should be pointed out that deductive research - mapping the inductively developed theory against factual evidence - could act as a post-execution check.

c. *execution of the Delphi study*

Linstone and Turoff (1975) referred to two instances of "sloppy" execution. The first was poor interaction between participant and analyst. Linstone and Turoff advocated that it is incumbent upon the analyst that they provide the atmosphere of a fruitful communication process amongst peers. The second is basic lack of imagination by the designer.

'Analyst bias' was referred to at the beginning of this section. The introduction of bias by the researcher/analyst can take two forms: bias introduced through instrument design, and bias introduced during analysis of input. In relation to the former (instrument design), many of the shortcomings previously cited under *'how participants respond to content'* apply equally here. Buckley et al (1976) made the obvious but pertinent point that it is the researcher who frames the questions. It is up to the researcher to eliminate involuntary bias as far as possible, and hence reduce the potential for participants to respond ambivalently. As Bryman (1989) suggested, while it is always essential to make the questions clear and unambiguous, this requirement is even greater with self-administered questionnaires, since there is no interviewer to help the respondent if a question is not understood. Similarly, the format of the questionnaire has to be especially easy to follow. Brooks (1979) recommended that the Delphi researcher guards against asking for such difficult responses that participants do not give appropriate consideration to their answers. To re-iterate, independent qualifying (piloting) is an important effacing measure that was applied in this study.

In relation to the latter (analysis of input), Linstone and Turoff (1975) warned that agreement about a recommendation by the participant group does not disclose whether the individuals agreeing did so for the same underlying reasons. Brooks (1979) noted that in the process of translating individual panel members' input into a limited number of basic alternatives, the analyst has the opportunity to introduce considerable bias. Again, the author would suggest that the most effective way of minimising these dangers is thoroughness at the survey instrument design stage. Brooks (1979) suggests that minimising this danger might also be achieved by more than one individual preparing the analysis but completely independent of each other, then collectively reviewing any discrepancies or differences in analyses to achieve a consensus. While recognising the potential value of Brook's suggestion, the author would suggest that this course of action as a standard procedure can be extremely impractical. Rather, if an analytical situation of clear uncertainty arises, it is up to the analyst to then seek peer wisdom. The author would also suggest that if the sample size is large enough such that any important qualitative analytical judgements can be

guided by quantitative findings, this issue would not be a significant analytical concern anyway.

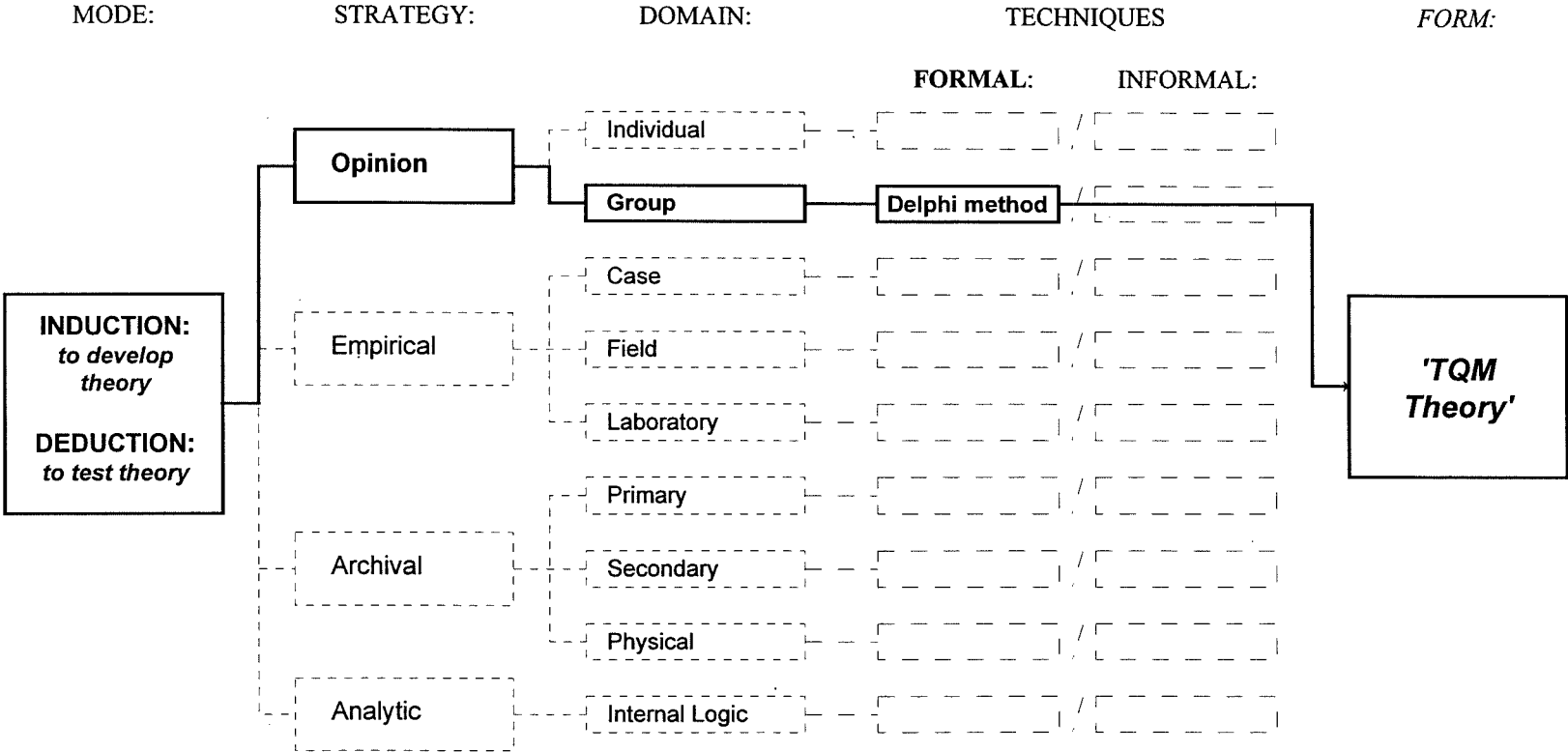
Salient shortcomings and effacing measures have been addressed. None of the suggested shortcomings were deemed to pose a threat to the integrity of using the Delphi technique for this application. The inherent advantages were judged to far outweigh the minimisable disadvantages. As Linstone and Turoff (1975) asserted, the common pitfalls [and shortcomings] exist to a greater or lesser extent no matter what communication process is chosen. Further, they argued that since an honestly executed Delphi makes the communication process and its structure explicit, most pitfalls assume greater clarity to the observer than if the process proceeded in a less structured manner. A strength of Delphi therefore, is the ability to make explicit the limitations on the particular design and application.

3.5 Summary of the Research *Design*

Based on the framework previously illustrated in figure 3.1, the investigation's research *design* is summarised in figure 3.5. It is important to stress that the framework, and hence process employed in arriving at this *design*, was not based on sequential steps, rather, it was used as a systematic guide.

The *research design* employed an *opinion research strategy* in the *group domain* using the formal *Delphi technique*, to develop an *inductive theory of TQM* which is subsequently *deductively* tested.

Figure 3.5 - Summary of the investigation's research design



CHAPTER 4: METHODOLOGY - THE RESEARCH PROCESS

4.1 Introduction and Structure of the Chapter

Chapter 3 described the *design* of the research. The research *process* comprised of four broad phases:

- developing the research question;
- assembling the participants;
- collecting data and information using the Delphi technique and
- to derive a TQM theory and evaluate the validity of this theory.

This chapter provides an overview of the complete research process relating to the latter three of these four broad phases. The first phase "developing the research question" was dealt with in sections 1.1 to 1.3. In section 4.2 the construction and demographics of the participant sample are discussed. In section 4.3 the Delphi information gathering and theory building/testing procedure is divided into constituent elements and described. This includes the structure and time-schedule of the study, pre-testing the questionnaires, and use and construction of feedback reports. Section 4.4 augments the previous sections describing the key statistical techniques that were used for data assimilation and analysis.

4.2 The Sample

In this section the construction of the participant sample is discussed. The discussion is divided into five sub-sections each dealing with one of the following issues in turn: unit of analysis and specification of participant; target sample size; criteria for selection of organisations and panel assembly process; resultant participant group and its salient demographics; and characteristics of the participant group.

4.2.1 *Unit of analysis and specification of participant*

In chapter 3 section 3.4.1 the author described the derivation of the research *domain* required for this study. The research *design* called for a relatively large group of practitioners drawn from best

practice TQM organisations. A group is a collection of individuals acting as an entity.

The first step in the execution of the Delphi study was the selection of this group - the expert panel members. Anderson et al (1993) pointed out that this initial step is crucial because this panel lends content validity to the task. Indeed, when the desired outcome of a study is a theory, special attention must be given to the selection of the participants. This special attention arises from the need to present a theory that fulfils the *utility* and *falsifiability* criteria of evaluation, as was discussed in section 3.2.6.

According to Whetten (1989), observations are embedded, and must be understood within a context. In articulating a theory of TQM, it was important that consideration was given to the *who*, *where* and *when* of the theoretical contribution. This was because these factors set the boundaries to which generalisation can be taken. Whetten (1989) referred to these considerations as the *range* of the theory. Bacharach (1989) referred to them as the *boundaries* of the theory. In section 3.2 the author referred to Bacharach's (1989) description of theory which pointed out that the "whole system is bounded by the theorists assumptions". Bacharach (1989) further explained that the notion of *boundaries* based on assumptions is critical because it sets the limitations in applying the theory. That is to say, if a theory is to be properly used or tested, the theorist's implicit assumptions which form the *range / boundaries* of the theory must be understood. Essentially there are two types of boundaries which apply to theory in general - *spatial* and *temporal*. *Spatial* boundaries are conditions restricting the use of the theory to specific units of analysis. *Temporal* contingencies specify the historical applicability of a theoretical system.

Taken together, *spatial* and *temporal* boundaries restrict the empirical generalisability of the theory (Bacharach, 1989). In an organisational behaviour type study of this nature, only the *spatial* boundaries required definition. *Temporal* boundaries were largely undefinable, and somewhat irrelevant. This was because the study drew on current/contemporary views of TQM and evidence of TQM practice (for theory building and for theory testing respectively), and was intended for immediate use upon its completion. Moreover, only greater knowledge could determine the long-term future applicability of the theoretical contribution.

In its broadest sense, the aim of the study was to present a consensually derived theory of TQM that practitioners in organisations could use to enhance their level of understanding of the total quality approach and themselves apply this understanding in their organisations. On the dual premises

that: (a) practitioners are likely to learn more from a contribution that has been derived from a unit of analysis with which they are familiar and (b) that it is broadly agreed that TQM is a holistic organisation-wide approach (section 2.5.5); the required unit of analysis for both the study investigation and the application of the study findings was defined as **the organisation**. Further, the literature review indicated that the successful diffusion of TQM practice to non-profit organisations was in its infancy and under-developed, and therefore the investigation was restricted to the analysis of **for-profit** organisations.

Level of analysis refers to the person or persons in the participating organisations through whom the required data and information is collected. Determination of the appropriate *level* of analysis required two factors to be taken into account, the former having more of an impact on the latter, than vice-versa. The first factor was concerned with the ability of the participant to advance the relevant data and information from the point of view of their range and depth of knowledge of TQM in the participating organisation. The second factor, in relation to the feasible scope of the study, concerned the practicality of accessing the level of analysis, and the subsequent assimilation of the data and information advanced from this level. This second issue primarily related to whether a single point of contact or multiple points of contact for each unit of analysis should be used in the study.

On the assumption that they would have the greatest breadth and depth of knowledge, the first factor suggested the need for a senior officer of the organisation, and clearly for the second factor, a single point of contact appeared to be immensely more practical. Brooks (1979), commenting on the execution of Delphi studies noted that generally, persons knowledgeable in the field and yet not in constant contact with one another seem ideal. He also suggested that if there were more than one participant from each organisation, the issue of personal contact may be unavoidable to some extent, and may create a problem to the degree that these participants could discuss the process and coercively influence one another's responses. However, Lawler III et al (1992) have suggested that relying on the perceptions of one senior officer is clearly a limited window into the organisation, and that in particular it is risky to rely on this perspective in judging employee impact. The author recognised the danger highlighted by Lawler III et al (1992), in the sense that senior officers are generally regarded as being distant from the 'coal face' and having a limited engagement with the majority of the organisation. However, the author believed that this danger primarily related to the use of "functionally" designated senior officers drawn from a 'traditional' rigid bureaucratic organisation hierarchy. Further, and broadly speaking, for a large number of variables in the study

the author was seeking to gather augmentational technical and factual information rather than just perceptions.

Contemporary best practice quality organisations tend not to adhere to the traditional "functional" bureaucratic organisational structure. More importantly, they tend to have an additional senior officer post that by its nature and *operational* responsibility does have a wide engagement with the rest of the organisation. This post is generally known as the Quality Director or Corporate Quality Officer, and in the smaller organisation, the [Senior] Quality Manager. Therefore, this single point of contact option was deemed to be the most appropriate *level* of analysis for this investigation, and as such acted as the specification for selecting individual participants. In the case of very large multi-national organisations, unit of analysis extended to autonomously operating divisions/business units.

Thus to summarise, in this investigation the unit of analysis was **the organisation (for profit) acknowledged as leaders in TQM**, and the level of analysis was **Quality Director / Corporate Quality Officer / [Senior] Quality Manager (as single point of organisation contact)**¹²⁹.

4.2.2 *Target sample size*

Loss of participants in any multiple survey-based research study is inevitable. Work demands, job changes, sabbaticals and forced or unforced leave, in addition to loss of interest, can all be contributory factors. For this reason, the setting of minimum target numbers for start and completion of the study was deemed imperative.

Brooks (1979) noted that little agreement seemed to exist concerning the optimum size of the panel of experts for a Delphi study - numbers had ranged from fewer than twenty to several hundred - but suggested that little improvement in results is achieved with groups of more than twenty five. *Response rate* was regarded to be the prime concern influencing the size of target sample. Guidance on response rate specific to Delphi survey based research appeared to be absent in the literature. The broader field of organisational survey based research revealed examples of both very low and reasonably high response rates. For example, from analysis of ninety eight studies

¹²⁹for the remainder of the discussion, **Corporate Quality Officer** is adopted as the generic title of the Delphi panel members.

designed to study both return rates and survey methodology Heberlein and Baumgartner (1978)¹³⁰ reported that survey return rates varied between an average of 46 percent for one mailing and an average of nearly 84 percent for four mailings. Dillman (1978)¹³¹ provided information about return rates for thirty eight surveys that used his Total Design Method for developing and implementing mail surveys for which return rates ranged from a low of 58 percent to a high of 94 percent. Bryman (1989) cautioned that instances of very low response rates are particularly evident when postal questionnaires are sent to firms, citing that Carter (1984) and Hitt et al (1982)¹³² achieved low response rates of 21 and 25 percent respectively in such circumstances.

The implications of non-guaranteed response rate would be even greater for a longitudinal study comprising more than one round of questionnaire, as inevitably there would be more opportunity for participants not to complete the entire study. This would be despite the fact that a number of measures (discussed in section 4.3) can be taken in an effort to improve the response rate of mailed questionnaires.

The following targets were defined. Taking the points and arguments presented above into account, **a final sample (i.e. actual response to the final questionnaire in the Delphi series) of twenty five (25) participants was deemed a suitable size for the required "large group", and a group of approximately fifty (50) participants was deemed as a desirable response number target for the first round questionnaire of the study.**

Brooks (1979) also suggested exercising caution to ensure that the elimination of some panel members did not invalidate the use of the full spectrum of expertise desired. This issue was not deemed to be a concern for this study as the participants would be drawn from a population with the same underlying expertise - experience of best practice total quality - rather than contributing to the study as experts with an individual specialism, as is the case with some Delphi studies.

¹³⁰cited in Lockhart (Ed.) (1984).

¹³¹cited in Lockhart (Ed.) (1984).

¹³²Carter, N. M. (1984), "Computerization as a predominate technology: its influence on the structure of newspaper organisations", *Academy of Management Journal*, Vol. 27 No. 2, pp.247-270; Hitt, M. A., Ireland, R. D. and Stadter, G. (1982), "Functional importance and company performance: moderating effects of grand strategy and industry type", *Strategic Management Journal*, Vol. 3 No. 4, pp. 315-330.

4.2.3 *Criteria for selection of organisations and the panel assembly process*

In chapter 3 section 3.4.1 the author described the derivation of the research *domain* required for this study. The research *design* called for the large group of participants to be drawn from "best practice TQM organisations". Thus, invitation to participate in the study was based on the fulfilment of at least one of the following criteria that were judged to indicate/symbolise a total quality organisation. The organisation:

- (A) was a past winner, finalist, or recipient of certificate of merit¹³³ from:
- The European Quality Awards (EQA), 1992 to present¹³⁴
 - The Malcolm Baldrige National Quality Awards (MBNQA), 1988 to present
 - The Canadian Awards for Business Excellence (Total Quality Category), 1990 to present, or
 - The Australian Quality Awards (AQA), 1988 to present;
- (B) had been awarded a peer acknowledged quality rating by major customers or vendors; or
- (C) had received recognition through prestigious professional or academic journals as a Total Quality organisation.

For the organisations qualifying under criteria (A), the contact details (address, telephone / facsimile numbers, and name of Corporate Quality Officer) were compiled. Where necessary the awarding body or the organisation were contacted directly for outstanding contact information. Organisations that fulfilled criteria (B) and (C) were identified by consulting appropriate literature. This entailed scanning every issue (for the dates shown in square brackets) of five major "quality oriented" publications:

- The TQM Magazine [1989 through 1993];
- Total Quality Management [1990 through 1993];
- International Journal of Quality and Reliability Management [1989 through 1993];

¹³³N.B. Simply being a member of a recognised quality institution or foundation was not deemed to guarantee the degree of best practice required for this investigation.

¹³⁴'present' refers to 1993.

- Management Today (that included the Best Factory Awards) [1989 through 1993] and
- National Productivity Review [1990 through 1993].

The search was limited to the dates shown to ensure that the best practice position was up-to-date. The scanning exercise was supplemented by a search of the ABI Inform CD-ROM business and management citation database using various 'search term' strategies to identify potential participating organisations.

As mentioned previously it was important that the study was not confined to manufacturing organisations. Since the early 1980s especially, there has been a diffusion of quality concepts in the service sector. Similarly, whilst it is large organisations that have tended to lead the way in pioneering TQM in the West, the smaller organisations, which are vital to the economic growth of most nations, were also targeted for the study.

As a result of the process described above a list of two hundred and forty five (245) potential candidates representing one hundred and twenty one (121) organisations in ten (10) countries was compiled.

Approaching potential participants to take part in the Delphi study was regarded as the first opportunity to gain not only their interest, but their genuine commitment, and hence as the first measure to guarantee a high rate of response. In the vast majority of mailed surveys a covering letter accompanies the questionnaire. The author believed that a more favourable approach was to gain potential participants interest by formally inviting them to participate before the first questionnaire was distributed. This approach had the added advantage that potential candidates that clearly did not express a high level of interest and hence commitment to the study could be avoided.

A letter was sent to the potential candidates introducing them to the nature and purpose of the task. The letter explained the aims and importance of the research and assured them of confidentiality and anonymity. In the event that candidates would be unable to commit themselves to the study, they were asked to suggest the names of other potential candidates occupying an equivalent post in their organisation. The invitation letter was posted to the candidates' organisations. A template copy of the invitation letter is provided in appendix 4.2.3.

Following up non-respondents constitutes an essential basic manoeuvre in minimising refusals (Bryman, 1989). Non-respondents to the invitation letter were followed up with a telephone call from the author. A maximum response time window of three weeks from issue of the invitation letter was used to indicate probable non-respondents. The initial purpose of the follow-up call was to ascertain if the invitation letter had been received. If this was the case, the main purpose of the call was then to gauge if an acceptable level of interest was present. Attempting to convince a reluctant candidate to participate was avoided, as a reluctant acceptance was viewed to be potentially detrimental to the quality of data and information advanced, and to the likelihood of retaining the participant for the full duration of the study. In the case of potential participants who indicated they had not received the invitation letter, the call was used to introduce the candidate to the aims, nature, purpose and importance of the research and assure them of confidentiality and anonymity. Where requested, a copy of the original letter was forwarded on to them.

As a result of the process described, **an assenting sample of sixty eight (68) Corporate Quality Officers based in sixty one (61) organisations was derived, from a number of countries.**

Table 4.2.3 gives a breakdown of the assenting participant group: by geographical location; by business orientation (class) and, by size respectively.

Table 4.2.3 - Breakdown of individuals indicating an interest in participating in the study

Participants geographical location	Europe	U.S.A.	Australia	Canada
	55	6	5	2
Participating organisations business orientation (surmised)	Manufacturing	Service	Manufacturing/Service	
	33	15	13	
Distribution of organisation size (surmised) (SME = small to medium-sized enterprise)	Large (+500 employees)		SME (1-499 employees)	
	41		20	

Definitions of SMEs vary markedly. In this study the author adopted a modification of the definition used by Eurostat¹³⁵. The Eurostat classification recognises three sizes of organisation: *micro* organisations (0-9 employees), *small to medium-sized enterprises (SMEs)* (10-499 employees), and *large* organisations (+500 employees). For the purposes of this study, no benefit or advantage was seen in keeping the differentiation between micro organisations and SMEs. As

¹³⁵EC-Directorate General XXIII.

it transpired, no organisations with less than ten employees were identified as qualifying for invitation. Thus, the two-division classification: *large* organisations (+500 employees) and *SMEs* (1-499 employees) was adopted.

4.2.4 Resultant participant group and its demographics

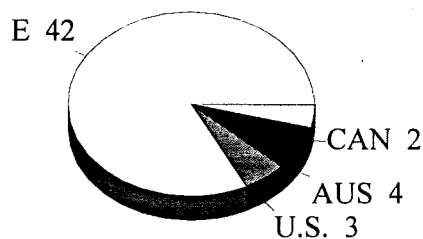
This section and section 4.2.5 provide detailed technical information about the resultant sample participating in the study. This sample is defined as those participants that responded with completed questionnaires to the first round of the Delphi study.

The first round questionnaire was distributed to sixty eight Corporate Quality Officers. **Fifty one** (51) participants responded to the first round questionnaire. This represented a favourable response rate of seventy five (75) percent, meeting the starting sample target size of approximately fifty participants. The fifty one participants' organisations are listed (in alphabetical order) in appendix 4.2.4.

Figure 4.2.4a illustrates the participants' geographical location. It can be seen that the vast majority of participating organisations were located in Europe. It must be noted that the primary criteria for inclusion in the sample was demonstration of TQM expertise, thus a close correlation between the sample geographical distribution and a total business geographical distribution was not deemed a requirement.

Figure 4.2.4a - Participants geographical location

(E=Europe; U.S.=United States of America; AUS=Australia; CAN=Canada)



Brooks (1979) noted that it is often useful to gather some basic demographic data on each participant. The first questionnaire incorporated a section entitled *General Information*. The primary purpose of this section was to confirm the size and business orientation (class) of the

participants' organisations. Participants were asked to indicate the number of employees in their organisation (a) in production / service delivery areas, and (b) in administrative areas. Participants were also asked to identify the business orientation of their organisation (manufacturing or service).

Figure 4.2.4b shows: (a) the resultant organisation *size* distribution and (b) the participants' organisation's business orientation. The second pie chart indicates that fifteen of the participants considered their organisations to have a *dual* manufacturing and service business orientation.

The respective ratios were not absolutely proportionate, but this did not adversely affect the study due to the study's consensus building nature. Thus, all three *classes* of organisation, and both *size* divisions of organisation were adequately represented in the sample. It may be noted however, that unintentionally, the final ratios do reflect the literature survey observation that service organisations and SMEs have been slower to take up TQM than their manufacturing counterparts.

Figure 4.2.4b

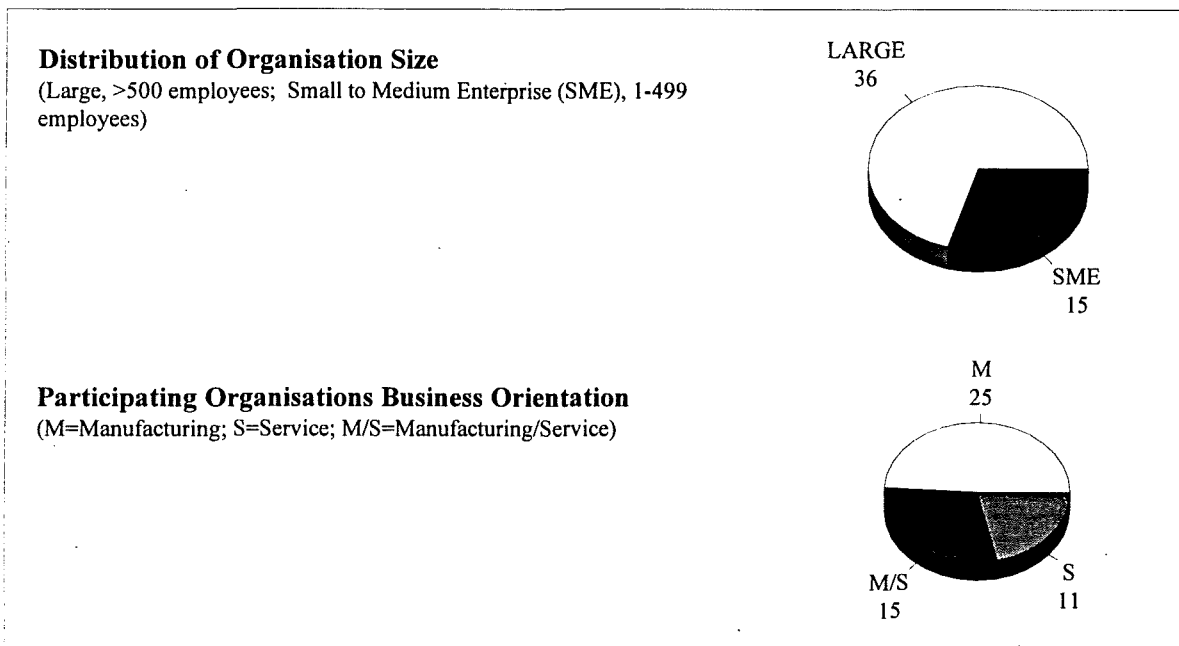
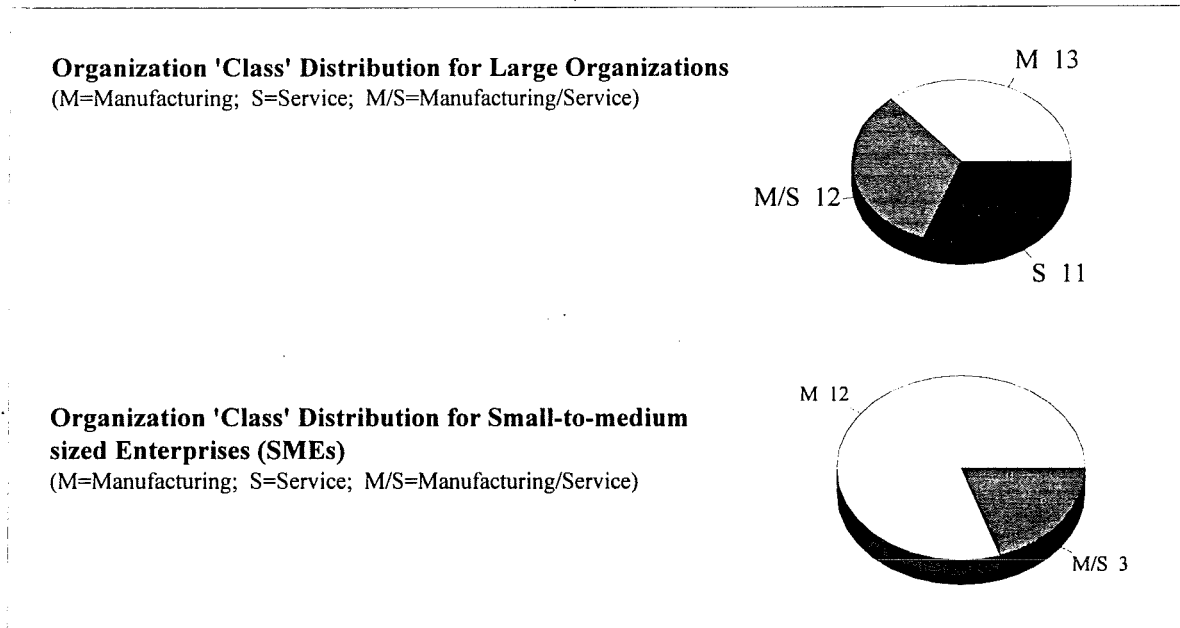


Figure 4.2.4c illustrates the correlation between *size* of organisations and *class* of organisations in the sample. By breaking down the organisation *class* proportions of firstly the large organisations and secondly the SMEs in the sample, the pie charts respectively show that whilst the *class* proportions for large organisations are roughly even, there were no purely service oriented SMEs, and the vast majority of SMEs were purely manufacturing oriented.

Figure 4.2.4c



4.2.5 Characteristics of the participant group

In the *General Information* section of the round 1 questionnaire, the participants were asked to indicate other related characteristics of their organisation's operation. Two sets of variables related to the different business orientation were used. Furthermore, for ease of assimilation pre-coded choices were used. The *General Information* section is replicated in figure 4.2.5. As can be seen from the figure, those participants indicating a manufacturing industry orientation were asked to specify: (a) transformation process type, (b) production bias, and (c) supply type. Those participants indicating a service industry orientation were asked to indicate: (a) frequency of customer contact, (b) intensity of customer contact, (c) whether a physical product was included in the service offering, (d) delivery process bias, and (e) variety of service(s) offered.

The purpose of gathering this additional information was to enable a profile to be generated of the salient characteristics of (a) manufacturing organisations in the sample, (b) service organisations in the sample, and (c) organisations in the sample with a dual manufacturing and service orientation. These latter organisations were identified as having a dual orientation by the respective participants in their response.

These profiled characteristics were considered to be important considerations when/if statistical significance testing identified differences between these three *classes* of organisation in the data.

These profiles may provide insights in attributing the rationale for the suggested differences. For example, it was assumed that in some cases a statistically suggested difference between manufacturing and service organisations may be directly attributable to a prevalent contingency of the manufacturers. In other cases, the respective contingencies may suggest that a statistically identified difference cannot be attributed on the basis of class of organisation, and therefore other causes or explanations may need to be investigated.

Figure 4.2.5 - General Information section of Delphi round 1 questionnaire

Name:		
Title:		
Organisation:		
Size (no. of employees):	(a) within transformation process / service delivery areas ()	
	(b) within administrative areas ()	
Industry Type:	<input type="checkbox"/> Manufacturing	<input type="checkbox"/> Service (tick as appropriate)
<u>If a manufacturing organisation (tick as appropriate) :</u>		
(a) Please specify the main transformation process type :		
<input type="checkbox"/> Project	<input type="checkbox"/> Job-Shop	<input type="checkbox"/> Batch
<input type="checkbox"/> Repetitive (Mass)	<input type="checkbox"/> Flow-Process	
(b) Is your production process:		
<input type="checkbox"/> Labour Intensive	<input type="checkbox"/> Capital Intensive	
(c) Are you an:		
<input type="checkbox"/> Original Equipment Manufacturer (OEM)	<input type="checkbox"/> OEM Supplier	<input type="checkbox"/> Both
<u>If a service organisation (tick as appropriate) :</u>		
(a) Is the frequency of customer contact :	<input type="checkbox"/> High	OR <input type="checkbox"/> Low
(b) Is the intensity of customer contact :	<input type="checkbox"/> High	OR <input type="checkbox"/> Low
(c) Is there a physical product delivered :	<input type="checkbox"/> YES	<input type="checkbox"/> NO
(d) Is your delivery process :		
<input type="checkbox"/> Capital intensive	<input type="checkbox"/> Labour intensive	<input type="checkbox"/> Both
(e) Is the variety of services :	<input type="checkbox"/> High	<input type="checkbox"/> Medium <input type="checkbox"/> Low

The business dimensions for each participant in the study are comprehensively summarised in appendix 4.2.5a. The resultant characteristic profiles for the three *classes* of organisation are illustrated and discussed in appendix 4.2.5b. As has been discussed, the key criteria in the selection of the sample organisations was proven level of TQM expertise. The sample may be typical or

atypical of manufacturing, service, and mixed manufacturing and service organisations in terms of these characteristics. It was not possible to find official statistics that would permit a meaningful comparison. This should be borne in mind in any ensuing interpretation or use of the proposed theory.

4.3 The Information Gathering Plan

In this section the Delphi information gathering and theory building/testing procedure is discussed. The discussion is divided into six sub-sections each dealing with one of the following issues in turn: modification of the conventional Delphi format; structure of the information gathering plan; analysis and development stages in the research process; time schedule of the research process; pre-testing (piloting) the questionnaires; and use and construction of feedback reports.

4.3.1 *Modification of the conventional Delphi format*

The study utilised a planned four round Delphi procedure. The planned procedure was the outcome of considering the two *modes* of study called for by the research *design*, and the specific data needs of the investigation. The development of the procedure is described in this section.

The research *design* called for the collection of two types of data: *opinions/perceptions about TQM* - for theory building; and *factual evidence of TQM practice/activity* - for testing and refining the theoretical contribution. The objectives of the study necessitated the collection of a broad range of *opinion* related and *fact* related data and information.

The conventional Delphi format was illustrated in figure 3.4.5. In a conventional Delphi study only the first round questionnaire is pre-planned and designed. The content and design of subsequent questionnaire rounds, and the number of rounds in total, is determined by the need for further iteration. The iteration stops when the incremental improvement to theory is minimal (Eisenhardt, 1989). Examination of a number of the conventional forecasting applications of the Delphi technique supported this proposition. These examples showed that forecasting is generally a single issue question, and therefore it is possible to include all key variables in a single pre-planned questionnaire. The wealth of data and information required for this study did not permit conventional use of the Delphi format. There is a limit to the amount of information that the researcher can justifiably ask for in a survey questionnaire. This is primarily due to the amount of

time a participant can and should be expected to give to the completion of a questionnaire. Response rate and quality of the information returned are key research study variables that can be affected by the expectation imposed on the participant by the length of a questionnaire. Fulfilling the research objectives required a considerable amount of inquiry which could not possibly have been incorporated into a single starting questionnaire if the desired quantity and quality of response were to be received.

It was therefore necessary to modify the conventional Delphi format. As Emory and Cooper (1991) asserted, the tools of data collection should be adapted to the problem, not the reverse. Instead of starting the information gathering by planning a single questionnaire, it was necessary to breakdown the information and data requirements of the study and plan a series of questionnaires. With this modification, each successive questionnaire after the first round questionnaire comprised of two components: (a) a pre-planned component and (b) an iterative component. That is to say, the second and other succeeding questionnaires would serve a dual purpose: firstly to collect fresh new information and secondly to refine existing information.

4.3.2 Structure of the information gathering plan - A four round Delphi survey

The question of how many pre-planned questionnaire rounds would be needed was resolved by defining the TQM topic or issues that would be required to be examined in order to build and test the TQM theory. This examination process was based primarily on secondary source research (chapter 2). The examination then provided the basis for a more specific definition of the data and information requirements, again primarily based on secondary source research, and hence enabled the author to gauge the extent (amount) of inquiry to be included in Delphi questionnaires.

To **build** the theory of TQM the following broad areas were identified:

- the role(s) of TQM in the best practice organisations;
- the main elements and the sub-elements of TQM in the best practice organisations and
- the necessary conditions for the attainment of organisation wide best practice quality.

In each case the key concepts and variables were identified. The research instrument was designed to collect the necessary data and information.

To **test** the theory of TQM the following broad areas were identified:

- the total quality practices that exist in the best practice organisations and
- the elements and aspects of TQM that were implemented in the best practice organisations.

In each case the key concepts and variables were identified. The research instrument was designed to collect the necessary data and information.

An additional, third set of required data/information was identified. This set of data/information also primarily related to the theory building part of the study. In order to derive the underlying logic of the TQM theory it was deemed important to understand what effect TQM has on major facets of organisational behaviour. Or put another way, what are the changes in significant facets of organisational behaviour that the introduction of TQM enables an organisation to bring about. The importance of this data/information was that it provided a context in which the underlying logic explaining the relationships of the theory could be grounded. As such, this data/information reduced the speculative nature of underlying logic derivation to a minimum.

For synthesis of a **contextual grounding** the identified data and information requirements were:

- the reasons for introducing TQM;
- changes in organisation structure resulting from the introduction of TQM;
- changes in management style resulting from the introduction of TQM and
- changes in quality practices resulting from the introduction of TQM.

A second important consideration that needed to be taken into account when determining the number of planned questionnaires was the number of iterations likely to be needed for each wave of new information. Experience observed in the Delphi literature showed that one (or a maximum of two) iteration(s) is the norm in a well-designed successful Delphi study. That is to say, two (or a maximum of three) rounds of questionnaires was the typical requirement. This typical iteration number requirement had to be allowed for in the planned format.

These combined considerations (*volume of data* and *typical number of iterations*) suggested that a planned four round survey would be the most advantageous format to adopt for soliciting the study's necessary data and information. In a logical progression guided by the successive theory

development needs of the study, the structure and content of each of four questionnaires was planned. Figure 4.3.2 illustrates the resultant modified Delphi format used in this study. The left hand side of the figure illustrates the four-round procedure. The figure shows how each questionnaire round, where necessary, could have a Delphi iteration cycle to facilitate further convergence towards consensus.

Specifically, the planned themes of each questionnaire round were as follows:

*Planned themes of the **first round** questionnaire were:*

- reasons for introducing TQM;
- changes in the organisation structure resulting from the introduction of TQM (pre-TQM situation);
- changes in the management style resulting from the introduction of TQM (pre-TQM situation) and
- changes in quality practices resulting from the introduction of TQM (pre-TQM situation).

*Planned themes of the **second round** questionnaire were:*

- the organisational role of TQM;
- strategic role of TQM;
- main elements and sub-elements of TQM;
- the necessary conditions for the attainment of organisation wide best practice in quality;
- changes in the organisation structure resulting from the introduction of TQM (post-TQM situation);
- changes in the management style resulting from the introduction of TQM (post-TQM situation) and
- changes in the quality practices resulting from the introduction of TQM (post-TQM situation).

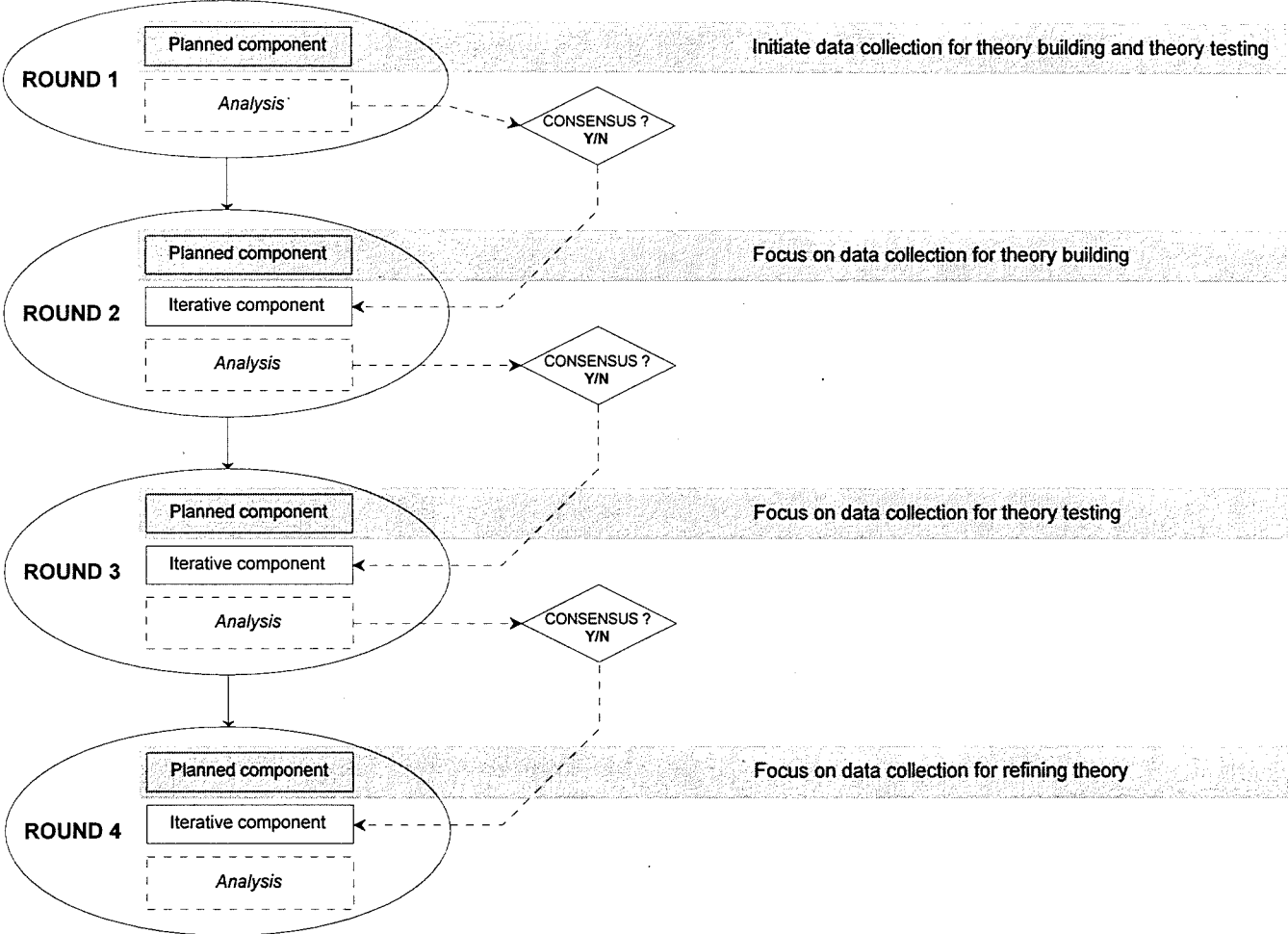
*Planned themes of the **third round** questionnaire were:*

- TQM implementation strategy;
- TQM implementation plans and
- TQM in practice (factual information concerning the practice of salient elements of TQM).

*Planned themes of the **fourth round** questionnaire were:*

- factors affecting the longevity of a best practice TQM ethos;

Figure 4.3.2 - The modified Delphi format developed for the investigation



- the benefits of best practice TQM and
- future plans for TQM in the best practice organisations.

The right hand side of figure 4.3.2 illustrates the "focus" of the data being gathered at each of the four rounds in this procedure. It shows that both the theory *building* process and the theory *testing* process were initiated in round 1. In round 2 the focus switched to concentrating on generating the information for the theory *building* process. In round 3 the focus reverted to concentrating on generating the information for the theory *testing* process. Round 4 was predominantly reserved for final iteration, and hence refining the TQM theory. That is to say, gathering the required data/information for reconciling the "perception" versus "practice" gaps.

The planned component of each research instrument was designed as follows. As discussed previously, secondary source research had identified the broad areas that required to be examined, the salient issues in these areas, and any other salient issues not specific to one of these broad areas. A combination of two processes was used to identify the key variables for each area/issue¹³⁶:

- (a) further detailed secondary source research and
- (b) formal focus group discussions.

The primary role of the focus group discussions was to identify salient research variables for areas/issues that had either not previously or not adequately been tackled in the literature. The findings generated from these two sources were juxtaposed to arrive at a single set of research variables for each broad area. A decision was taken on the most appropriate format of enquiry for each set of variables. That is to say, whether a pre-defined/pre-coded question format or an open-ended question format would be more suitable. The research methodology literature dealing with 'effective questioning' [Bryman (1989), Schuman and Presser (1981) and Payne (1951)] was consulted for guidance. Accordingly, the actual questions were designed. As it is described in section 4.3.5, each instrument was pre-tested prior to the fieldwork.

Design of the iterative components of research instruments was much more specific in nature compared to the planned component design process described above. For this reason, design of the research instruments' iterative components is described and discussed as part of the results in

¹³⁶It should be pointed out that the relative extent to which these two processes were used, varied depending on the particular area/issue in question. The relative weighting of use of the two processes in each case, is described in the introductory sections of the relevant results chapters (chapters 5 to 9).

chapters 5 to 11. The four complete questionnaire survey instruments are included in appendix 4.3.2¹³⁷.

4.3.3 Analysis and development stages in the research process

In table 4.3.3 the four "analysis" stages of the modified Delphi procedure shown in figure 4.3.2 have been isolated and delineated. The type and nature of the main analyses that were performed after each of the four questionnaire rounds are shown in the second column. The right hand column of the table shows the corresponding outcome of these main analyses in terms of the progressive development of the resultant theoretical contribution.

Table 4.3.3 - Illustration of the study's main analyses

Analysis of:	Type/nature of analysis:	Outcome of analysis:
round 1 returns	<ul style="list-style-type: none"> analysis of factors motivating the introduction of TQM 	<ul style="list-style-type: none"> contextual understanding of reasons for introducing TQM
round 2 returns	<ul style="list-style-type: none"> profiling of changes in organisation structure, management style and quality practices isolation of salient TQM variables multivariate statistical analysis of salient TQM variables 	<ul style="list-style-type: none"> contextual understanding of broad changes resulting from the introduction of TQM development and presentation of preliminary proposed theory of TQM
round 3 returns	<ul style="list-style-type: none"> implementation strategy analysis analysis of implementation plans correlation analysis: preliminary theory VS practice mapping* definition of gaps in existence (re: the above)* 	<ul style="list-style-type: none"> non-prescriptive model for implementation of TQM "tested" theory[†]
round 4 returns	<ul style="list-style-type: none"> gap analysis[‡] qualitative evaluation of the theory 	<ul style="list-style-type: none"> "refined" theory[†]

*analysis planned and attempted; [†]planned outcome; [‡]analysis planned only; (discussed more fully in sections 1.6 and 12.3.1).

The output from the round 1 and round 2 investigations and analyses was a group of TQM related variables which would provide the main input to the preliminary conceptual map of the proposed theory. These variables were in three forms: *new explanatory variables* (NEVs), *remaining*

¹³⁷Each questionnaire incorporated questions requiring a "qualitative (written)" response. In appendix 4.3.2, only three lines of answering space for each such question is shown. In practice however, the length of answering space provided varied according to the nature of the question.

important variables (RIVs), and *further explanatory variables* (FEVs). These three types of variables were TQM variables that the sample had identified were important and that required inclusion in the TQM theory. The major difference between the three types of variables was their source:

- ▶ *new explanatory variables* (NEVs) were the result of combining variables descriptive of TQM into more abstract and meaningful descriptive variables guided by the statistical suggestions of factor analysis. The statistical procedure "exploratory factor analysis" was applied to the data-sets generated by the sample's response to the investigations that are described in chapters 6, 7, 8 and 9. The application of exploratory factor analysis is described more fully in section 4.4.2.
- ▶ *remaining important variables* (RIVs) were other important descriptive variables of best practice TQM that were not combined into more meaningful and abstract descriptive variables following the exploratory factor analysis procedures mentioned above. This may have been for one of two reasons. Firstly because they remained unaffected by the factor analysis. That is to say, the statistical output did not suggest that they were part of a larger more meaningful factor. Secondly, because despite the statistical output suggesting that they were part of a larger factor, they were purposely left uncombined with other variables in order that they would retain their individual significance and importance in the presentation of the proposed theory.
- ▶ *further explanatory variables* (FEVs) were derived through the investigation of the salient transitions in organisation structure, management style and quality practices brought about by the introduction of TQM. This is reported in chapter 5.

4.3.4 Time schedule of the research process

The time plan of the research was not set rigidly. It was desirable to retain a certain degree of timing flexibility because although estimatable, the actual time interval required for analysis after each round was not accurately known. In addition, though specific return dates were set by the author against the completion and return of questionnaires by the participants, unexpected circumstances may have required extended cut-off dates to be proposed for questionnaire return. Figure 4.3.4 illustrates the broad resultant time schedule that the four-round Delphi primary research procedure illustrated in figure 4.3.2 followed, having completed the initial detailed secondary source research.

Figure 4.3.4 - Resultant primary research time schedule

Research Process Activity: (key activities in bold typeface)	Elapsed time at key stages:
ROUND 1 QUESTIONS DEVELOPED ROUND 1 QUESTIONNAIRE PRE-TESTED & REFINED	MONTH 1 (START)
■ ROUND 1 QUESTIONNAIRE DISTRIBUTED (requested return date = end of MONTH 3)	end of MONTH 2
ROUND 2 "PLANNED" QUESTIONS DEVELOPED ROUND 1 RETURNS EXPEDITED	
◆ <i>CUT OFF DATE FOR ROUND 1 RETURNS</i>	beginning of MONTH 4
ANALYSIS OF ROUND 1 RETURNS FEEDBACK REPORT No. 1 PREPARED	
ROUND 2 "ITERATIVE" QUESTIONS DEVELOPED ROUND 2 QUESTIONNAIRE PRE-TESTED & REFINED	
■ ROUND 2 QUESTIONNAIRE DISTRIBUTED (requested return date = end of MONTH 6) + FEEDBACK REPORT No. 1	end of MONTH 5
ROUND 3 "PLANNED" QUESTIONS DEVELOPED ROUND 2 RETURNS EXPEDITED	
◆ <i>CUT OFF DATE FOR ROUND 2 RETURNS</i>	end of MONTH 7
ANALYSIS OF ROUND 2 RETURNS FEEDBACK REPORT No. 2 PREPARED	
ROUND 3 "ITERATIVE" QUESTIONS DEVELOPED ROUND 3 QUESTIONNAIRE PRE-TESTED & REFINED	
■ ROUND 3 QUESTIONNAIRE DISTRIBUTED (requested return date = beginning MONTH 13) + FEEDBACK REPORT No. 2	end of MONTH 11
ROUND 4 "PLANNED" QUESTIONS DEVELOPED ROUND 3 RETURNS EXPEDITED	
◆ <i>CUT OFF DATE FOR ROUND 3 RETURNS</i>	end of MONTH 14
ANALYSIS OF ROUND 3 RETURNS FEEDBACK REPORT No. 3 PREPARED	
ROUND 4 "ITERATIVE" QUESTIONS DEVELOPED ROUND 4 QUESTIONNAIRE PRE-TESTED & REFINED	
■ ROUND 4 QUESTIONNAIRE DISTRIBUTED (requested return date = end of MONTH 22) + FEEDBACK REPORT No. 3	end of MONTH 20
ROUND 4 RETURNS EXPEDITED	
◆ <i>CUT OFF DATE FOR ROUND 4 RETURNS</i>	beginning of MONTH 24
ANALYSIS OF ROUND 4 RETURNS	

4.3.5 Pre-testing the questionnaires

Each of the four Delphi questionnaires were pre-tested prior to their distribution to the participant group. Pre-testing represented an important measure in minimising the negative effects of many of the concerns expressed about the Delphi method, and the survey-based research *technique* in general. These concerns were discussed in section 3.4.6.

In essence, pre-testing, or pilot research (Gill and Johnson, 1991) is a trial run-through to test the research *design* with a sub-sample of respondents who have characteristics similar to those identifiable in the main sample to be surveyed. Pretesting detects weaknesses in the survey instruments.

According to Emory and Cooper (1991), most of what is known about pre-testing is prescriptive. They note that according to contemporary authors: '*there are no general principles of good pre-testing, no systematization of the practice, [and] no consensus about expectations*'. Nevertheless, conventional wisdom would suggest that pre-testing is not only an established practice for discovering errors, but it is also useful for training the researcher(s). Indeed, the value of using pre-testing in a longitudinal study involving four questionnaire rounds was deemed to be invaluablely self-serving, in that the accumulating experience and knowledge gained by the author from the successive pre-testing of questionnaires, provided valuable insights and lessons which the author was able to draw on in the design of subsequent questionnaires in the series.

According to Gill and Johnson (1991), pre-testing is recommended as it is difficult to accurately predict how respondents will interpret and react to the questions posed. Pre-testing before the main survey allows any potential problems in the pro-forma of the questionnaire to be identified and corrected. When pre-testing is completed it is then possible to conclude the design of the questionnaire and finalise any arrangements for its administration.

A well designed survey instrument:

- helps to ensure a good quality of response data and information,
- helps the achievement of a good response rate and
- helps to maintain the interest of the participants for the duration of the study.

The persons utilised in the pre-testing processes are referred to here as the qualifiers. The qualifiers used for each questionnaire round were drawn from a second sample constructed after the construction of the main sample.

Unlike the main sample, the qualifiers had to be geographically accessible to the author as it was decided early on that the greatest benefit from pre-testing would be gained if it involved face-to-face interviews. Thus, only persons based in the United Kingdom were approached to act as qualifiers. The alternative would have been to use test mailings, but as Emory and Cooper (1991) noted, though test mailings are useful it is often faster to use a substitute procedure. Their point appeared to be particularly pertinent when a research design utilises a series of questionnaires. Pre-testing using test mailings could effectively double the length of time of the information gathering stage of a research project. As such, in a longitudinal study, the benefits to be gained from pre-testing using test-mailings may actually be to the detriment of the flow of the study. It may be argued that the researcher has much more control from an information gathering time scheduling point of view when using face-to-face interviews for piloting.

It was deemed important that the qualifiers were drawn from organisations fulfilling the same best practice qualifying criteria as the main sample and, occupied the same organisational posts (i.e. participant specification), that is to say Corporate Quality Officer or equivalent.

A six member qualifiers sample was constructed. Five were from the following organisations:

- Varian-TEM (Crawley)
- Fujitsu ICL (UK) Manufacturing Division (Bracknell)
- Barclays Bank plc (Coventry)
- Lucas Aerospace (Solihull)
- Thorn Lighting plc (County Durham).

The sixth member had recently taken a post at an organisation not recognised as a quality leader, however, was deemed to be a valid qualifier because of his knowledge and experience gained in his previous employment at an organisation which did fulfil the best practice criteria. It was not deemed imperative that all six of the qualifiers were involved in pretesting each round providing that the resultant qualifying sample at each round represented the interests of large organisations and SMEs, and manufacturing organisations and service organisations.

The objectives of the pre-testing processes centred around eight pertinent survey instrument design issues¹³⁸:

- (a) *relevance and coverage*: to check that the subject matter was pertinent and appropriate and to discover if topics were not covered that the qualifiers would have expected.
- (b) *respondent interest*: to discover the qualifiers reactions to the questions; to discover where repetitiveness or redundancy was bothersome and to discover if the qualifiers found the experience stimulating.
- (c) *meaning*: to discover if the questions evoked the same meaning as that intended by the author; to discover if the qualifiers frame of reference was different from that of the author and to identify any words or phrases that triggered a "what do you mean" response from the qualifier, and hence needed to be singled out for further refinement.
- (d) *question transformation*: Emory and Cooper (1991) cautioned that respondents do not necessarily process every word in a question, and do not necessarily share the same definitions [as the researcher] for the terms they hear, and when this happens, respondents tend to modify the question to make it fit their own frame of reference or simply change it so it makes sense to them. Thus, probing was deemed necessary to discover how the qualifiers transformed the question when this was suspected.
- (e) *continuity and flow*: to check if questions read effortlessly and flowed from one to another, and if the questionnaire sections flowed from one to another.
- (f) *question sequence*: to obtain the views of the qualifiers about the questionnaire's question arrangement. Emory and Cooper (1991) suggested that question arrangement can play a significant role in the success of an instrument, and noted that many authorities recommend starting with stimulating questions and placing sensitive ones last. Hence, also to test intended stimulating questions to be sure they were stimulating.
- (g) *length and timing*: Emory and Cooper (1991) cautioned that most draft questionnaires suffer from lengthiness. Thus, to estimate the length of time required to answer each question and

¹³⁸(b) through (g) suggested by Emory and Cooper (1991).

section in order to make a qualified judgement about modifying or cutting questionnaire material¹³⁹.

(h) *robustness*: to check that the instrument was flexible enough given the wide-range of types and sizes of organisations that were being approached.

Potential qualifiers were first contacted by telephone. A telephone schedule was drafted introducing the potential qualifiers to the nature and purpose of the task. On gaining potential qualifiers interest and commitment, the first round questionnaire was sent to them. A covering letter was drafted and included, concisely repeating the nature and purpose of the study, and aims of the pre-testing process that had been explained on the telephone. The template covering letter used is provided in appendix 4.3.5.

It was deemed imperative that the qualifiers clearly understood the task they were expected to undertake, however, it was also considered important not to stifle the qualifiers commitment by loading the covering letter too heavily with instruction. Therefore, a short interval of time after the letter/questionnaire had been posted, the author made a follow-up telephone call to each qualifier which was used to brief the qualifier in more depth than the covering letter permitted. The briefing centred around the eight survey instrument design issues listed previously. This briefing was again repeated upon meeting each of the qualifiers for their feedback. At each pre-testing stage, a period of at least two weeks was afforded to the qualifiers for their individual review of the questionnaire. The face-to-face meetings were arranged accordingly.

4.3.6 Use and construction of feedback reports

Three feedback reports were produced and distributed to the main participant sample during the course of the Delphi study. These three *interim* reports followed analysis of the first, second, and third round questionnaires respectively.

In a conventional Delphi format, the sole purpose of feedback is to communicate the participants' response back to them in order that they may re-assess their responses in light of the collective judgement. As anonymity is generally regarded as essential, the response fed back is reported only

¹³⁹On this issue there was the additional requirement to balance the competing needs of incorporating the questions needed to gather the required information with respect to the particular questionnaire's planned themes, and making the required space available to incorporate the un-planned iterative questions.

as group data (Brooks, 1979).

Iteration towards consensus is achieved by requesting that the panel members consider their initial response in light of the collective judgement fed back to them, and to modify their views and opinions if they see fit with this new "collective" knowledge in mind. That is to say, iteration is pursued by replacing initial opinion and judgement with new opinion and judgement. Having analysed the initial set of data/information received from the Delphi panel, the analyst will derive a level of consensus. This level of consensus is the weighting of the proportion of findings indicating consensus to the proportion of findings indicating non-consensus. The analysts objective through iteration, as far as is possible, is to maximize the weighting in favour of the proportion of findings indicating consensus.

In this study, two iterative approaches for reaching consensus were employed. The first iterative approach was that described above - replacing initial opinion and judgement with new opinion and judgement. The second iterative approach was a confirmatory approach. This is because unlike conventional Delphi applications which concern iteration of opinions, usually about the future, in applications that relate to well defined issues in the present or past, an alternative approach to consensus building can be taken. Instead of asking the participants to respond to the analysts feedback with another set of judgements and opinions, upon which the analyst can derive a new level of consensus, participants can alternatively be asked to respond with known factual information about the original issues. This factual information can then be used to establish a new level of consensus about the particular issues in question. Thus, with this second approach, the participants are not directly asked to react privately as an individual to the positions stated. In these circumstances, the feedback report would be purely informative.

The three *interim* feedback reports served two core purposes:

- ▶ as a part of the iterative theory building process, they served to inform the participants of the findings of each of the first three questionnaire rounds - findings around which new questions were subsequently posed in order to confirm / improve the level of consensus.
- ▶ as a vehicle for reciprocity, they served to inform the participants of pertinent, valuable and interesting insights and information that may be of assistance to them in their organisation's TQM efforts, and hence to help to maintain the participants interest in continuing to participate

in the study.

The three *interim* feedback reports were distributed to the participants by enclosing them with the next questionnaire round in the series, for example, Feedback Report number 2 was enclosed with the Delphi round 3 questionnaire. The feedback reports were designed based on the progressional needs of the study. The three interim feedback reports are provided in appendix 4.3.6.

4.4 Statistical Analysis

The investigation made extensive use of three statistical procedures: *significance testing*; *factor analysis* and *cross-tabulation*. The analytical purpose of each technique, their use in the development of the TQM theoretical contribution, and where necessary the statistical parameters used are discussed in the following three sections.

It is important to note that each of these techniques were used for guidance only. The statistical techniques used can only provide suggestions for deeper investigation to the researcher based on the *quantitative* significance of the data. Only the researcher can make *qualitative* judgements about the relevance of the statistical output, by transposing the meaning of variables on to the observed statistical patterns.

4.4.1 Use of significance testing

Significance testing techniques provide a means for identifying any significant differences between the *observed* distribution of responses and the *expected* distribution based upon the null hypothesis¹⁴⁰, $H_0: O_i = E_i$.

Of particular importance throughout the study was the use of significance testing to identify, for any issue or variable (e.g. a TQM element or sub-element), differences in opinion or factual evidence according to (a) *size* of organisation (large or small-to-medium enterprise (SME)), or (b) *class* of organisation (manufacturing or service or manufacturing/service (M/S)).

Two alternative significance tests are generally recommended: *Chi-square* (χ^2) and *binomial*.

¹⁴⁰ O_i = observed number of cases categorized in the *i*th category; E_i = expected number of cases in the *i*th category under H_0 .

However, the Chi-square (χ^2) test of significance (with a significance level $\alpha = 0.05$) was used in this study for the purpose described above, primarily because the binomial test is limited to dealing with only two classes in the population. Further, the Chi-square (χ^2) test has the advantage that it does not assume a statistical distribution, it is non-parametric.

4.4.2 Use of exploratory factor analysis

An approach to the elucidation of [underlying] dimensions is through factor analysis, a technique which aims to discover "bunching" among variables. It can be used in relation to a multiple-indicator measure which does not specify a priori dimensions of a concept or it can be used to confirm whether there is a close correspondence between a priori dimensions and the question items to which they have been assigned (Bryman, 1989). It is the traditional means of grouping variables that have similar effects, into some artificial factors that can reduce the number of variables. Factor analysis creates artificial factors on the basis of the important effects of the variables. The higher the eigenvalue of a factor, the more important is the factor. An efficient factor means that the eigenvalue of the factor is higher than 1, and the factor can explain more than one variable.

Exploratory factor analysis (using 'principal components' extraction method and orthogonal *Varimax* rotation) was used in the inductive part of the study. Specifically, it was used to investigate the empirical factor structure of the TQM variable data-sets generated by the participant sample's response to the investigations described in chapters 6, 7, 8 and 9.

The main objective of the factor analysis was to help the author to reduce each variable set into a more concise and meaningful set of variables representing that particular dimension of the subject. Those variables that were meaningfully combined are referred to in this thesis as "new explanatory variables". It is important to stress that the factor analysis procedures were only used as a "guide" for defining "new explanatory variables". In each of the investigations described in chapters 6, 7, 8 and 9, the artificial factor suggestions were juxtaposed back against the underlying logic that had been determined. "New explanatory variables" were only defined, if the underlying logic relating to the factored input variables and/or their logical associative/causal relationships, supported the suggested artificial factors.

The exploratory factor analysis, where possible, was applied to the TQM variable data-sets in two

independent stages. The reason for this two stage analysis was as follows. Firstly, for the purpose of deriving "new explanatory variables" to be incorporated into the concepts of the proposed theory, the primary concern of the factor analysis was to suggest artificial factors for only those variables that the sample had perceived were important¹⁴¹ to the TQM approach. However, for the purpose of gaining more potentially valuable insights into the logic underlying the best practice TQM approach, it was also considered important to observe the effect of including those variables that were not perceived to be important, on the factor analysis outputs.

To clarify therefore, the differentiating influence between the stage 1 and stage 2 analyses, was the number of variables that were included. The factor analysis input variables for stage 1 and stage 2 respectively were as follows:

- at stage 1: all variables in the variable set were included irrespective of their mean score ($1 < \text{mean score} < 5$ based on five-point Likert scale) and
- at stage 2: only those variables in the variable set were included which were perceived to be important by the sample (mean score $\Rightarrow 3.5$ based on five-point Likert scale).

Cut-off points applied to categorization of mean scores is described in section 4.4.4. To further clarify, it was only based on the stage 2 analyses that any "new explanatory variables" were formed¹⁴².

4.4.3 Use of cross-tabulation

Cross-tabulation was the second technique used for statistically identifying and hence suggesting salient relationships between TQM related variables. Cross-tabulation was used in both the inductive and deductive part of the study. It is an extremely versatile technique which could be applied to all forms of quantitative data gathered in the investigation. Cross-tabulation uses tables having rows and columns that correspond to the levels or values of each variable's categories.

¹⁴¹important is used as an abridgement term here, for those variables that were either considered to be "important" or "very important" by the sample, or which the sample "agreed" or "strongly agreed" described best practice TQM. Cut-off points applied to categorization of mean scores is described in section 4.4.4

¹⁴²Furthermore, in line with correct methodology and good practice, factors from more than one independent analysis run that have used variables from the same data set, should not be synthesised together as a new single set of factors. That is to say, outputs from two interpretations of the same data should not be used to form a single set of outputs.

Constructed for statistical testing, these tables are called contingency tables, and the cross-tabulation test determines if the classification variables are independent (Emory and Cooper, 1991).

Though applied extensively, examination of the results of cross-tabulation statistically indicated few salient relationships between the various study variables. For this reason, only the pertinent findings are reported in the remainder of the discussion.

4.4.4 Cut-off points applied to the interpretation of means scores

When interpreting the calculated mean value findings for the various sets of variables that were examined on a five-point Likert scale (1 to 5) in this investigation, the following cut-off points for categories were used:

<i>calculated mean value range:</i>	<i>interpretation used:</i>
greater than or equal to 4.5	sample strongly agreed, OR, considered very important by sample
between 3.5 and 4.49	sample agreed, OR, considered important by sample
between 2.5 and 3.49	sample expressed a neutral view, OR, considered of neutral importance by sample
between 1.5 and 2.49	sample disagreed, OR, considered not to be important by sample
less than 1.49	sample strongly disagreed, OR, considered not to be important at all by sample

CHAPTER 5: STIMULUS FOR THE INTRODUCTION OF TQM

5.1 Introduction

Chapter 5 describes two investigations. Firstly, investigation of what led the participating organisations to introduce TQM. Secondly, investigation of the changes to structure, to management style and to quality practices that have resulted from its introduction. As such, chapter 5 presents the findings associated with *supporting objective 1* and *supporting objective 5* respectively. These were defined in section 1.3.

It was argued in section 1.3 that it is important when making a theoretical contribution to identify the main boundaries to which generalisation can be taken. It was therefore necessary to examine the validity of the assumption repeatedly found in the literature that TQM is universally applicable. Meeting this objective involved examining the reasons that led the organisations to introduce TQM. This investigation is described in section 5.2. It was also deemed important to ascertain if there was a prevalent channel through which the best practice sample learned about the TQM concept. This "additional" investigation would not contribute directly to identifying the boundaries to which generalisation can be taken. However, had it been found that one type of channel dominated, its significance to the success of the introduction of TQM would have warranted deeper investigation. The findings are presented in section 5.3.

It was also argued in section 1.3 that identification of the relevant TQM *variables* and their inter-relationships, and moreover the *rationale* for their inclusion in a theory of TQM, would in the first instance require examination of the changes to important aspects of organisational behaviour (structure, management style and quality practices) that are brought about by the introduction of TQM. Review of the TQM literature (chapter 2) had indicated that changes in these three areas were a necessary part of introducing TQM. Furthermore, these factually-oriented findings would provide some context when examining the mainly perceptual data collected for *supporting objectives 2, 3 and 4*. This investigation is described in section 5.4 which is sub-divided into eleven sections. Important changes in organisation structure are described in sections 5.4.1 to 5.4.3. Important changes in management style are described in sections 5.4.4 to 5.4.6. Important changes in quality practices are discussed in sections 5.4.7 to 5.4.11.

Section 5.5 summarises the findings of these two investigations, presenting the important TQM

variables that were generated and that needed to be incorporated into the conceptual map of a theory explaining the best practice TQM approach.

5.2 Reasons for Introducing TQM

The aim of this section is to: *"establish if the successful introduction of TQM was independent of the reasons for its introduction, or if the successful introduction of TQM appeared to be connected with a certain type of motivation or pressure generated either from within the organisation or from external sources"*.

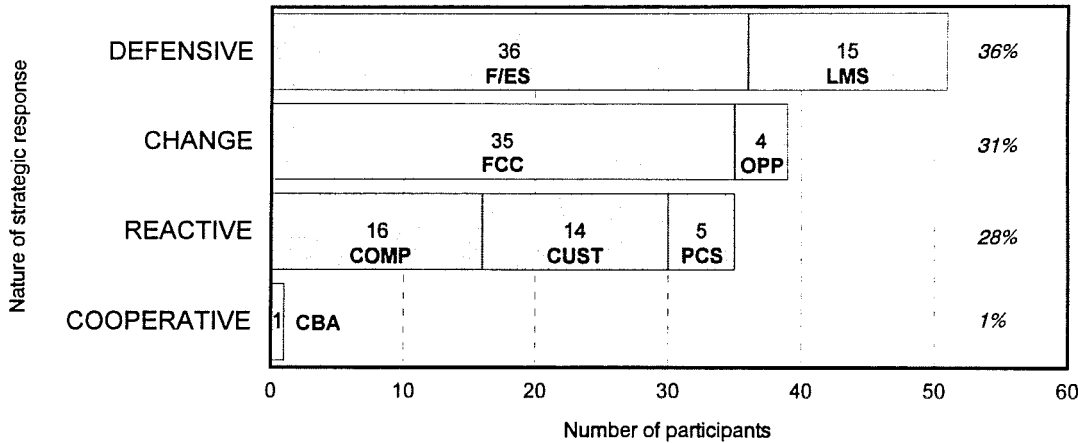
Review of the TQM literature (sections 2.10.4.1 and 2.10.4.2) suggested that TQM is applicable to any profit-making organisation irrespective of the market(s) it serves. The review of the literature also suggested that by and large it is assumed that TQM is applicable irrespective of the particular reasons (motivations or pressures) that lead organisations to choose to introduce it (sections 2.4 and 2.10.4). There is no question that the organisations in the sample have been highly successful with their TQM efforts. They were chosen on this basis. However, none were guaranteed success when they embarked on the journey. An important consideration in attempting to better define the "external range of applicability" of TQM was to establish if successful TQM introductions appeared to be 'dependent on' or 'independent of' the reasons (motivations or pressures) that lead to its introduction. That is to say, whether or not the introduction of TQM was only successful for organisations who shared - at the time they decided to embark on TQM - a particular strategic mindset or posture.

This issue was addressed by investigating if the success of TQM for the best practice sample organisations appeared to be dependent on a certain type of strategic response underlying the introduction of TQM.

Participants were asked to identify the **primary reasons** for the introduction of TQM at their organisation. They were invited to choose from a pre-coded list or put forward reasons not contained within the list. The overall response confirmed that the pre-coded reasons were not mutually exclusive. A total of 137 responses were made by the 51 participants. Almost ninety percent of the sample introduced TQM for more than one reason. The breakdown of the responses to the eight pre-coded reasons is shown in figure 5.2. The two most frequently identified reasons for introducing TQM were '*financial/economic survival*' identified by 36 participants (71% of the

sample), and 'focus for culture change' identified by 35 participants (69% of the sample)¹⁴³.

Figure 5.2 - Primary reasons for introducing TQM (grouped according to nature of strategic response)



Key: Primary reasons

F/ES=for financial/economic survival; **LMS**=loss of market share.

FCC=focus for culture change; **OPP**= major revision/updating of plant/facilities provided opportunity to simultaneously revise working practices and management processes.

COMP=competitive changes made by competitors; **CUST**=pressure from end customers to improve overall performance; **PCS**=pressure/request from major customers to change your systems in line with theirs (i.e. to integrate forwards).

CBA=change in balance of activities.

The participants were asked to elaborate in more detail about the primary reasons that they cited. Further information was gathered concerning the circumstances that led to the introduction of TQM and/or the organisational objectives that prompted the introduction of TQM. All comments were analysed and common themes were extracted, leading to a more detailed understanding of each primary reason. The analysis enabled the pre-coded primary reasons to be classified based on the nature of the organisations' strategic response in introducing TQM to address these circumstances and/or objectives. Four types of strategic response were identified. The pre-coded constituents of each type of strategic response are shown in brackets:

¹⁴³N.B. There were eleven responses to the open-ended 'other' pre-coded option, however in most cases the respective participants did not specify what the 'other' reasons were. For this reason these eleven responses are not represented in figure 5.2.

- Change* (encompassing the primary reasons: '*focus for culture change*' and '*major revision of facilities provided opportunity to simultaneously revise working practices and management processes*'.)
- Defensive* (encompassing the primary reasons: '*financial/economic survival*' and '*loss of market share*'.)
- Reactive* (encompassing the primary reasons: '*pressure/request from major customers to change your systems in line with theirs*'; '*competitive changes made by your competitors*' and '*pressure from end customers to improve overall performance*'.)
- Cooperative* (accounted for by the primary reason *change in balance of activities*.)

The percentages in figure 5.2 show the proportion of the 137 responses that each type of introduction strategy accounted for. Primary reasons connected with a "defensive" strategic response accounted for the largest proportion. The "change" strategic response and the "reactive" strategic response categories were of similar proportion and accounted for virtually all of the remaining responses. This relatively equal frequency distribution of responses between these three types of strategic response suggests that TQM is an intervention whose successful introduction and utilisation is not confined only to organisations which prior to its introduction share a particular type of strategic posture. The following discussion will help clarify this deduction. Each type of strategic response is discussed below based on the analysis of the participants' elaborations.

5.2.1 *Defensive strategic response*

With long-term financial and economic survival under threat, TQM was introduced to counteract adverse market situations and competitive pressures by improving performance in key differentiators such as cost, quality of products and services, and delivery performance. These competitive pressures took a number of forms. Firstly, increased volume of competition, due either to the globalization of markets¹⁴⁴ or from competing internal subsidiaries. Secondly, low or reducing customer satisfaction or performance on key order winning criteria, relative to competitors. Thirdly, the threat of new entrants into the organisations' selected markets, for example niche competition or leaner organisations. Furthermore, widespread availability of new technology meant that for some organisations technology leadership was no longer a competitive advantage. Long range survival strategies had become necessary. Typically, these would involve the need to improve productivity, profitability and/or market share, often at the same time as driving down operating costs and offering reduced prices and improved service to customers.

¹⁴⁴This was the most frequently mentioned competitive pressure.

5.2.2 *Change strategic response*

Essentially, the types of primary reasons classified as *change* strategic responses represent proactive moves to gain or protect competitive advantage. They arise from an awareness that the existing culture of the organisation and/or manner of working are out of tune with contemporary business management thinking, and therefore are a threat to future prosperity. Such an awareness provokes a genuine business wish to change organisational culture or the manner of working.

'*Focus for culture change*' infers that the organisation had identified that the existing culture was in some ways deficient, and there was a desire to create a new organisational mindset and environment that could support the organisation's future objectives¹⁴⁵. Analysis revealed that the deficiency in culture or manner of working had typically been brought about by one or a combination of the following three circumstances. Firstly, rapid organisation growth in comfortable "boom" times had evolved informal systems that proved to be inadequate when economic trends reversed. Secondly, traditional frameworks within which changes in working practices had occurred, and previous change drivers that had proved successful for example technology investments or product investments or focus on manufacturing quality, no longer supported future plans. This was because they could not sufficiently affect the underlying values of the organisation. Neither could they induce the pace of change or bring about the degree of improvement required to close or extend competitive gaps in critical performance areas. This finding is supported by results from the Manufacturing Futures Project (section 2.4.1). Thirdly, simply that the long standing culture perceived to be quality and customer focused, had in actual fact become inward looking and self serving. The desired change cited was typically to a participative culture of continuous improvement in all aspects of business, and that would always be geared up and prepared for change and re-organisation.

5.2.3 *Reactive strategic response*

Analysis suggested that the factors that led to the introduction of TQM as a *reactive* response were often very similar to the factors that led to *defensive* responses. However, reactive strategies tended to be launched 'at the eleventh hour'. Unlike the *defensive* responses to adverse business trends, which tended to be based on some form of planned analysis or forecasts (generated typically by financial analysis and market research), *reactive* responses were usually in response to an

¹⁴⁵Culture can be defined as norms, values and informal beliefs held by people in an organisation.

aggressive move made by competitors, or were the result of a direct request for change from customers. The latter typically included new customer requirements in terms of delivery flexibility and speed of response, in addition to product quality. In some instances, the reaction was to a sudden crisis. The analysis suggested that a less than thorough understanding and awareness of the organisation's competitive environment was an underlying cause leading to *reactive* responses.

5.2.4 *Cooperative strategic response*

"Cooperative" strategic response was the term coined to describe the primary reason '*change in balance of activities*'. The organisation in question regarded TQM as the necessary platform and enabler for a desired change in corporate status and ownership. It is important to note that a low response to *change in balance of activities* was expected given that such circumstances are much less commonplace in comparison to the other primary reasons.

5.2.5 *Strategic response summary*

Competitive forces, and a need to modify both the broad competitive attitude and the internal operations of the organisation, featured to some extent in each of the three predominant types of strategic responses. When organisations introduced TQM as a *defensive* strategy, the key motivating factor was the organisations' competition. The primary differentiator of the *change* strategy over the *defensive* or *reactive* strategy was that *change* strategies represented pro-active moves to gain or protect competitive advantage. The main differentiator of the *defensive* strategy from the *reactive* strategy was that TQM was introduced voluntarily rather than as an abrupt reaction to a third party intervention.

It may be argued that two broad factors appear to differentiate between these three types of strategic response. The first is the level of awareness the organisation has about (i) its current customers and competitive environment, (ii) the future needs of its customers and (iii) future market opportunities. *Change* responses signify a high level of awareness, *defensive* responses signify a medium-to-high level of awareness, and *reactive* responses signify a low level of awareness. The second factor is how much the key motivating force was driven by an unforeseen need (reactive mode) or by a visionary desire (change mode).

The evidence from this sample supports views expressed in the literature that both organisations

that find themselves in difficulty, and organisations that are successful but that pro-actively seek to remain ahead of the competition can benefit from TQM [Hendricks and Triplett (1989), De Meyer and Ferdows (1991), Hiam (1992), Myers and Ashkenas (1993) and Webb and Bryant (1993)]. Furthermore, the evidence suggests that total quality organisations can be created even when a reactive-based strategic posture exists.

5.2.6 Differences in reasons according to size and class of organisation

χ^2 test of significance at 95 percent confidence indicated that statistically: (a) manufacturing organisations were significantly more likely to introduce TQM as a *'focus for culture change'* than service or M/S organisations and (b) service organisations were significantly more likely to introduce TQM because of *'pressure from end customers to improve overall performance'*¹⁴⁶. The reasons for these observations were not immediately clear. It was only possible to hypothesise as to the reasons.

The manufacturing organisations learned, from experiencing loss of market share in the 1970s and early 1980s to Japanese competition, that it is important to maintain forward momentum. Introduction of TQM was seen as a pro-active move to help maintain forward momentum.

For some time services have enjoyed a growing market, however recently growth has started to slow down. Therefore, service firms have to work much harder to keep their existing customer base. Furthermore, it is reasonable to suggest that customers have higher expectations and demand more from service industries.

5.3 Sources Resulting in Identification of TQM

The aim of this section is to: *"establish if there was a principal important channel through which the best practice sample organisations learned about the TQM concept. (If such a channel was identified, it would be subsequently investigated in greater detail to ascertain its significance to the success of the introduction of TQM)"*.

It was deemed important to get a broad picture of the TQM diffusion pattern in industry and commerce, and to ascertain if there was a prevalent source or channel through which the best

¹⁴⁶(a) $\chi^2=13.07$, with $\alpha=0.05$; and (b) $\chi^2=6.22$, with $\alpha=0.05$.

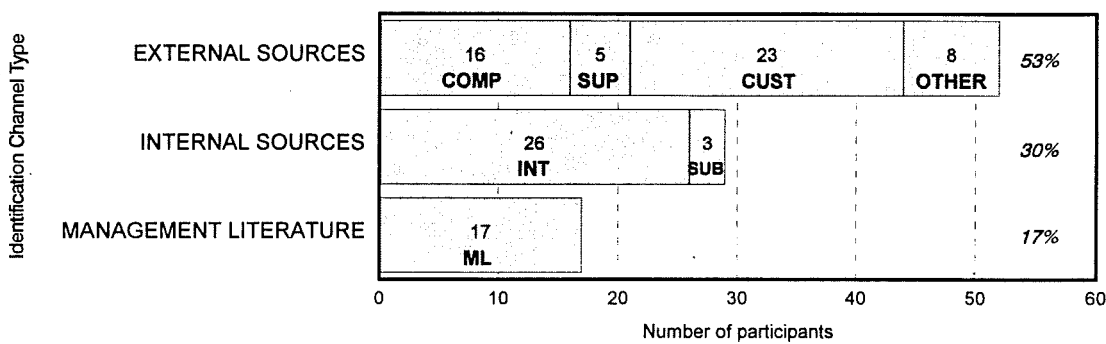
practice sample were made aware of the potential benefits of introducing TQM.

5.3.1 Identification channels

Participants were asked to indicate how TQM was identified as the tool to turn around the organisation or sustain its competitive advantage. They were invited to choose from a pre-coded list of six channels, or add to this list under the option 'others'. Figure 5.3.1 shows the distribution of responses. The participants were also asked to elaborate in more detail, and this additional information was analysed in an attempt to gain a clearer understanding of the TQM diffusion pattern within the sample.

The six pre-coded channels formed three groups (or "channel types"): *external sources*; *internal sources* and *management literature*. The proportion of the total response that each group accounted for is shown by the percentages in figure 5.3.1. It is important to note that these three groups are not mutually exclusive. In many cases a combination of channels from the three groups resulted in the identification of TQM. The three groups are briefly discussed below based on the analysis. Figure 5.3.1 also shows that, when examined, the responses under 'other' channels mainly represented *external sources*.

Figure 5.3.1 - Sources resulting in identification of TQM (grouped according to the identification channel type)



Key: Pre-coded channels

COMP=competitor(s); SUP=supplier(s); CUST=customer(s); OTHER=other external sources.

INT=internal sources; SUB=a subsidiary of the organisation.

ML=management literature.

External sources comprised the pre-coded channels '*competitor(s)*', '*supplier(s)*', '*customer(s)*' and eight responses that participants listed under the '*others*' option, and accounted for the largest proportion of the responses (53 percent). Identification of TQM through '*customers*' accounted for the largest proportion of *external sources*. This would suggest that many organisations that introduce TQM successfully have a reasonable prior understanding of the importance and implications of a customer focus.

Identification through '*customer(s)*' came about in two main ways. Firstly, through "direct" business contact with the customer. Business contact led to the identification of changing customer needs and requirements, typically for a combination of two or more of the following: increased product quality, increased service level, better delivery, greater flexibility, better speed of response, better support and reduced costs. Customer pressure with regards to BS5750 certification and SPC usage also led to the serious consideration of introducing TQM. These amount to real day-to-day demands from customers, and suggest that the *defensive* and *reactive* strategic responses discussed in the previous section were nevertheless substantially customer driven. Some organisations became aware that their customers were practising TQM, and subsequently collected information from them (in one case, the organisation, together with other suppliers, was invited by a customer to see the customers' quality improvement programme at first hand). Secondly and "indirectly", through consideration of the customers. This was typically through market research or customer surveys to determine customer needs and expectations or industry standards.

The organisation's observations of increasing internal and external competition accounted for the '*competitor*' construct, however no indication of exactly how these observations were formed was given by the respondents. Examples of the observed increasing competition were discussed in section 5.2.1. Likewise, no explanation of the identification of TQM through '*suppliers*' was provided.

'Other' external sources that led to the identification of TQM were:

- alliances, contact with, or exploratory visits to larger companies in either similar or different industries who encouraged the pursuit of TQM and development of home-grown methods;
- realisation of the need to apply the TQM type processes demonstrated to the company by consultants, or through attending external seminars or professional society meetings;
- through regional quality co-ordination groups and

- through widespread communication (via no specific channels) of Japan's market dominance, or the recipes of Asian management and production styles.

Internal sources comprised the pre-coded channels '*internal sources*', '*a subsidiary of the organisation*' and, when they were examined, two of the responses that participants listed under the '*others*' option. *Internal sources* accounted for 30 percent of the responses. The main internal activities leading to identification of TQM as potentially a desirable tool were:

- informal development of interest in TQM driven by corporate exchange of ideas or by business contacts;
- internal review processes (for example: employee attitude surveys; task force investigation and review of competitive strategies; cost of non-conformance audits; corporate-wide adoption of a recognised quality award framework; internal benchmarking);
- future status reviews at corporate level;
- a quality champion or quality enthusiast at senior management level (often with previous positive experiences of TQM in other companies, and in some cases a new CEO or director);
- proactive senior management commitment to pursuit of quality from inception of the company, or internal staff expressing concern about loss of corporate status and desire to deliver improved customer satisfaction and
- in-house seminars in which employees asked to identify potential enablers of competitive excellence.

Management literature, such as trade magazines received by internal personnel, business management journals and magazines, or literature produced by and collected from other organisations, accounted for 17 percent of the responses.

5.3.2 Summary

Identification of TQM as the tool to turn around the organisation or sustain its competitive advantage was most common through sources "external" to organisations. Nevertheless, the overall frequency distribution of participants responses between the six pre-coded channels suggests that the TQM identification source has little impact on an organisation's ability to successfully embrace TQM. The analysis presented above suggests that permeation of TQM

concept among the best practice sample was not the result of a single dominant act. Furthermore, χ^2 test of significance at 95 percent confidence indicated that statistically all pre-coded TQM identification channels were independent of *size* or *class* of organisation.

5.4 Organisational Changes Resulting from the Introduction of TQM

The aim of this section is to: *"identify the important changes in organisation structure, management style and quality practices that accompany, or result from, the successful introduction of TQM"*.

As it was stated in section 4.3.3, these cluster of variables were gathered under the heading of *further explanatory variables* (FEVs). These represent "desirable states" that must be incorporated into the preliminary conceptual map of TQM. Review of the TQM literature (chapter 2) indicated that for organisations introducing TQM, changes or modifications to organisation structure, management style, and quality practices are required.

The "structure" of an organisation represents a pattern of relationships - especially authority and functional relationships - between members (Huczynski, 1987). Different structures imply different ways of organising business processes, organising resources, and interfacing with suppliers and customers. Changes or modifications in structure may require differing actions, differing reorganisation approaches, and may be dependent on differing types of organisational resources.

"Management style" refers to the nature of management behaviour in the organisation - management assumptions, or its values, about subordinates and their motivations. The management style of an organisation also indicates where decision making power and responsibility is located (Bennett, 1991). In many organisations, management style tends to be hereditary. That is to say, in circumstances when an organisation is not consciously pursuing a major change strategy, the existing style of management is inherited by each new generation of managers. However, it is frequently reported in the literature that successful TQM organisations strive to nurture and change their management style to align it with necessary cultural developments [Robson (1989b), von Rutte (1989) and Heilpern and Nadler (1992)]. Further, depending on the original management style, an organisation may be at an advantage or a disadvantage for the purposes of introducing TQM.

The term "practices" refers to those things in an organisation which are done on an ongoing basis (as distinct from an initiative or a project). That is to say, practices are the permanent parts or characteristics of an organisation's activities. Quality practices therefore refers to the actions with regard to quality, and attitudes towards quality, of an organisation. "Attitudes" as is used here, primarily refers to where in the organisation responsibility for quality resides. Review of the literature (chapter 2) suggested that TQM often requires changes in the domain of quality responsibility. As with management style, an organisation may be at either an advantage or a disadvantage for the purposes of introducing TQM depending on the quality practices that exist prior to the introduction of TQM.

Profiling the nature of these structural, management style and quality practice transitions, would lead to an appreciation of the scope and magnitude of introducing TQM and of the commitment required. It might also indicate what operational changes an organisation may need to concentrate on during the course of the TQM implementation process. These profiles were important because they represent salient changes that organisations should strive to attain in pursuit of successful introduction of TQM. In each of the three cases, the profile was generated by comparing and contrasting the organisational characteristics prior to the introduction of TQM, with the respective present day organisational characteristics. It should be noted that structure, management style and quality practices within an organisation are not mutually exclusive.

Sections 5.4.1 to 5.4.3 present findings about the structural re-organisation in the best practice sample organisations. The findings are discussed and used to produce a profile of structural changes accompanying the introduction of TQM. Sections 5.4.4 to 5.4.6 present the findings about the transitions in management style. Sections 5.4.7 to 5.4.10 presents the findings concerning the transitions in quality practices¹⁴⁷. These three profiles had a further important use. They each contributed valuable explanatory variables to the production of the preliminary conceptual map of TQM described in chapter 10.

¹⁴⁷The results pertaining to present day quality practices were to have a further important use - in the evaluation and refinement of the preliminary conceptual map of TQM. This is discussed more fully in sections 1.6 and 11.1.

5.4.1 Pre-TQM organisation structures

The organisation structure that existed prior to the introduction of TQM was explicated in Delphi round 1 questionnaire. Examination of appropriate literature [Mintzberg (1979), Butler (1986) and Hodge and Anthony (1991)] suggested that in broad terms there were six different types of organisational structure. Participants were asked to indicate from this list the type(s) of organisational structure that existed prior to the introduction of TQM. The participants were also invited to add to the list. To maintain consistency of interpretation across the participant group, a definition was provided for each pre-defined organisation structure. Table 5.4.1 shows the results of this investigation.

Table 5.4.1 - Original (pre-TQM) organisation structures

type	definition	N ^o of participants	proportion of sample
multi-layered	multiple management layers	32	63%
functional	structured into task specialised departments	30	59%
matrix	jointly emphasizes functional specialization and self-containment	14	28%
self-contained unit	organisational activities organised on the basis of products, services or customers	11	22%
network	spans the boundaries of the organisation to include co-operative arrangements with other organisations	3	6%
flat	minimal management layers	1	2%

Ninety one responses to pre-TQM organisation structures were given. This indicated that in some organisations a combination of structures existed prior to the introduction of TQM. Cross-tabulation was used to identify significant relationships. None were found. As table 5.4.1 shows, *multi-layered* or *functional* structures were the most prevalent, each in existence in more than half of the organisations. *Matrix* or *self-contained unit* structures were present in approximately one quarter of the organisations. *Network* and *flat* structures were the rarest.

5.4.2 Profile of changes in organisation structure

The present (TQM) organisation structure was explicated in the round 2 questionnaire. Participants were asked to describe how the organisation structure had changed since the introduction of TQM, and if any other structural changes were planned. This time a pre-defined list was not used, as it

was felt that this might restrict the participants' responses. On examination of the responses it was clear that describing structural changes required some participants to also address operational and cultural changes. This was envisaged by the author, and there was no intention to avoid this. In fact, even if pre-coding had been used, it would not be possible to completely separate structural, cultural and operational components of change. In order to accurately delineate structural changes it was consequently necessary to separate the organisation structure change information from the operational and cultural change information. To this end the participants responses were transposed into a common tabular format for ease of analysis. The resultant structural change information was then analysed through direct observation for common trends. This permitted the construction of a profile of the prevalent organisation structure changes accompanying the introduction of TQM. The resultant profile is depicted in figure 5.4.2.

The profile indicates that successful TQM organisations substantially change their structure to accommodate TQM. However, this profile should not be interpreted as showing each and every structure change that all organisations should make as part of their introduction of TQM. It depicts the prevalent structure changes observed in the study sample. The profile highlights a key change in attitude of the best practice organisations. The transition from functional structure to "team" structures signifies an attitudinal transition away from the belief and acceptance that functional specialisation is the most 'logical' method for dividing up the work of the organisation. The inherent disadvantages of the functional structure were described in section 2.10.2.1. The attitudinal transition is to a view that participation and shared responsibility irrespective of particular functional specialisms is a 'logical' basis for effectively organising the work of the organisation. This suggestion is discussed further in section 5.4.4.

5.4.3 Differences in the profile of changes in organisation structure according to size or class of organisation

χ^2 test of significance at 95 percent confidence indicated that statistically SMEs were more likely to have a '*self-contained unit*' organisation structure before introducing TQM¹⁴⁸. This finding was expected and required no further investigation. In the absence of the use of pre-coding it was not possible to conduct meaningful statistical significance testing according to *size* or *class* of organisation for present day organisation structures. However, observation during the analysis indicated no significant differences.

¹⁴⁸ $\chi^2=4.27$, with $\alpha=0.05$.

Figure 5.4.2 - Profile of prevalent organisation structure changes

[FROM] ORIGINAL (pre-TQM) STRUCTURES:	[TO] CHARACTERISTICS OF NEW (TQM) STRUCTURES:
Multi-layered structure : - many layers of management OR Functional structure : - activities structured into task specialised departments	→ Flatter management structure → Team oriented framework/structure → Removal / elimination of : - inspection - support functions - various management and supervisory titles → Integration of functions : - engineering and programme management - product assurance functions → Formation of groups / functions : - quality systems group - multi-disciplinary project teams in product/service development → Decentralisation : - of production engineering functions - of production control functions - of support functions - to separate business units with devolved powers → Re-alignment of activities : - customer focused operations teams - customer focused business units - product group business units - cellular management structure in manufacturing - multi-functional / multi-skilled team structure - managing via business processes - organising around key business processes - cross-functional teamwork - cross-functional projects

5.4.4 Pre-TQM and present day management styles

The management style that existed prior to the introduction of TQM was explored in Delphi round 1 questionnaire. The investigation comprised two parts. Firstly, participants were asked to indicate which general characteristics they thought described the management style of their organisation prior to the introduction of TQM. These general characteristics were presented as two different dimensions. The first (referred to as dimension (a)) comprised the choices: 'passive', 'directive' or

'participative'. The second (referred to as dimension (b)) comprised the choices 'proactive' or 'reactive'. Secondly, examination of the appropriate literature [Bennett (1991), Huczynski and Buchanan (1991), Mintzberg (1980), Rosenberg (1978), Johannsen (1990) and Ivanovic (1988)] suggested that in broad terms there were four different types of management style. Participants were asked to indicate which described their pre-TQM management style, or to suggest another if none of the four were appropriate (this is referred to below as dimension (c)). For consistency of interpretation by the participants a definition for each type was supplied.

The management style that existed in the organisations after or as a result of the introduction of TQM was explored in Delphi round 2 questionnaire. The two dimensional general characteristics line of inquiry used for the pre-TQM management style investigation was repeated for the present management style. However, the author believed that little benefit would be gained by repeating the second of the previous approaches. The reason was as follows. The findings and discussions in the literature review (chapter 2), supported by other findings from questionnaire round 1¹⁴⁹, suggested that the choice of 'team management' would receive the vast majority, if not all the responses. Instead it was deemed more beneficial to examine if the present management style was 'devolved' or 'centralised'. Either could characterise the team management style.

5.4.4.1 Findings for dimension (a) *passive / directive / participative* and dimension (b) *proactive / reactive*

The frequency of response for each of the general characteristics describing management style is summarised in table 5.4.4.1. The table illustrates the extent of change from prior to TQM to after the introduction of TQM for each characteristic.

Table 5.4.4.1 - Characteristics of management style before and after introduction of TQM

dimension (a)	before TQM ¹ (% of sample)	after TQM introduced ² (% of sample)	dimension (b)	before TQM ³ (% of sample)	after TQM introduced ⁴ (% of sample)
'passive'	6%	4%	'proactive'	12%	73%
'directive'	65%	22%	'reactive'	69%	27%
'participative'	18%	81%			

¹fourty five responses were given. ²fourty one responses were given. ³fifty one responses were given. ⁴fifty one responses were given.

¹⁴⁹A *team* approach to management was cited frequently as one of the benefits of introducing TQM (question 9, in questionnaire round 1).

A *directive* management style was the most prevalent before the introduction of TQM. This style was indicated by thirty three participants. A *participative* management style, indicated by nine participants, was less common. A *passive* management style occurred extremely infrequently. Only three participants indicated *passive* as descriptive of their pre-TQM management style. Following introduction of TQM, *participative* management style became more prevalent. This was indicated to be the case by more than three-quarters (thirty eight) of the participants. The *directive* management style, indicated by eleven participants, was less common. A *passive* management style was still very rare. This style was indicated by only two participants.

A *reactive* management style was extremely prevalent before TQM was introduced. This style was indicated by thirty five participants. The existence of a *proactive* management style before the introduction of TQM was indicated by only six participants. Following the introduction of TQM, a *proactive* management style became more prevalent. This style was indicated by thirty seven participants. However, a *reactive* management style still occurred in approximately one quarter of the organisations. This style was indicated by fourteen participants.

5.4.4.2 Findings for pre-TQM dimension (c) specific management style

Fifty two responses were given altogether. The findings are summarised, with the definitions, in table 5.4.4.2.

Table 5.4.4.2 - (Specific) pre-TQM management style

type	definition	N ^o of participants	proportion of sample
middle of the road management	adequate organisation performance by balancing the necessity to get work out, with maintaining morale of people at a satisfactory level	23	45%
authoritative-compliance management	efficiency in operations results from arranging conditions of work in such a way that human elements interfere to a minimum degree	17	33%
impoverished management	exertion of minimum effort to get work done is sufficient to sustain organisation membership	6	12%
team management	interdependence through a common stake in organisation purpose leads to relationships of trust and respect	3	6%
other		3	6%

A *middle of the road management* style was indicated by twenty three (45% of) participants, and an *authorative-compliance management* style was indicated by seventeen (33% of) participants. These were the two most prevalent styles. An *impoverished management* style was indicated by six (12% of) participants. A *team management* style was only practised in three (6% of) organisations. All three were large organisations. An *'other'* management style not covered by the four styles defined was indicated by three (6% of) participants. One was essentially a further indication of team management - *'teamwork and mutual respect'*, a second was essentially another indication of the directive management style but driven by crisis, and the third was described as *'decibelology'*.

5.4.4.3 Findings for post-TQM introduction dimension (c) *devolved / centralised*

Fifty responses were given. Following the introduction of TQM a *'devolved'* management style was much more prevalent than the *'centralised'* management style. *'Devolved'* and *'centralised'* management styles were indicated by thirty seven (74% of) and thirteen (26% of) participants respectively.

5.4.5 *Profile of changes in management style*

The profile in figure 5.4.5 below depicts the prevalent changes in management styles that resulted from the introduction of TQM.

Figure 5.4.5 - Profile of change in management style resulting from the introduction of TQM

(pre-TQM) MANAGEMENT STYLES:		PRESENT MANAGEMENT STYLES:
Directive	→	Participative
Reactive	→	Proactive
Middle of the road	→	Devolved (Team management)
Authorative-compliance		

These findings infer that *'directive'*, *'reactive'*, *'middle of the road'* and *'authorative-compliance'* styles of management are not appropriate if an organisation wishes to successfully sustain a TQM approach. To gain a clearer understanding of the logic underlying the changes in management style, the participants were asked in the first round Delphi questionnaire to provide some additional

explanation of their pre-TQM management styles. The additional information was transcribed into a tabular format for ease of analysis. This format included columns identifying the pre-coded choices made by each participant. This enabled the author to exercise consistency in the analysis. (Part of the resulting table is shown in appendix 5.4.5). The additional information was scrutinized with the objective of identifying further characteristics and undesirable consequences of the *'directive'*, *'reactive'*, *'middle of the road'*, *'authorative-compliance'* and *'impoverished'* management styles. The findings from this additional primary data were augmented by secondary data [Bennett (1991), Huczynski and Buchanan (1991) and Mintzberg (1980)] to produce the following summaries.

According to the participants, the *'directive'* management style was characterised by management deciding in isolation what the other members of the organisation should be doing, then telling them to do so with little or no consultation. At its extreme, the *'directive'* style was threat centred, failure oriented management by confrontation and unreasonableness. Managers believed that they had to take all responsibility for making all decisions for the organisation. Their logic was that because they had been promoted to the managerial position they must know best. Managers also tended to believe that the decisions they made were always the right decisions, and that because they always told their employees what to do they were releasing and protecting them from any decision making responsibility, and hence assumed that the morale of staff must be good.

It appeared that the underlying cause of the *'directive'* management style related to the goals being pursued by the managers. A number of participants stated that management were driven by financial performance with particular emphasis on meeting budgets and reducing costs. The overriding consequence cited was either a budget focused or a production-led internally-oriented organisation culture. The participants identified a number of other undesirable consequences of the *'directive'* management style. With operations being run the way management had decided, management distanced themselves from listening to and learning from the experience of those close to the operational tasks - people who had often been with the organisation longer than the management, and had a better understanding of the operations. The *'directive'* style clearly would appear to restrict freedom for employees to act at lower levels. Employees attitudes would appear to be adversely affected - they do what they are told, seldom argue or challenge decisions, and seldom learn anything new. The ability of the organisation to co-ordinate cross-functionally would be compromised. The *'directive'* style appeared to shape management reporting mechanisms that were vast, cumbersome and slow, and open to sabotage. It was also suggested that the *'directive'*

management style allowed individuals to easily undermine the decisions or actions of their peers, "by setting up brick-walls". A significant difference appeared to exist between the way staff personnel and front-line personnel were treated, to the extent that even first line supervisors were compromised by management and were given little authority to deal with important issues. This situation could result in credibility gaps between different levels in the organisation.

The '*directive*' style was described by one organisation as "senior management exhortation without definition". This description highlights one of the main underlying limitations of the *directive* approach to management¹⁵⁰. With the '*directive*' style, the decision making responsibilities of the organisation reside with a small proportion of organisation members high up and remote in the organisation. Decisions taken are cascaded down the organisation in a directive fashion with little scope for feedback. Consequently, by the time this dissemination reaches the lower echelons, where the decisions have to be actioned, the validity of the decisions cannot be assured. This is a problem which the author would suggest can easily be exacerbated if the communication channels in the organisation are poor, and if the consistency and accuracy of dissemination is open to compromise.

It would appear that in an effort to simplify the management task and reduce the problems brought upon themselves through their '*directive*' style, management often devise piece-meal systems, that result in an organisation run rigidly on rules and erroneous priorities. Furthermore, the '*directive*' style would appear to have a tendency to "back-fire". That is to say, simple decisions which could be made at lower levels are routinely escalated back up the organisation (even as far as Board level) because of subordinate's fear of making a wrong decision. In this way responsibility is pushed into even fewer hands, further compromising the likelihood of good and valid decisions. No positive characteristics or consequences of the '*directive*' management style were identified by the participants.

According to the participants, the '*reactive*' management style appeared to be characterised by managerial attention and organisational effort directed and focused on where the largest predicament or crisis was occurring. In the '*reactive*' mode problems would tend to be isolated rather than shared and little would be gained in terms of learning from experience. Participants indicated that problems were not anticipated but were dealt with as and when they occurred. Continuous fire-fighting was an everyday occurrence, and there was a danger that the chief fire-

¹⁵⁰This limitation equally applies to the '*authorative-compliance*' management style.

fighters in the organisation became regarded as the heroes of the company. The frantic activity and constantly shifting focus of attention would suppress any opportunity to adopt and practice a preventative philosophy. The participants response suggested that a potential cause of, or catalyst that procreates the '*reactive*' style was that most decisions in the organisation were centred on narrow and limiting historical perspectives. The author suggests that a '*reactive*' style of management is synonymous with poor strategic fit between the organisation's product/service offering and its capabilities. Ineffective communication and feedback appear to be both a cause and a consequence of the '*reactive*' management style.

It may be argued that the '*reactive*' mode is difficult to suppress. This is because once allowed to take root, it may be difficult for an organisation to find and devote time to any form of planning or prioritising that might help to alleviate the need for constant reactivity. No positive characteristics or consequences of the '*reactive*' management style were identified by the participants.

The definition of the '*middle of the road*' management style provided by the author appeared to be accurate and well supported by the additional information provided by the participants. That is to say, that this management style is "entrenched" and as a result, changes that would help to sustain competitiveness or profitability are slow to occur. The response suggested that performance in key areas, or improvements, were seldom measured. Instead, uninformative monitoring (such as waste levels) was the driver of managerial decisions and the rationale for improvement programmes. Often poor performance was tolerated and viewed as being "inevitable". It was suggested that a cause of '*middle of the road*' management style was that company personnel genuinely believed that the company would always be there regardless of performance. Though decision making and responsibility might not solely be restricted to management (as was the case with the '*directive*' style), employees will tend not to be widely consulted about or involved in why or how any changes should be made. In one organisation, it was reported that most employees were totally unaware of fierce competition and low profitability. It was also suggested, that managers' interest in the organisation's customers, extended little further than providing the minimum amount of liaison that would ensure that the organisation's goods got through the customers' goods inwards inspection.

The response would support the perception that '*middle of the road*' managers are generally reluctant to enter into confrontations with employees. That in seeking to maintain the morale of

employees at a satisfactory level, management take a paternalistic approach to their staff as a whole. That is to say, remuneration and benefits would be generous for the level of service provided by the employees. Consequently, employees would be happy to comply with management. As one participant described it, "it is a good place to work". The '*middle of the road*' style breeds a limited, parochial attitude across the organisation. It appeared that with the '*middle of the road*' management style, the "visible act" of participation was more important than any potentially beneficial outcomes of participation¹⁵¹. That is to say, participation was important only for helping maintain the status quo. No positive characteristics or consequences of the '*middle of the road*' management style were identified by the participants.

According to the additional information supplied by the participants, the '*authorative-compliance*' style of management appeared to: (a) share many of the same characteristics, (b) be driven by the similar goals/objectives, and (c) result in many of the same consequences, as those cited previously for the '*directive*' approach¹⁵². Specifically:

- a perceived need to impose 'strong management' and 'discipline',
- little or no encouragement for input from employees,
- "turf protection" a prevalent managerial objective,
- management "instruct" un-empowered personnel,
- allocation of blame,
- management led by inconsistent short-term cash targets for each year,
- promotes rigid functional structures,
- fire-fighting the norm at lower echelons,
- provides opportunity for conflict,
- 'quality' never features on management's agenda,
- high administrative workloads,
- employee fear and
- encourages an "us and them" culture to prevail.

The main differentiator between '*directive*' and '*authorative-compliance*' could be described as the

¹⁵¹Cross-tabulation "suggested" that before the introduction of TQM the '*middle of the road*' and the '*participative*' management styles were not independent. That is to say, a large number of organisations indicated both a '*middle of the road*' and a '*participative*' management style in their organisations prior to the introduction of TQM. N.B. the term "suggested" is used because one of the tests of the validity of the cross-tabulation was marginally outside the recommended upper limit. This was for $CF \leq 5$ which returned a value of 25%. The recommended upper limit is 20%. Otherwise, the cross-tabulation returned $p=0.0259$ and $MEF=3.981$.

¹⁵²Cross-tabulation indicated that '*directive*' and '*authorative-compliance*' management styles were not independent prior to the introduction of TQM. ($p=0.0487$, $MEF=6.212$, $CF < 5=0$ when '*directive*' and '*authorative-compliance*' pre-TQM management styles cross-tabulated for the sample.)

"intensity" with which the characteristics of the style apply, where the intensity under the *'authoritative-compliance'* management style is greater than the intensity under the *'directive'* style. This higher "intensity" results from an underlying attitude and conviction that management is the single authority within the organisation, and if you are not management, you are not paid to think, you are paid to do as you are told. *'Authorative-compliance'* appeared to be management by tight control of decision making and authority. The participants indicated that there was no delegation, and any employee involvement outside of the "agreed framework" was seen as threatening and divisive. Even customer feedback was seen as negative and unwelcome. No positive characteristics or consequences of the *'authorative-compliance'* management style were identified by the participants.

Though additional information regarding the *'impoverished'* management style was sparse (due mainly to the few organisations that had this pre-TQM style of management), analysis of the few comments nevertheless suggested that the *'impoverished'* style of management was largely "characterless". When management was underpinned by the belief that the exertion of minimum effort to get work done was sufficient to sustain organisation membership, specific goals and objectives tended to be absent and management viewed their role as simply to maintain a "status quo". Few managers took the view that ongoing improvement was their responsibility. Many took the view that certain processes or functions could not be improved. *'Impoverished'* management appeared to provide no motivation for employees to initiate changes or to be innovative in their jobs. No positive characteristics or consequences of the *'impoverished'* management style were identified by the participants.

5.4.5.1 Summary of management style change profile

The substantial changes identified demonstrates that aligning the organisation's management style and practices with the needs of the TQM environment was considered of paramount importance by the best practice sample. The supporting evidence that was examined to help explain the changes that were depicted in figure 5.4.5 led to the following suggestions.

(a) The transition from a prevalently *'directive'* and/or *'authorative-compliance'* management style to a prevalently *'participative'* management style represented a recognition and acceptance by organisations that the competence to make good decisions did not solely reside within the management levels of the organisation. This migration from a management style based on the

principle that arranging conditions of work in such a way that human elements interfere to a minimum degree will result in efficient operations, represents a significant change in management attitude. A change from believing that the managers' role is to "tell people what to do then make sure they do it", to believing that their role is "to help and enable people to decide what should be done, what they should be doing, and how they can ensure that they are doing it well".

(b) The transition from '*directive*' and/or '*authorative-compliance*' to a '*devolved*' management style, represented a transformation in leadership focus from a command and control role to an empowering role¹⁵³.

(c) The transition from a '*reactive*' and/or '*middle of the road*' management style to a prevalently *proactive* management style, suggested an appreciation and understanding that effective decision making requires more than a focus solely on historical performance information. That is to say, that valuable inputs for decision-making could be located anywhere in the organisation, rather than solely in the organisation's finance and production databases.

Further, the author proposes that management style is one of the hardest things to change, as it not only requires a change in management activities and actions, but as was inferred above also requires a fundamental change in management behaviour and attitude. This view is shared by other authors. Huczynski (1987) argued that change of style by managers needs considerable time and patience to implement. This would explain the finding that a '*reactive*' dimension to management style remained after the introduction of TQM in over one quarter of the organisations. The author would suggest that the increasingly unpredictable nature of the external environment makes the '*reactive*' element of a management style the most difficult element to eradicate. Furthermore, that it is likely that even when conscious efforts are not made to identify, evaluate and improve the management style within an organisation, certain characteristics that have prevailed and become entrenched will continue to bear upon the 'unconscious' mindset of managers for some time.

5.4.6 Differences in the profile of changes in management style according to size or class of organisation

χ^2 test of significance at 95 percent confidence indicated that statistically SMEs were significantly

¹⁵³The issue of leadership was investigated and is discussed in more detail in chapter 9 (*Conditions for total quality*).

more likely to have the '*middle of the road*' management style prior to the introduction of TQM than large organisations¹⁵⁴. The reason for this was not immediately clear. It was only possible to hypothesize that lack of formal senior management training in SMEs which can result in inflexibility and rigidity of outlook may be a possible cause. χ^2 test of significance at 95 percent confidence suggested no differences for any other pre-coded management styles investigated (pre-TQM or post-TQM introduction) according to either *size* or *class* of organisation.

5.4.7 TQM quality practices

The quality practices that existed prior to the introduction of TQM were explicated in Delphi round 1 questionnaire. The quality practices that existed in the organisations, after or as a result of the introduction of TQM, were explored in Delphi round 2 questionnaire. The comparison of pre-TQM with present quality practices enabled changes in the organisations' attitude towards quality to be directly assessed.

It was deemed necessary to investigate the quality practices after the introduction of TQM in some detail. As cited in the introduction to section 5.4, 'practices' refers to activities that are permanent parts or characteristics of the organisation's day-to-day or regular operations. Unlike for instance management styles, that were investigated in the previous section, which are most appropriately defined in terms of broad characteristics, quality practices are much more specific in nature. It may be argued that for different organisations, (at the operational level) quality practices will tend to be organisation dependent, that is, largely customised to specific requirements. In this respect, the author recognised that attempting to pre-code present day quality practices would be difficult. However, it was deemed to be of little value to investigate the pre-TQM quality practices at this level of detail. That is to say, at the level of each individual quality practice.

The design and format of the quality practice investigation had to take these two concerns into account. The primary design requirement therefore, was to maintain the required degree of consistency between the pre-TQM and post-TQM quality practice investigations. This would ensure that a meaningful representation of attitudinal and behaviour change towards quality within the organisations' could be constructed. The consistency referred to was achieved by incorporating a "quality practice" classification system into the pre-TQM and 'present day' sub-investigation formats. Review of the appropriate literature (chapter 2) suggested that in broad terms quality

¹⁵⁴ $\chi^2=3.99$, with $\alpha=0.05$.

practices could be classified along two dimensions: (a) their level of formality (*formal* or *informal*), and (b) type of focus (*detective* or *preventative*).

Formal signifies the view that the quality practice(s) should be used, or are best used, in accordance with defined rules or convention. That is to say *formal* refers to practices showing or requiring formality in their execution. *Informal* signifies the view that the quality practice(s) need not or should not be enforced or regulated. That is to say, they do not need to be used, or their use would not be appropriate or necessary, in accordance with particular rules or customs. They are more likely to be used on an 'ad hoc' basis. A description of the exact format of each of the two investigations using the classification system precedes the discussion of the results presented in the following two sections.

A key perspective in assessing the attitudinal and behavioural change towards quality was where in the organisation responsibility for quality resides. The author believed that for both the pre-TQM and the present day investigations a specific enquiry about this should be included.

5.4.8 *Pre-TQM quality practices*

The pre-TQM quality practices investigation comprised three parts. The first two parts used pre-coding. Firstly, the participants were asked to indicate whether in general pre-TQM quality practices were '*formal*', '*informal*', '*detective*' and/or '*preventative*'. This was to ascertain the overall attitude towards quality practices, reflecting the organisations perception of the nature of quality in their organisations before the introduction of TQM. Secondly, the organisations were asked to indicate from a pre-defined list of four options where in the organisation the main responsibility for quality had resided. The four options were identified using appropriate literature [Grocock (1986), Oakland (1989) and Main (1994)]¹⁵⁵. The participants' response was not restricted to a single choice. They were permitted to choose as many of the options as applied. To avert any overall bias the author ensured that the four resulting options comprised "positive" perspectives (option 2: '*everybody within the organisation responsible for quality management*'; and option 3: '*top management took overall responsibility for, and ownership of quality*') as well as the more "historical quality oriented" perspectives (options 1: '*quality control department solely responsible for the general management of quality*'; and option 4: '*first line supervisors took*

¹⁵⁵An extensive list of positions typically associated with having the responsibility for quality within an organisation was compiled, then reduced and refined to indicate more distinct areas.

overall responsibility for quality management').

The third investigative component was incorporated to augment the previous two lines of enquiry by qualifying whether the attitude towards quality practices differed in different locations within the organisation. The literature review (chapter 2) suggested that it was only more recently that a focus on quality had spread from "productive" operations to "administrative" operations. Participants were asked to elaborate on the pre-coded choices they made in the previous two lines of enquiry and to differentiate between (a) transformation process / service delivery areas, and (b) administrative areas. The findings of these three parts of the pre-TQM quality practices investigation are discussed below.

5.4.8.1 Nature of pre-TQM quality practices

Prior to introducing TQM the nature of quality practices was predominantly *'formal'* and/or *'detective'*. These were both indicated by thirty one (61% of) participants. *'Informal'* and/or *'preventative'* quality practices were much less common. These were indicated by twelve (24% of) participants and nine (18% of) participants respectively.

5.4.8.2 Responsibility for quality prior to the introduction of TQM

The *'quality department was responsible for the general management of quality'* in the majority of organisations. This was indicated by thirty five (69% of) participants. In approximately one quarter of organisations (thirteen) *'top management took overall responsibility for, and ownership of quality'*. In only a handful of organisations *'everybody within the organisation was responsible for quality'*. This was indicated by only five (10% of) participants. In even less organisations *'first line supervisors took overall responsibility for quality management'* prior to the introduction of TQM. This domain of responsibility was indicated by only four (8% of) participants.

5.4.8.3 Variations in attitude towards quality practices according to location within organisation

A notable difference in the attitude towards quality practices between the "productive" operations and the "administrative" operations within the organisations was clearly evident from the responses. Findings for each are discussed below.

Transformation process / service delivery areas:

The arrangements and activities that characterised the quality practices in the transformation process or service delivery areas prior to the introduction of TQM were:

- quality control departments, comprising essentially of quality inspectors. Their typical roles and responsibilities were:
 - inspection of incoming materials, in-process (patrol) inspection, and end of line (final) inspection;
 - verifying product acceptability;
 - monitoring and policing quality performance;
 - challenging customers about the legitimacy of their complaints and
 - fault identification (but no involvement in the ensuing problem solving processes);
- quality assurance departments with typical roles and responsibilities for:
 - new product testing and release approval;
 - periodic quality audits and
 - monitoring the timeliness and accuracy of certain processes (sometimes locally, and sometimes across major business areas) and
- quality engineers investigating quality problems (on line).

In general, these quality control and quality assurance activities were undertaken by specialist or designated staff under the control of managers. There appeared to be little collaboration between specialist staff and other employees on quality issues. Either, specialist staff identified faults then left responsibility for correction with the operators, or, quality problems identified by operators were corrected by specialist staff or management with little involvement of other employees. It was evident that the practices listed above frequently resulted from the attitude that cost was perceived to be the principal determinant of business success, with inadequate recognition of interdependent processes or customer satisfaction. Where [quality] procedures were in place they tended to be: outdated or inappropriate, operating in quality system frameworks that were badly structured (with excessive documentation and paperwork), focused solely on internal quality comparisons, and un-integrated with other business systems and processes. There was no evidence of any proactive work done with suppliers on quality issues.

This discussion suggests that in transformation process / service delivery areas quality practices were primarily aligned towards detection and reaction to problems. Cross-tabulation appeared to

support this suggestion¹⁵⁶. The discussion also suggests that the main functions of quality practices were "measurement" and "monitoring".

The practices described above are generally considered to be undesirable. Twelve organisations in the sample did however identify 'positively' oriented quality practices in transformation process / service delivery areas prior to TQM. These practices included:

- the establishment of plans for corrective action and improvement;
- robust / highly developed quality assurance systems in manufacturing areas;
- shop-floor workers accepting they were responsible for the quality of their work;
- every employee and first line supervisor involved in quality control;
- formal, techniques based [quality] initiatives implemented;
- well organised quality control in manufacturing areas;
- first line supervisors, irrespective of function, equipped with extensive knowledge of performance standards and work practices, and therefore able to exert a direct QA influence and control and
- BS5750 certification enabling managers to have a positive input for quality matters.

Administrative areas:

The overwhelming view of the participants was that prior to the introduction of TQM, the concepts of quality, quality assurance and quality control were essentially absent in administrative areas. This view was evidenced in a number of ways:

- quality was not seen as a part of the requirements of the administration function(s);
- administrative areas showed little evidence of quality ownership;
- quality was not understood to affect administration areas;
- administration staff had little understanding of the relevance of quality management;
- administration staff did not realise they could contribute to quality;
- administrative areas exhibited a lack (sometimes total) of external customer focus and
- administrative staff had virtually no understanding of the 'internal' customer.

Instead, quality practices were seen by administrative areas to be the custody of manufacturing /

¹⁵⁶Cross-tabulation "suggested" that the variables '*detective*' and '*quality control department solely responsible for the general management of quality*' were not independent. That is to say, quality practices being '*detective*' in nature and the '*quality control department solely responsible for the general management of quality*' were not independent. N.B. the term "suggested" is used here because the p-value was marginally greater than 0.05. The p-value returned was 0.05895. MEF=6.865 and CF<5=0 were both within the recommended limits.

production functions. Administrative areas tended to be task oriented with no real understanding of processes. No systematic approaches were applied to make operational improvements, and only when significant errors occurred would investigations be undertaken leading to corrective action. Emphasis was placed on internal cost efficiency improvements rather than on improving the quality and effectiveness of administrative tasks. Any increase in the use of technology (primarily computers) appeared to be focused on becoming more efficient (through the hope that it would improve information accuracy). Planning systems were not supported by control systems. Very few documented systems and procedures operated in administrative areas, control relied primarily on individuals and management vigilance. As a result any detective/audit type analysis undertaken was largely seen as authoritative and ineffective. Teamworking, especially towards common goals, was largely absent. Only three organisations indicated quality practices in administrative areas that they regarded as having a positive influence prior to the introduction of TQM. The respective practices were: quality assurance and quality control via first line supervision based on procedures, manuals and standards; customer complaints analysis; and administration of telephone or postal customer surveys.

5.4.9 Present (TQM) quality practices

Explication of TQM practices and responsibility for quality after the introduction of TQM comprised two parts each using open-ended questioning format. This format was deemed necessary to gain a broader insight and thus ensure a comprehensive and accurate analysis¹⁵⁷. It was anticipated that after the introduction of TQM there would be a significant increase in the number and types of quality practices in use, and that responsibility for quality would be more widespread. For these reasons the author believed that it would be difficult to accurately use pre-coding. The two parts are described below.

5.4.9.1 Nature of quality practices following the introduction of TQM

As four separate entries in their response, participants were asked to state which of their present day quality practices were best described by which of the four terms in the "quality practice" classification system described in section 5.4.7. That is to say, firstly to state those quality practices that were best described as '*formal*', secondly those best described as '*informal*', thirdly those best described as '*preventative*' and finally those best described as '*detective*'.

¹⁵⁷The pre-coded instruments used previously were not considered to be sufficiently comprehensive.

The participants responses were transposed into a spreadsheet format for ease of analysis. A separate column was used for each of the four separate entries in the participants' response. Appendix 5.4.9.1 illustrates the resulting spreadsheet. In turn and independently, each of the four sets of quality practices were examined. Each examination involved scrutinising the response for common types of practices, counting the frequency with which each different type of practice had been identified¹⁵⁸, then ranking the practices in descending order of count frequency.

On completion of each examination it was found that there were a significant number of "quality practices" that were only counted once. On closer examination of these single counts, the author established that many were company specific. It was also evident that in describing their present day quality practices, some participants had also included additional (related) information. To ensure the analysis was specific to 'quality practices', a distinction was made between:

- (a) those items that corresponded to the definition of a 'general (non company specific)' quality practice and
- (b) company specific (un-aggregatable) quality practices, and/or, additional descriptive expressions not corresponding to the definition of a 'quality practice'.

The latter were excluded from subsequent analysis.

Tables 5.4.9.1a to 5.4.9.1d show the results of the four examinations. Summing the frequencies (i.e. the numbers in the last column of each table) would show that participants described 136 quality practices as '*formal*', forty eight (48) as '*informal*', eighty three (83) as '*preventative*' and thirty seven (37) as '*detective*'.

In tables 5.4.9.1a to 5.4.9.1d, the 'quality practice' terms used are almost entirely the terms used by the participants. That is to say the tables contain virtually no re-wording by the author. A pertinent observation is that very few types of quality practices were found to be used widely across the sample. The vast majority did not even reach double figures. 'BS5750/ISO9000' or 'quality assurance' was the quality practice mentioned most frequently under a single heading (21 times as a '*formal*' practice). This represents less than half of the sample. Even when common quality practices were aggregated across the four groups, the frequencies still tended to be relatively low.

¹⁵⁸(at the same time keeping a note of the frequencies according to *size* and *class* of organisation.)

Table 5.4.9.1a - FORMAL present day quality practices

	LGE	SME	M	M/S	S	TOTAL
<i>BS5750 / ISO9000</i>	5	9	8	4	2	14
<i>strategic quality planning process</i>	9	3	8	2	2	12
<i>quality and operational measures review</i>	6	5	7	2	2	11
<i>quality improvement teams</i>	7	1	3	2	3	8
<i>quality assurance</i>	4	3	5			7
<i>self / internal assessment programme</i>	5	2	4	1	2	7
<i>customer satisfaction determination / surveys</i>	5	1	2	2	2	6
<i>programme management process</i>	6		2	1	3	6
<i>quality measurement methodology and process</i>	5	1	1	3	2	6
<i>supplier management process</i>	4	2	4	1	1	6
<i>feedback mechanisms including associate opinion surveys and peer and upward feedback</i>	3	2		2	1	5
<i>quality training</i>	4	1	3		2	5
<i>benchmarking process</i>	3	1	1	1	2	4
<i>employee / associate development programmes</i>	3	1	3		1	4
<i>performance management process</i>	3	1	1	1	2	4
<i>product testing</i>	3	1	3			4
<i>MBNQA</i>	3				3	3
<i>process improvement</i>	2	1	3			3
<i>quality principles / values and deployment</i>	3				3	3
<i>quality policy and deployment</i>	3		2		1	3
<i>TQ methodology</i>	3		1	1	1	3
<i>communication</i>		2	2			2
<i>individual responsibility</i>	2		2			2
<i>individual performance appraisal</i>	1	1	2			2
<i>involvement in the community</i>	2			1	1	2
<i>problem solving activities</i>	2		1		1	2
<i>reward and recognition programmes</i>	2				2	2

LGE=large organisation; SME=small-to-medium sized enterprise; M=manufacturer; M/S=manufacturer/service organisation; S=service organisation

Table 5.4.9.1b - INFORMAL present day quality practices

	LGE	SME	M	M/S	S	TOTAL
<i>team-working</i>	5	4	5	2	2	9
<i>communications</i>	5	2	3	2	2	7
<i>continuous improvement activities</i>	2	1	2	1	1	4
<i>external quality communication</i>	2		1		3	4
<i>quality circle activities</i>	2	2	3	1		4
<i>suggestion schemes</i>	4		1	1	2	4
<i>informal assessments of progress</i>	4	2	2	1		3
<i>management by walking around</i>	3		3			3
<i>recognition style by leaders</i>	3		3			3
<i>some aspects of quality education / training</i>	2	1	3			3
<i>ad hoc local review meetings</i>	1	1	2			2
<i>quality self assessments</i>	2		1		1	2

LGE=large organisation; SME=small-to-medium sized enterprise; M=manufacturer; M/S=manufacturer/service organisation; S=service organisation

Table 5.4.9.1c - PREVENTATIVE present day quality practices

	LGE	SME	M	M/S	S	TOTAL
<i>performance measurement / review</i>	12	1	5	4	4	13
<i>process controls / gauge control</i>	8	2	5	4	1	10
<i>statistical process control</i>	4	3	5	2	1	8
<i>advance quality planning / policy and/or strategy setting</i>	6	1	4	1	2	7
<i>education / training</i>	5	2	6		1	7
<i>preventative maintenance and analysis</i>	3	4	6		1	7
<i>aspects of customer relationships</i>	5	1	2	2	2	6
<i>frequent operations meetings</i>	4	2	4	2		6
<i>product / process development</i>	3	2	4	1		5
<i>analysis of supplier quality / supplier TQ programmes</i>	2	2	4			4
<i>FMEA</i>	1	3	2	2		4
<i>customer complaints analysis / handling</i>	2	1	2		1	3
<i>machine / process capability</i>	1	2	3			3

LGE=large organisation; SME=small-to-medium sized enterprise; M=manufacturer; M/S=manufacturer/service organisation; S=service organisation

Table 5.4.9.1d - DETECTIVE present day quality practices

	LGE	SME	M	M/S	S	TOTAL
<i>customer satisfaction surveys / measures</i>	7		3	2	2	7
<i>inspection / sampling</i>	3	4	4	3		7
<i>measurement / key metrics</i>	5		3		2	5
<i>complaints analysis / systems</i>	4			2	2	4
<i>product audits</i>	4		3	1		4
<i>feedback mechanisms</i>	1	2	2		1	3
<i>self-assessment</i>	2	1		1	2	3
<i>*CONQ / COQ measurement</i>	2		1		1	2
<i>reviews</i>	2		2			2

LGE=large organisation; SME=small-to-medium sized enterprise; M=manufacturer; M/S=manufacturer/service organisation; S=service organisation
 *CONQ / COQ = cost of non-quality / cost of quality

Examination showed that the quality practice mentioned most frequently across the four tables concerned "measurement review". The total frequency of mention was twenty nine¹⁵⁹. This first observation would appear to confirm the author's assertion in the introduction to this section, that at the operational / activity level, the quality practices adopted by an organisation are largely specific to the organisation's needs.

The four tables were examined further with particular attention to the "function"¹⁶⁰ of each of the quality practices. The following observations were made.

It was determined from table 5.4.9.1a that '*formal*' quality practices were mainly concerned with two types of function. Firstly, "planning" (strategic quality planning process; programme management process; supplier management process; performance management process; quality principles/values and deployment; quality policy and deployment; and TQM methodology). Secondly, they were concerned with forms of examination, "assessing", "measuring", but primarily "reviewing". These were: self/internal assessment; MBNQA; quality measurement methodology and process; quality and operational measures review; customer satisfaction determination/surveys; supplier management process; feedback mechanisms; benchmarking process; performance

¹⁵⁹'quality and operational measure review' (under *formal*) + 'performance measurement review' (under *preventative*) + 'measurement and key metrics' (under *detective*).

¹⁶⁰For example: planning; controlling; reviewing; organising; facilitating; coordinating; learning; communicating.

management process; individual performance appraisal. Quality practices associated with the function of "controlling" were the next most prevalent under *'formal'*, for example: quality assurance; BS5750/ISO9000; supplier management process.

Examination of table 5.4.9.1b indicated that teamworking and communication were the two predominant *'informal'* quality practices. There appeared to be no particular type of "function" dominating the *'informal'* quality practices. However, quality practices associated with "planning" and "controlling" appeared to be almost entirely absent. Instead the *'informal'* quality practices were associated with "organising/coordinating" (teamworking), "communicating" (communications; external quality communication), "improving" (continuous improvement activities) and "facilitating" (suggestion schemes; management by walking around; recognition style by leaders).

Tables 5.4.9.1a and 5.4.9.1b show that for a number of present day quality practices the participants clearly did have a preference with regard to the level of formality. Participants clearly felt that quality practices representing forms of examination ("review", "assessment" and "measurement") were best carried out on a *'formal'* basis. Though the frequency of quality practices associated with "learning" were low throughout the entire analysis, the findings did suggest a preference for carrying them out on a *'formal'* basis. On the other hand, the findings suggested a preference for the *'informal'* approach for quality practices associated with "communicating". Though both team-working and improvement were prevalent as *'informal'* quality practices, the findings indicated that the *'informal'* basis was not a preference. Team-working and improvement featured equally as *'formal'* and as *'informal'* quality practices. The findings also indicated no preference with regard to the level of formality for "organising/coordinating" related quality practices.

From table 5.4.9.1c it was established that the *'preventative'* present day quality practices related predominantly to the function of "controlling" (process control; preventative maintenance and analysis; customer complaint analysis and handling; analysis of supplier quality; machine/process capability). In addition to their relatively high frequency as *'formal'*, quality practices representing forms of examination, in particular "reviewing" (for example, performance measurement / review; frequent operations meetings; supplier quality / customer complaint analysis) featured frequently as *'preventative'* practices. To a lesser but still significant extent, quality practices viewed as *'preventative'* were also concerned with the function of "planning" (advance quality planning /

policy and strategy setting; operations meetings). As might have been expected, the '*detective*' present day category (table 5.4.9.1d) was dominated by quality practices associated with "reviewing" and "measuring". The participants indicated no quality practices associated with the functions of "improvement", "learning" or "facilitating" under '*detective*'.

From a comparative examination of tables 5.4.9.1c and 5.4.9.1d it appeared that the participants perceived a clear difference concerning those practices that should be performed with a focus on prevention and those that should be performed with a focus on detection. The analysis suggested that the participants believed that quality practices associated with "planning", "controlling", "learning" and "improving" should only be performed with a focus on prevention.

5.4.9.2 Responsibility for quality after the introduction of TQM

Participants were asked to describe how responsibility for all aspects of quality was distributed throughout the members of the organisation after the introduction of TQM. Examination of the responses are presented in this section.

Twenty two of the participants directly stated that quality was an integral part of the job of everyone in the organisation. A further nine participants indirectly suggested that quality was the responsibility of every member of the organisation. Taken together, these 'direct' and 'indirect' references represented the view of approaching three-quarters of the sample. Eleven organisations indicated that the ultimate responsibility for quality (or as was cited by three cases, the ultimate "ownership of quality") lay with line management or senior management.

The response highlighted a number of mechanisms used by the organisations in support of organisation-wide responsibility for quality. Firstly, in terms of "encouraging" responsibility for quality, these were:

- business "excellence" programmes;
- quality improvement team / circle or suggestion schemes;
- process ownership;
- quality "leadership" processes;
- individual (self) assessment and
- training.

Secondly, in terms of "enabling" organisation wide responsibility for quality, these were:

- adoption of the internal customer/supplier concept;
- internal quality consultants and coordinators (assisting functions/teams within the organisation to take responsibility for quality by acting as consultants, facilitators, team-members);
- policy, goal or objective deployment;
- [common] cross company operating procedures or documented quality systems and
- staff appraisals.

Thirdly, in terms of helping to keep the organisation focused on quality, these were:

- cross-functional business teams and
- quality principles and standards.

These three listings are not mutually exclusive. Most of the mechanisms in these lists to some extent have an influence on each of the three broad "functions" mentioned. The mechanisms are listed under the broad "function" to which they most prevalently apply. One mechanism cited frequently in the response would apply equally to all three broad functions. This was:

- individual/personal objective setting (including quality goals in job descriptions or individual quality accountabilities).

Three organisations directly suggested that responsibility for quality inherently resided with all members of the organisation because quality was integrated with normal business processes. As such, quality goals, objectives, plans and activities were distributed on the same basis as any other business goal, objective, plan and responsibility.

A few organisations highlighted the nature of new responsibilities of their quality department under the TQM approach. These responsibilities can be summarised as: to coach, to educate, to help, and to oversee the development of quality systems activities in order to ensure consistency and clarity. One organisation suggested that because of its particular business environment, the quality department was still largely (and intentionally) responsible for quality¹⁶¹.

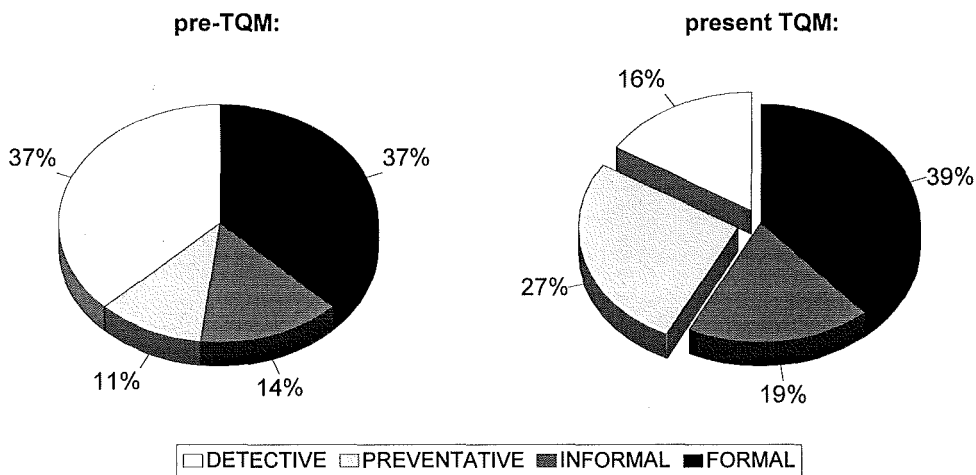
¹⁶¹Due to the nature of its business, this organisations operations are dominated by 'systems' approaches, and a formal quality department had proved to be both a necessity and the most successful way of administering the quality 'systems' approach.

5.4.10 Summary and profile of change in quality practices

The following changes in quality practices were identified through the investigations described in the previous two sections.

The total frequency count of present day quality practices for each of the four items in the quality practice classification system was used as an indication of the broad nature of present day quality practices. Comparing these relative proportions against the respective proportions for pre-TQM quality practices enabled a profile of the transitions in the nature of quality practices to be constructed. This change profile is illustrated in figure 5.4.10a. Three observations can be made. Firstly, the emphasis on '*formal*' quality practices remained. Secondly, the emphasis on '*informal*' quality practices increased slightly. Thirdly, and most significantly, the emphasis on '*detective*' quality practices was substantially reduced following the introduction of TQM in favour of a substantial increase of emphasis on '*preventative*' quality practices.

Figure 5.4.10a - Comparison of the nature of pre-TQM with present (TQM) quality practices



The profile in figure 5.4.10b depicts the other prevalent changes observed. Before the introduction of TQM, the general management of quality was considered to be the responsibility of a specialist function/department, and quality was not considered to be an important issue outside of "production" areas. However, the introduction of a TQM approach clearly appeared to place responsibility for quality with every member of the organisation. Furthermore, it induced a focus on quality to be integral to every job/task within the organisation irrespective of the job/task's

location.

The absence of a shift in the balance between the extent of *'formal'* quality practices and *'informal'* quality practices (figure 5.4.10a) suggests that the level of formality need not be a prime concern in its own right for organisations contemplating the introduction of TQM. It appears that what is more important is for organisations to understand, based on the underlying "function(s)" of a quality practice, whether it would be better to use that quality practice on a *'formal'* or on an *'informal'* basis.

Figure 5.4.10b - Profile of prevalent changes with regards to quality practices resulting from the introduction of TQM

(pre-TQM) QUALITY PRACTICE:	→	PRESENT QUALITY PRACTICE:
quality department primarily responsible for the general management of quality	→	quality the responsibility of every member of the organisation
quality not an important issue outside of "production" (transformation process / service delivery areas)	→	quality integral to every job/task within the organisation
"Functions" of quality practices are primarily: measurement and monitoring.	→	"Functions" of quality practices are primarily: planning; reviewing; and controlling (with preventative focus); but also: organising; communicating; and facilitating.

The shift in favour of *'preventative'* quality practices over *'detective'* quality practices suggests that the introduction of a TQM approach advocates a transition in behaviour which puts a greater emphasis on using quality practices that enable the functions of "planning", "reviewing", and "controlling", rather than solely "measuring". Clearly, to the successful organisation, quality practices and improvement are about seeking out potential problems and not about waiting for a failure to identify an improvement opportunity. "Planning", "reviewing" and "controlling" enable staff to highlight both actual and potential hindrances for which appropriate corrective or preventative action can be taken - action which would remove or minimise the root causes of the problems and prevents their recurrence.

Before the introduction of TQM, *'preventatively'* oriented quality practices were used by a

relatively small proportion of the best practice sample. This observation suggests that it is not necessary to have preventative quality practices prior to introducing TQM if its introduction is to be successful.

5.4.11 Differences in the profile of changes in quality practices according to size or class of organisation

Pre-TQM quality practices:

χ^2 test of significance at 95 percent confidence indicated that statistically service organisations were significantly more likely to have 'informal' quality practices than manufacturing or M/S organisations¹⁶². It also indicated that the 'quality control department being solely responsible for the general management of quality' was significantly less likely to occur in the case of service organisations, than in manufacturing or M/S organisations¹⁶³. The reasons for these differences were not immediately clear. It was only possible to hypothesise about the reasons. In relation to the latter statistical suggestion, the author would suggest that quality control was generally associated with operations relating to the manufacture of physical products¹⁶⁴, and hence with the absence of manufacturing operations, service organisations perceived less of a need for a quality control department. The author would suggest that the first statistical suggestion cited above is a direct consequence of the latter. χ^2 test of significance at 95 percent confidence statistically indicated no differences for any of the other pre-coded variables used in the investigation of pre-TQM quality practices according to either *size* or *class* of organisation.

Present day quality practices:

The χ^2 testing method was not an appropriate approach for identifying any differences for present day quality practices according to either *size* or *class* of organisation due to the un-coded method used to collect the data and, the low frequencies against the majority of the present day quality practices. Instead, differences were located (through simple observation) by looking for significant deviations between the actual ratios of frequency and the ratios reflecting the proportions of organisations in the sample according to *size* and *class*. Table 5.4.11 depicts the observed

¹⁶² $\chi^2=7.54$, with $\alpha=0.05$.

¹⁶³ $\chi^2=16.65$, with $\alpha=0.05$.

¹⁶⁴Findings reported in section 5.4.8.3 would appear to support this proposition.

significant deviations. As the table shows, the approximate ratio of large organisations to SMEs in the sample was 5:2, and the approximate ratio of manufacturers to manufacturing/service to service organisations in the sample was 2:1:1. Only the observed differences for the quality practices '*process controls / gauge control*' and '*preventative maintenance and analysis*' were immediately clear. These practices are specific to manufacturing/production processes, therefore explaining their significantly greater use in manufacturing organisations.

Table 5.4.11 - Differences in present day quality practices according to organisation size and class

	LGE	SME	M	M/S	S
(APPROX RATIOS OF ORGANISATIONS IN SAMPLE)	(5	: 2)	(2	: 1	: 1)
FORMAL:					
<i>BS5750 / ISO9000</i>	5	: 9			
<i>quality improvement teams</i>	7	: 1			
<i>programme management process</i>	6	: -			
PREVENTATIVE:					
<i>performance measurement / review</i>	12	: 1			
<i>process controls / gauge control</i>			5	: 4	: 1
<i>advance quality planning / policy and/or strategy setting</i>	6	: 1			
<i>preventative maintenance and analysis</i>	3	: 4	6	: -	: 1
DETECTIVE:					
<i>customer satisfaction surveys / measures</i>	7	: -			
<i>inspection / sampling</i>	3	: 4			

LGE=large organisation; SME=small-to-medium sized enterprise; M=manufacturer; M/S=manufacturer/service organisation; S=service organisation

The reasons for the other observed differences were not immediately clear. It was only possible to hypothesize as to the reasons. The following propositions were reached for four of the observed differences:

(a) *the significantly greater propensity for 'BS5750 / ISO9000' in SMEs:* Literature has suggested that as suppliers of goods and services to larger organisations, SMEs are often under pressure to gain registration to a standard quality management system such as BS EN ISO9000 [Deshpande and Parasuraman (1986) and Rayner and Porter (1991)].

(b) *the significantly smaller propensity for 'quality improvement teams' in SMEs:* The limited size

of the management team in SMEs means that individuals are often responsible for a number of different functions with little back up (Younger, 1990). They are often busy with managing the day-to-day activities of the business and have very little time left for activities perceived as adjunct.

(c) the significantly smaller propensity for 'performance measurement / review' in SMEs: Literature suggests that in general, a short-range rather than a long-range management perspective dominates in SMEs, and furthermore, that SMEs generally have greater difficulty in instigating formal review procedures [Ghobadian and Gallear (1996)].

(d) the significantly smaller propensity for 'advance quality planning / policy and/or strategy setting' in SMEs: Literature suggests that SMEs are considerably less likely to undertake strategic level planning than large organisations [Parks et al (1991) and McKiernan and Morris (1994)].

5.5 Chapter Summary

The findings presented in section 5.2 have confirmed that TQM is an approach to business management that is appropriate when wide-ranging whole-sale changes are required by an organisation to ensure its survival, or when organisation-wide culture is in need of a major overhaul in order for the organisation to sustain its competitive position in the long term.

The findings presented in section 5.4 have also confirmed that the introduction of best practice TQM requires structural change and re-orientation, and considerable change and re-orientation of the attitude and behaviour of the organisation's members. In the case of managers the latter is required because the styles of management they have traditionally practised do not support a quality ethos.

As such, the findings presented in this chapter suggested a number of important TQM variables that needed to be incorporated into the conceptual map of a theory explaining the best practice TQM approach. These were:

- formation of team-oriented cross-functional structure
- flattened management structure
- alignment of activities around key business processes / customer focused operations
- decentralisation and integration of essential support functions

- removal of non-adding value functions
- devolved and participative management style
- pro-active management style
- focus on prevention rather than detection
- quality the responsibility of every member of the organisation and
- quality integral to every job/task within the organisation.

Equally importantly, the findings presented provided a context for the inductive development of a theory explaining the best practice TQM approach.

CHAPTER 6: ORGANISATIONAL ROLE AND SPAN OF APPLICATION OF TQM

6.1 Introduction

The aim of this chapter is to: *"identify the organisational role and span of application of TQM in the best practice organisations"*.

Review of the TQM literature suggested that there was broad agreement that TQM affects all levels of an organisation (section 2.5.5). There also appeared to be broad agreement that TQM is an all encompassing approach (section 2.6.2). Nevertheless, organisations need to develop their TQM approach according to their particular needs and must decide for themselves which are the most appropriate elements.

An examination of the difficulties encountered with TQM as reported in the literature (section 2.8) suggested that once an organisation has recognised the need for TQM, the focus of activity too often moves to the implementation of TQM tactics without sufficient debate of the broader business benefits and objectives that could be gained if it were to adopt a more considered approach. This may appear to be a glaringly serious oversight on the part of management. However, it is not entirely surprising since these broader benefits and objectives are not obvious without prior knowledge. That is to say these considerations tend to emerge from experience, rather than from planning and formulation. The author would suggest that it is facile for organisations to consider TQM in terms of tasks and activities, however it requires a change in level of thinking to focus on the wider gains. Further, the author would suggest that even an organisation that is thorough and systematic in defining its business objectives may still fail to introduce a TQM approach effectively if it does not gain a clear picture and understanding of what TQM can deliver and how it should mesh and integrate with the business objectives.

To the same extent it could be argued that even in the TQM literature there is a tendency to adopt too narrow a focus. The literature cites many examples of the specific benefits of TQM - such as the cost savings, reductions in the scale and overheads of non-value adding administrative functions and improvements in specific product and service quality attributes [for example, Raisbeck (1994), Huxtable (1995), Heller (1994) and Frank (1995)] - but the broader benefits and

objectives of an all encompassing TQM approach appear to remain ill-defined.

To address this apparent gap in the TQM knowledge, the author investigated what the best practice sample perceived these broader facets to be. This was done by investigating what the author has termed the "organisational role and span of application" of TQM. For clarity, and to explicitly distinguish it from later parts of the investigation, the author defined this as follows:

the perceived position TQM occupies in assisting the organisation to achieve its business targets and goals, and ultimately its mission, rather than the specific TQM methods and processes employed.

Associated with TQM is a set of methods and processes. Definition of the role and span of application of TQM does not automatically define the methods and processes that are appropriate - this is largely the task of management¹⁶⁵. However, the author would propose that a greater awareness and understanding of the organisational role of TQM would significantly increase the likelihood of organisations positively selecting the most appropriate methods and processes. Further, it is logical to propose that in the best practice TQM organisations there would be a higher level of continuity between the perceived role of TQM and, the methods and processes selected for its implementation. By identifying TQM's role as perceived by successful companies, then identifying the supporting methods and processes used, it is logical to propose that a much clearer understanding of TQM's underlying logic would be gained. The author believed that examination of TQM's role was crucial to the development of a theory of TQM.

6.2 Method of Investigation

A focus group session was used to generate a set of statements describing and/or relating to the organisational role of TQM. The focus group members were drawn from colleagues with considerable practical and academic experience of total quality organisations. An extensive list of statements was generated. Acting as facilitator, the author sought to ensure that the list of statements was balanced. "Balanced" refers to the inclusion of a sufficient number of statements with a positive connotation (e.g. 'a set of core values') and a sufficient number of statements with a negative connotation (e.g. 'a one-off process'), to avoid an overall significant bias either way.

¹⁶⁵For simplicity and clearness, in the discussion presented in the remainder of this chapter the "organisational role and span of application" of TQM is referred to simply as the "role" of TQM.

The list was then reduced by the author to a manageable and clear set by (i) eliminating the duplication of statements with the same meaning and (ii) combining and/or re-drafting statements with similar meanings. This resulted in a survey instrument comprising a list of forty three statements. The survey instrument, and hence statements, were independently scrutinised by the committee of five known and experienced TQM practitioners from industry. Their comments, criticisms and recommendations were considered by members of the original focus group and the final version of the survey instrument was drafted. Participants were asked to state their level of agreement with each statement as it applied to their organisation's TQM experience on a five-point Likert scale¹⁶⁶.

To facilitate a clear and comprehensive analysis, the statements were classified by the author under three organisational role sub-headings: *purposes of TQM*, *methodological foundations of TQM* and *general characteristics of TQM*. Each of these are discussed more fully later. Briefly:

- purpose(s)* refers to the broad objectives of TQM in pursuit of the organisation's overall goals and objectives,
- methodological foundation(s)* relates to the broad means by which the broad objectives of TQM are deployed in pursuit of the organisation's overall goals and objectives, and
- general characteristic(s)* refers to the collective attributes of these broad objectives and means that specifically characterise the TQM approach.

Grouping in this manner helped to explain the samples' perception of the role of TQM. The remainder of the chapter comprises three sections. In section 6.3 general observations are presented then, drawing on examination of appropriate literature, additional documentation supplied by the participants and internal logic of the author, the logic underlying the perceived agreement ratings is proposed and explained¹⁶⁷. These findings and their interpretation are discussed under the three headings (sections 6.3.1 to 6.3.3). In section 6.4 any major differences in the perceived agreement with the roles of TQM according to either *size* or *class* of organisation are addressed. In section 6.5 the results of factor analysis procedures applied to the roles of TQM

¹⁶⁶(5=strongly agree, 4=agree, 3=neutral, 2=disagree and 1=strongly disagree).

¹⁶⁷The sequence in which the *statements* are discussed broadly follows their ascending perceived importance. Where appropriate this sequence is altered so that *statements* which share the same underlying logic can be discussed accordingly.

are discussed.

6.3 Findings - Organisational Role and Span of Application of TQM

Figures 6.3.1 to 6.3.3 in the following sections depict the forty three statements describing the role of TQM grouped under the three organisational role sub-headings respectively. Each of the figures displays the respective statements ranked in descending order of calculated mean value. In other words, in descending order of perceived importance. The figures show that the participants:

strongly agreed	with three statements;
agreed	with nineteen statements;
expressed a neutral view	about four statements;
disagreed	with twelve statements and
strongly disagreed	with five statements.

Cut-off points for each of the categories was described in section 4.4.4. Figures 6.3.3 shows that the participants "disagreed" with the vast majority of the organisational role statements classified under *general characteristics*. It should be noted that this was merely a consequence of the classification exercise and has no major significance in itself.

6.3.1 Purposes of TQM

Figure 6.3.1 shows the calculated mean value for each of the statements that were grouped under the sub-heading of *purposes of TQM*. These pertain to the broad objectives of TQM in pursuit of the organisation's overall goals and objectives.

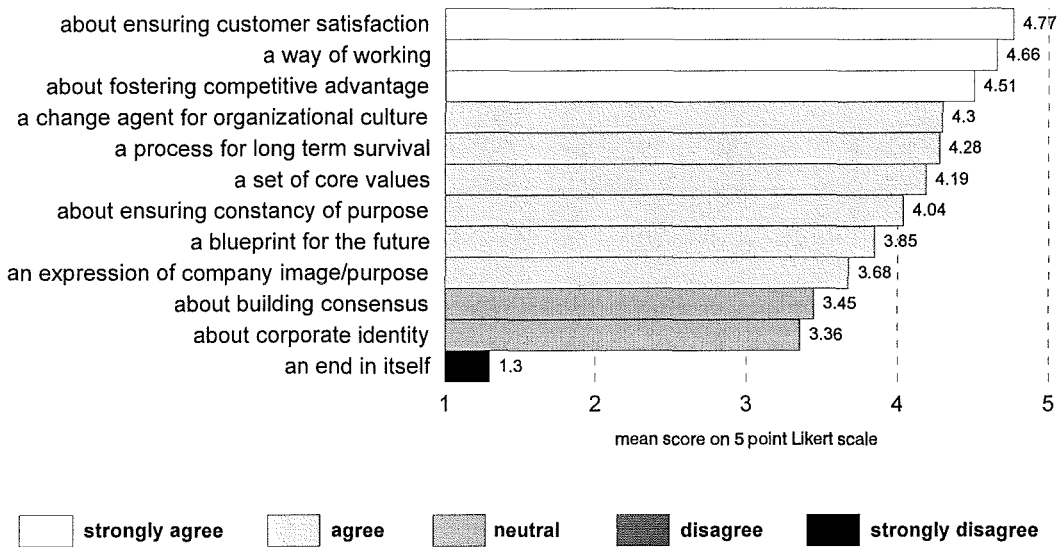
The sample were in "strong agreement" with three statements describing the *purpose* of TQM:

- *about ensuring customer satisfaction,*
- *a way of working* and
- *about fostering competitive advantage.*

The statement rated with the highest agreement, *about ensuring customer satisfaction*, expresses the best practice sample's view that the customer is the chief arbiter of the organisations' future.

Customer satisfaction is the term used to describe the success of the organisation's relationship with each of its customers. Ensuring customer satisfaction is about having the knowledge of and, the ability to deliver, the key factors that determine relative marketplace competitiveness.

Figure 6.3.1 - Mean scores for proposed organisational roles of TQM: purposes of TQM



Examination of changes that have occurred and new challenges in the business environment [Mortiboy and Oakland (1992), Gharajedaghi (1994) and Grant et al (1994)] suggest that the customer has become, and should be perceived by the organisation to be, the key driver for performance improvement. As Sink (1991) asserted, this requires shifting emphasis from a cost-centre, producer-oriented system, to a customer-oriented system. If concerted efforts are made to ensure that customers are satisfied with the products, services and associated delivery processes the likelihood is that an organisation will: (a) retain its existing customers and (b) attract new customers (Dedhia, 1995).

Nevertheless, organisation's do not hold customers captive (Reichheld and Sasser, 1990). According to Porter (1985), competitive advantage grows fundamentally out of the value an organisation is able to create for its customers. It is the competition however that determines the appropriateness of an organisation's activities and their contribution to its performance. Competition is at the core of the success or failure of organisations. Therefore, an organisation's efforts to ensure customer satisfaction are only truly meaningful when placed in a context of competitive advantage. Clearly, a core purpose of TQM is to delineate the organisation's actual

and potential strengths and weaknesses (Andrews, 1996) in terms of their impact on the organisations ability to deliver high relative customer satisfaction.

The second highest rated statement, *a way of working*, was difficult to classify among the three organisational role sub-headings. This difficulty immediately highlights the holistic scope of TQM. More importantly, when considered in conjunction with the lowest rated statement describing the organisational role of TQM - *a one-off process* (under *general characteristics*) - it indicates that as far as the best practice sample is concerned, once adopted TQM is a permanent approach to how it conducts its business.

The best practice sample were in "agreement" that TQM is *a change agent for organisational culture*. That is to say, the organisations perceive that TQM can **directly** address the need for a change in corporate culture. In chapter 9 it is argued that organisational culture should not be ignored by any organisation at any time, but that in practice the impact of organisational culture is easily and frequently overlooked by organisations. As Deshpande and Parasuraman (1986) proposed:

"Many a firm that has been burned by radical strategic moves may have 'asked for it' by failing to recognize the nature of the existing corporate culture and its impact on implementing the new strategies."

A deeply entrenched organisational culture can be a major barrier when an organisation, by design or out of necessity, follows a strategic course intended to move it into different product-market or life-cycle stages (Deshpande and Parasuraman, 1986). The author would suggest that as *a change agent for organisational culture*, TQM directly influences the human motivation and behaviour that is necessary to bring about effective and worthwhile change.

The best practice sample were also in "agreement" that TQM comprises *a set of core values*. Core values express the broad value premises toward which the organisation is to strive (Simon, 1964)¹⁶⁸. According to van Donk and Sanders (1993), core values form a frame of reference not only for all kinds of daily routines, daily behaviour and practices but also for passing judgements on persons, action and objects. In this way, they dictate what people do (and what they do not do), what people perceive as good (and bad) behaviour and what people perceive as good (or bad)

¹⁶⁸Simon, M. A. (1964), "On the concept of organisational goals", *Administrative Science Quarterly*, 1964-1965, pp. 1-22, cited in Quinn (1996, p. 3).

quality. In other words they act as a control mechanism for the daily routines and daily execution of operational tasks (van Donk and Sanders, 1993).

The author would suggest that the two roles of TQM: *a set of core values* and *a change agent for organisational culture* are very closely related. An important task for an organisation involves deciding what core values it should strive to inculcate in employees. Deshpande and Parasuraman (1986) suggested that they should be environmentally independent core values. They explain that it is best if the core values are independent of the environment - that is, if they are unlikely to require revision as a firm's position in its [macro] environment or the [macro] environment itself changes. This is because on the one hand, values that must be changed frequently cannot be called *core* values. On the other hand, core values that are consistent with only one type of environment will greatly impede strategic shifts necessitated by environmental changes. These core values therefore, are the values that are capable of supporting a variety of strategic postures as dictated by external circumstances - values that enduringly underpin a strong and stable cultural environment. The sample's "agreement" that TQM comprises of *a set of core values* thus suggests that in addition to enabling cultural change, TQM also defines a new state of values underpinning corporate culture - values that will immutably support the more tangible purposes of introducing TQM. The result of the present study suggests that TQM consists of a set of core values. For fuller discussion see section 10.4. This view is supported by the literature [Hodgetts et al (1994) and Rigg (1993)]. Arguably these core values are independent of the environment because they were present across a range of differing organisations.

The sample "agreed" that TQM is *a process for longterm survival*. Their view infers that the concepts associated with TQM enable the organisation to pursue sturdy long term strategies. It must be stressed however that a long term strategy does not necessarily infer a "static" strategy. This can be a misconception. The business environment calls for flexibility and demands many challenges. Dynamic and flexible long term strategies are what is called for. The author would suggest that as *a process for long term survival*, the TQM approach requires that the organisation learn from the successes and mistakes of the past, but that primarily, it keeps the organisation focused on the future. Bringing short-term success to the organisation is not the role of TQM. As suggested by Whitney (1996) and Donaldson (1995), although sometimes a catalyst for continued improvement, success in the short term can just as easily lull the organisation into complacency and sometimes even spawn arrogance. That is to say, a period of sustained success can lull the organisation into the belief that success is forever and that the organisation can do very nicely on

automatic pilot. It is essential that the organisation be alert to signs of weaknesses in the established strategic mission and to events or initiatives that present a natural opportunity to confirm or modify the existing strategic direction. This argument for the logic underlying TQM's role as *a process for long-term survival* is further substantiated by the samples "strong disagreement" that TQM is *an end in itself*.

The sample also "agreed" that TQM is *about ensuring constancy of purpose*. *Constancy* refers to two things. Firstly, to the focus of all organisation members. Ensuring constancy of purpose requires everyone in the organisation to be pursuing the same (or congruent) goals and objectives. This initially requires a collective understanding of the required goals and objectives. Then, all actions must be directly linked in chain(s) of events that will cause the goals/objectives to be fulfilled. Secondly, *constancy* refers to the time for which the purpose is valid. If factors necessitate that the purpose is modified or changed, then the constancy must coincidentally shift and be applied to the new or modified purpose. Again, a qualifying note should be added here, because constancy of purpose might easily be misconstrued. Constancy does not imply that the "purpose" of the organisation (as expressed by its mission and strategic objectives) should remain static. The author would suggest that a key indicator of TQM best practice is the organisations ability to quickly and effectively disseminate the need for a change in purpose, then quickly and effectively refocus the whole organisation on that change.

It should also be noted, however, that *constancy of purpose* is a meaningless concept without prior knowledge and understanding of what the real purpose is. At different levels in the organisation and at different points in the chain(s) of events, purpose must be expressed differently and in meaningful terms. Fostering competitive advantage is too broad an expression of purpose. Customer satisfaction on the other hand can be expressed in specific terms and can be measured. It is likely that this is one reason why *ensuring customer satisfaction* was the statement rated the highest by the sample. Constancy of purpose requires feedback from customer satisfaction measurement. In a best practice TQM organisation customer satisfaction measurement should enable the organisation to identify what goals and objectives it should be collectively pursuing (Whiteley (1991) and Williams (1993)).

At the lower end of the agreement band under the heading *purposes of TQM* were the statements describing TQM's role as *a blueprint for the future*, and as *an expression of company image/purpose*.

The former extends the argument that TQM is *a process for long-term survival*. Literature supports the proposition that "quality" is likely to be the overriding determinant of success for a long time (section 2.3). OEMs recognise the benefit to their organisations of purchasing high quality goods and services (Friesecke, 1983), and are likely to be willing to pay premium prices for these high quality goods and services (Gale and Klavans (1985) and Peters and Austin (1985)). However, when the "physical" quality of these goods and services approaches its upper limits, and competitors are attaining similar standards, then purchase price can return as a key factor in the customers choice of goods and services, and hence in its' choice of supplier. When this happens, factors pertaining to the delivery process of these goods and services become the focus. In order to preserve the standard of quality of goods and services, but continue to improve the total offering to the customer, quality has to be the driving force. Essentially, as the competitive business environment gets even more competitive, quality through a TQM approach is the foundation upon which improvements in other factors of competition such as cost, speed of delivery, reliability of delivery, and flexibility do depend (Ghobadian, 1993)¹⁶⁹.

An expression of company image/purpose infers that the best practice TQM organisations recognise that stakeholders' perception of the organisation is an important additional determinant of purchasing behaviour. By showing stakeholders, in particular customers, that the organisation's purpose is to excel in quality, and that internally it has the ethos, methods and processes in place to excel consistently, the organisation is taking valuable steps in increasing the likelihood that it will retain existing customers and attract new customers and that it will also reap the benefits of wider dissemination.

The best practice sample expressed a "neutral" agreement with the statement that TQM is *about building consensus*. This finding initially - and ironically - appeared quite surprising. However, consideration of (a) the purpose of consensus, but also (b) the possible consequences of consensus building, helps to explain the logic underlying this observation. It was argued under *about ensuring constancy of purpose* that a role of TQM is to ensure that everyone in the organisation is pursuing the same (or congruent) goals and objectives, and that the goals and objectives that they are pursuing are valid goals and objectives. Consensus building is inherently part of this process and therefore is important. However, when a large number of people are involved in the consensus building process, there can be a natural tendency for the phenomenon of "groupthink" to influence

¹⁶⁹Ghobadian et al (1998) propose that the basis of this argument has led to the development of the theory of "cumulative capability". This theory simply states that *for lasting improvement quality capability must come first; then quality and delivery; then quality, delivery and flexibility, and cost.*

the outcome. Groupthink impacts on the latter part of TQM's role as a means for *ensuring constancy of purpose* referred to above. That is to say it impacts on the ability to ensure that the goals and objectives that the members of the organisation are pursuing are valid goals and objectives. Groupthink is defined by Janis (1982) as '*the psychological drive for consensus at any cost that suppresses dissent and appraisal of alternatives in cohesive decision-making groups*'. It relates to the tendency for people within groups to agree on issues without substantially challenging ideas or without realising that the consensus which seemingly emerges may not represent the actual views of the group. It has also been suggested that the problem is commonest in groups with strong, charismatic leaders (Bennett, 1997). As is discussed in chapter 9, strong leadership was viewed by the best practice sample to be "very important" to the success of a TQM approach. These arguments thus suggest that best practice TQM organisations must have certain mechanisms in place to allow consensus building, but eliminate the problem posed by the groupthink phenomenon. This argument and suggestion is revisited in chapter 9.

6.3.2 *Methodological foundations*

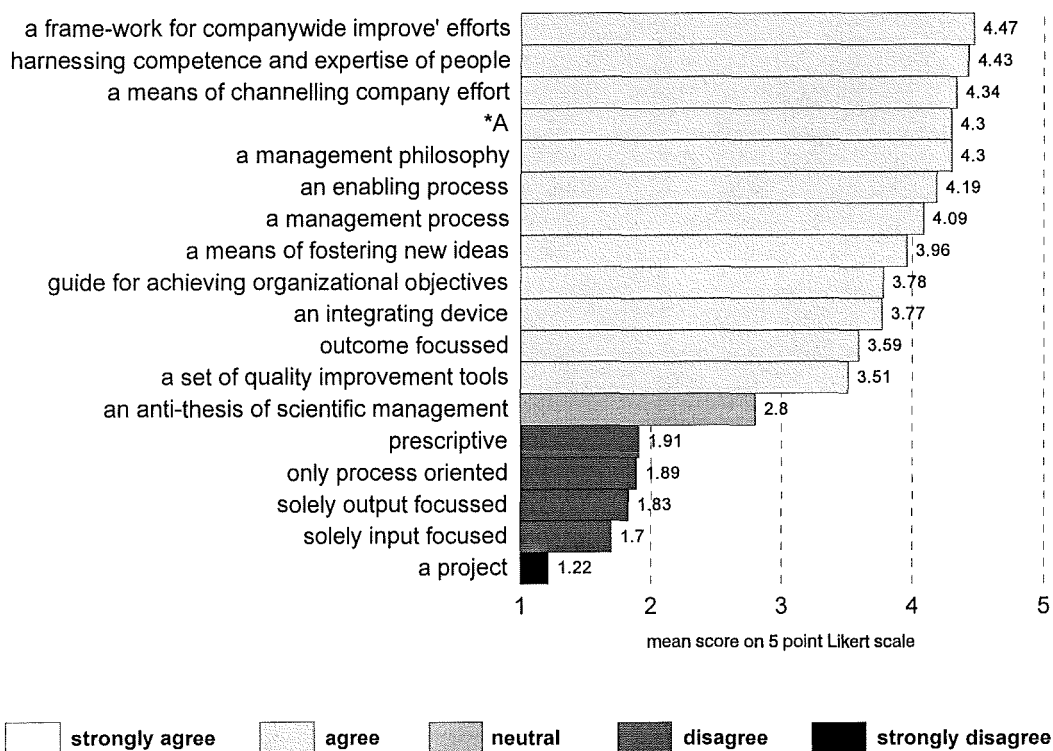
Figure 6.3.2 shows the calculated mean value for each of the statements that were grouped under the sub-heading of *methodological foundations of TQM*. These explain in broad terms "how" the TQM approach addresses the core *purposes of TQM* as were discussed in the previous section.

Consideration of the logic underlying the three highest ranked statements describing the role of TQM that were grouped under *methodological foundations* suggests that they are very closely related. These were:

- *a framework for company-wide improvement efforts,*
- *a means of harnessing the competence and expertise of people, and*
- *a means of channelling company effort.*

Provision of *a framework for company-wide improvement efforts* is important for a number of reasons. Firstly, all organisations have a finite amount of resources at their disposal. Further, the proportion of these resources that can be allocated to improvement efforts (as distinct from normal business processes) is largely dependent on the payback and amount of resources released by previous improvement efforts. Without a framework, company-wide improvement efforts and resources can easily be misdirected.

Figure 6.3.2 - Mean scores for proposed organisational roles of TQM: methodological foundations



KEY : A = a means of fostering programme controlled continuous change

Goodman et al (1993) suggest that improvement processes will fail if management does not focus the organisation on a limited number of customer-driven priorities. Resources can be absorbed very quickly if not properly directed. For instance, the processes required to identify, assimilate, and disseminate meaningful and useable customer satisfaction information, and then to use this information to target and make improvements, are often underestimated (section 2.8.1). A weak link between broad organisational improvement objectives, and the improvement focus and objectives of individuals and teams is likely to exacerbate the effort required (Steele (1993) and Myers and Ashkenas (1993)). This is especially so when the efforts require cross-functional activity. As a *framework for company-wide improvement efforts* the TQM approach provides an essential structure through which opportunities for improvement can be systematically identified and, improvement efforts can be systematically prioritised and actioned.

Secondly, with a well-defined sub-structure, a framework will help the organisation to establish a systematic link and strike the correct balance, between its internal and external focus and

corresponding collaborative improvement activity. A large proportion of an organisation's quality problems and opportunities for improvement cannot be properly diagnosed without input and participation of external suppliers. The author would suggest that a common framework is a critical determinant of the effectiveness of the interface between the parties involved in improvement efforts.

Thirdly, because complacency can be a consequence of success as was mentioned in the previous section. The following quote from Miller (1994) concisely explains the inherent danger:

"Unless challenged repeatedly by problems, people and organisations fail to learn (Lant and Montgomery, 1987). Success ensures that the same kinds of stimuli will be targeted for attention and the same mental frameworks will be used to understand them (March, 1991; Starbuck and Hedberg, 1977). It also reduces the incentive to search for better ways of doing things (Levinthal and March, 1981)."

As a framework for company-wide improvement efforts, TQM helps to keep the organisation focused on improvement and away from the potentially dangerous consequences of success.

The "agreement" that TQM is *a means of harnessing the competence and expertise of people* suggests a recognition by the best practice organisations that the organisations' most important resources are its employees. The effort required to complete a task is to some extent a function of the capability of the people charged with the task. Other factors such as non-human resources will also determine the effort required. Generally, the greater the capability of the people charged with the task the lesser the effort and amount of resources that will be required. As *a means of harnessing the competence and expertise of people*, TQM enables individuals' and teams' inherent competence and expertise to be released, positively impacting the payback from effort and resources expended. And, this payback, is not only through the direct physical/mental competence of the persons when carrying out the task but also, through the persons' competence in selecting the most appropriate resources.

However, harnessing the competence and expertise of people is not just important for improving the effectiveness and productivity of task achievement. It is also important because it impacts on long term survival. As Turner and Crawford (1992)¹⁷⁰ explained, maintaining competencies cannot depend on one or two talented stars whose departure could destroy an organisation's success.

¹⁷⁰cited in Quinn and Hilmer (1996).

Instead the organisation must convert these competencies and expertise into corporate competencies and expertise that outlives the stars. Especially when business strategy is heavily dependent on creativity, personal dedication and initiative, or on attracting top-flight professionals, core competence must be captured within the organisation's systems - broadly defined to include its values, organisation structures and management systems. Prahalad and Hamel (1990) further made the point that when competencies become imprisoned, the people who carry the competencies do not get assigned to the most exciting opportunities and their skills begin to atrophy. The author would extend this argument further, in that "exciting opportunities" aside, if competencies become imprisoned, the people carrying the competencies may not be appropriately assigned to the tasks that require or will make best use of these competencies and skills.

Essentially, with its roles as *a framework for company-wide improvement efforts* and as *a means of harnessing the competence and expertise of people*, TQM provides the organisation with the third highest rated methodological foundation - *a means of channelling company effort*. That is to say, helping the organisation to avoid the mis-allocation of resources that would result in minimal customer satisfaction and return on investment. In this respect Hamel and Prahalad (1993) make the following pertinent observation:

" . . . too many managers, finding their companies behind on cost, quality, cycle time, customer service and other competitive metrics, have tried to put everything right at the same time and then wondered why progress was so painfully slow."

Their argument succinctly captures the logic underlying the role of TQM as *a means for channelling company effort*. That is, that no single business, functional team, or department within an organisation can give adequate attention to all the goals cited in the quote above at once. Without focused attention on a few of the key operating goals at any one time, improvement efforts are likely to be so diluted that the company ends up a perpetual laggard in every critical performance area. By dividing often meagre resources across a host of medium-term operational goals, the organisation only serves to create mediocrity on a broad scale. To re-iterate, resources can be absorbed very quickly if not properly channelled. By providing the means by which resources and efforts can be channelled for best use, TQM enables the organisation to avoid ploughing resources into any improvement process, as opposed to those processes that are critical.

These three roles of TQM serve to illustrate the 'mind-set' of the best practice organisations. As Hamel and Prahalad (1993) proposed, there are two basic options for garnering greater resource

productivity (whether those resources be capital or human): the first is downsizing, cutting investment and head count in the hope of becoming lean - in essence, "reducing the buck paid for the bang"; the second is what they term 'resource leveraging' - seeking to get the most out of the resources one has - "to get a much bigger bang for the buck". Resource leverage (as is implicitly perceived to be the necessary approach of the best practice organisations) is essentially energizing, while downsizing is essentially demoralizing.

A commonly cited downfall of new management systems and techniques and change efforts, including TQM [Walker (1992), Wilkinson et al (1992) and Whittle et al (1992)], is that after a while they tend to lose momentum and cease to be effective. Often this is a consequence of unrealistic initial perceptions of the potential of the new systems and techniques, and hence commitment from organisation members to the systems and techniques is lost when the systems fail to fulfill the perceived expectations (Holpp (1989) and Myers and Ashkenas (1993)). Another related reason, which is much more subtle, can be explained by the phenomenon of *entropy*. Entropy is the tendency for systems to tend to run down. It is possible for virtually all systems that are installed in organisations to succumb to entropy, and Sink (1991) suggested that socio-technical systems and management processes and practices are unusually susceptible. *Programme controlled continuous change* is a way of counteracting entropy within the organisation. By ensuring that - irrespective of the particular detail of current strategies, objectives and normal business process activities - the organisation is continually seeking and making improvements to processes and practices, and doing so in a controlled fashion, change which can offset the tendency for systems to run down will continuously be taking place. Organisations must recognise this and develop mechanisms to offset entropy (Sink, 1991). The best practice organisations "agreed" that TQM provides the means for fostering such programme controlled continuous change. Also in support of maintaining momentum, off-setting entropy and avoiding complacency, it is necessary for the organisation to pro-actively take steps to generate new developments in product/service offerings and new approaches for transformation processes/service delivery. Hence, the perceived importance the sample attached to TQM's role as *a means of fostering new ideas*.

Two of the methodological roles of TQM were perceived by the sample to be *an enabling process*, and *a guide for achieving organisational objectives*. The sample "disagreed" though that TQM is methodologically *prescriptive*. An enabling process differs from for example a procedure or method in that it is not *prescriptive*. An enabling process does not define specific actions that must be taken to achieve something. Rather, it provides a guide through which the appropriate actions

can be identified then executed, and best use made of the organisation's key resources. Every day, employees come into contact with new customers, learn more about competitors, confront and solve technical problems and discover better ways of doing things - but what differentiates organisations over time may be less the relative quality or depth of their stock pile of experiences than their capacity to draw from that stock-pile (Hamel and Prahalad, 1993). Collis and Montgomery (1995) proposed the question 'how many companies have developed a statement of their core competencies and then have struggled to know what to do with it?'. Thus, as an *enabling process* the TQM approach continuously provides direction and steers organisational personnel, releasing the necessary skills and acquiring the necessary knowledge, and making best use of knowledge for fulfilling strategic and operational objectives to the best effect. The TQM approach is not prescriptive, nor does it define a rigid sequence. That TQM's role is not to be *prescriptive* also infers that for the TQM approach to be introduced and maintained successfully, it is necessary for an organisation to objectively discern the approach best suited to its particular contingencies.

"Agreement" with the statement that TQM is a *management philosophy* expresses the best practice sample's view that TQM provides a vehicle for seeking the wisdom or knowledge which deals with the reality, the causes and the principles of being engaged in the practice of competitive business. "Agreement" with the statement that TQM is a *management process* expresses the sample's view that, in addition to enabling the identification of pertinent knowledge relevant to engagement in the practice of business (i.e. *management philosophy*), TQM also provides a vehicle through which existing knowledge and new knowledge can be exploited. (N.B. It is important that *management process* and *management philosophy* are not confused with each other, or used interchangeably. They are related, but different.) Essentially the management process in an organisation is a set of concurrently executed key business processes that converge together at certain critical points. The overall process is cyclic, with the period of the cycle dependent on various external influences and certain internal company policies. How externally generated requests are converted into intentions, and how these intentions are converted into outputs and outcomes is determined by the management process. The author would assert that all organisations have a management process. It may appear from general observation that some organisations do not, but this perception simply illustrates that they have a very deficient management process. Thus, without an effective management process, the conversion referred to above is unlikely to be as rewarding as it could be. The best practice organisations clearly hold that an important role of the TQM approach is to

provide it with an effective management process¹⁷¹.

As an *integrating device*, TQM enables organisational efforts to be brought together and combined into a congruous whole. Integration has been defined by Garvin (1991) as *the degree of alignment or harmony in an organisation - whether different departments and levels speak the same language and are tuned to the same wavelength*. The British Quality Foundation (BQF) state that integration is concerned with how far an *approach* forms part of the normal operations of the business as distinct from being part of an initiative or some activity managed by functional departments. Integration can occur horizontally and vertically within an organisation: horizontally between functions; vertically between different levels (the strategic level, the functional (operational) level and the individual level). An integrated approach is likely to produce better all round results within an organisation, since most groups and individuals perform better if they know what is expected of them and how they contribute to the overall progress of the organisation (Hofer and Schendel, 1986). As Grant (1991) points out, for the majority of organisations, the most important capabilities are likely to be those which arise from an integration of individual functional capabilities. However, especially when an organisation has traditionally operated with a multi-layered, functional structure (the type of pre-TQM organisation structure most commonly cited by the sample), the multitude of tasks of day-to-day business (and in particular the key tasks of strategy) often makes considerable demands on the organisation's ability to integrate disparate activities (Rumelt, 1996). As an *integrating device* TQM provides the organisation with the means to increase its capability to integrate disparate activities.

The author would suggest that when pursuing an organisational change strategy driven by the desire to establish a permanent quality ethos, TQM as an *integrating device* has another specific key role to play: the integration of quality oriented activities and improvement activities with the core normal business processes of the organisation. Failure to integrate the two, is likely to have an adverse effect on the change strategy's effectiveness and longevity. Evidence in the literature supports this proposition¹⁷². Sirota et al (1994) highlighted the differences between a 'parallel' organisation configuration associated with organisations using TQM as a short-term remedy and, an 'integrated' organisation configuration that supports the longer-term TQM efforts. In the

¹⁷¹The associated concept of *process focus* in an organisation is discussed in greater detail in chapter 8.

¹⁷²For example, a review of implementation strategies expounded by the gurus of quality revealed a common theme - the emphasis on the importance of integrating the strategic quality goals with the corporate planning process [Ghobadian and Speller (1994); Hitchner (1993); Weintraub (1993) and Aquino (1992)] (Ghobadian et al, 1996).

'parallel' configuration, quality improvement efforts are largely disconnected from the organisation's fundamental business processes and activities. The 'integrated' configuration combines the inherent business processes with quality improvement efforts so that they are mutually directed towards the attainment of the common business goals and objectives. The suggestion is that in the absence of an 'integrated' organisation configuration, isolated quality improvement efforts fail to address the underlying causes of poor performance such as culture, systems, processes and policies¹⁷³.

In section 6.3.1, TQM's role "*about ensuring constancy of purpose*" was explicated. The argument put forward helps to explain the sample's "agreement" that TQM is *outcome focused*, and their "disagreement" that TQM is *solely output focused* or *solely input focused*. *Ensuring constancy of purpose* was about aligning the goals/objectives of units, functions, teams and individuals with those of the organisation. An outcome can be defined as the final result of a number of successive or integrated events. An output on the other hand is a quantitative measure at any stage. The two are not synonymous. Thus, an outcome pertains to high level objectives such as overall (organisational) objectives, units' objectives or strategic objectives, whereas outputs pertain to the lower level objectives such as those of functions, teams or individuals. While specific outputs at certain points in the chains of activity of the organisation are important, it is undesirable for organisation members to focus solely on outputs. When *solely focused on output* from their particular stations/tasks it is easy for organisation members to perceive that they will be doing a good job if they are maximising their output. This perception is exacerbated when specific and accurate output requirements are not being defined by the subsequent successive station/task. In this latter respect a focus on inputs is desirable. A sole focus on inputs, however, disregards the danger that the inputs' conversion may actually nonetheless be inappropriate to the eventual customer. When organisation members work in an environment that is *outcome focused*, there is an implicit need for them to explicitly recognise their station/tasks' contribution to the objectives of the organisation, and hence for their output to be defined in terms of specific requirements that accurately meet that contribution. Hutt (1994) proposed a similar and supporting argument, in that most members of an organisation are used to considering their jobs in terms of the tasks to be performed, and it requires a change of level in their thinking to focus on the achievements those tasks produce. Put another way, there is a need to look for achievement and outcome, not just activity and "business".

¹⁷³The concept of *integration* is discussed further in section 8.2.1.

The mean value of 3.51 (just in the "agree" band) indicated that the sample were reluctant to label TQM as *a set of quality improvement tools*. As the discussion in chapter 8 section 8.2.1 shows, improvement tools do have an important function in the best practice TQM approach, but they should not be perceived to be, or used as, the primary means of making improvements and adopting a TQM approach.

It was found that the sample neither "agreed" nor "disagreed" (i.e. they expressed a "neutral" view) that methodologically TQM is *an anti-thesis of scientific management*. This infers that while TQM is a departure from the scientific / system oriented school of management, this school of management does however still have a role to play in the best practice TQM approach. That is to say TQM may share some characteristics with this school.

That TQM is perceived to be *a management philosophy*, but that there was "neutral" agreement that TQM is *an anti-thesis of scientific management* was a very important finding of the study. However, having only investigated the changes brought about by TQM (chapter 5) and organisational role of TQM, it was deemed too early to comment further at this juncture on how the "new" management philosophy fundamentally differs from previous management philosophies. In order to comment comprehensively and authoritatively it was first necessary to investigate the sub-elements of TQM (chapter 8) and necessary conditions for organisation wide quality (chapter 9), and furthermore it was first necessary to develop the theory of TQM.

The sample "disagreed" with five of the statements describing the role of TQM under the sub-heading *methodological foundations*, "strongly" disagreeing with one. Three have been discussed above¹⁷⁴. The other two were that:

- TQM is *only process oriented* ("disagree"), and
- TQM is *a project* ("strongly disagree").

The former implies that TQM is inclusive of process orientation rather than exclusively process oriented, and supports the notion that TQM is company-wide and covers all facets of the organisation. The latter supports the notion that TQM is a journey with no end rather than a project with a defined end. This confirms the finding discussed in section 6.3.1 that TQM is a permanent approach to how an organisation conducts its business - it must be viewed as an integral component

¹⁷⁴TQM is *prescriptive*, TQM is *solely output focused* and TQM is *solely input focused*.

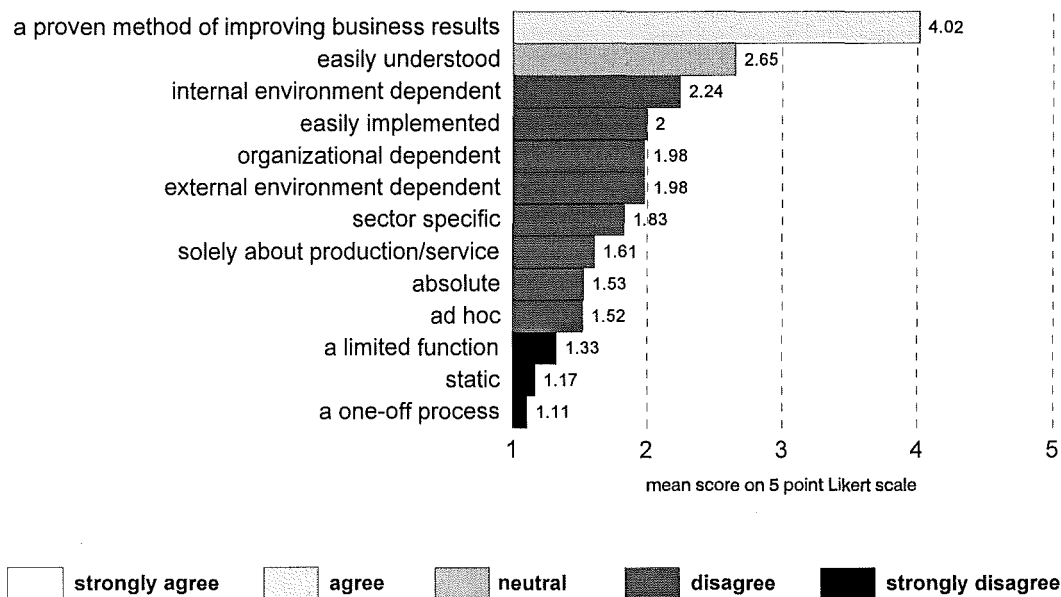
of the management process, and it must become *a way of working*.

6.3.3 General characteristics

Figure 6.3.3 shows the calculated mean value for each of the statements describing the roles of TQM that were grouped under the sub-heading of *general characteristics of TQM*.

The participants "agreed" with only one statement. This was that TQM is *a proven method of improving business results*. The sample's view substantiates the argument presented in chapter 2 section 2.4 that the successful introduction of an effective TQM approach is highly likely to improve the market share, profitability and hence competitive position of an organisation. When consideration is given to the basis upon which the participating sample was selected, this finding is entirely expected. It is an important observation nonetheless.

Figure 6.3.3 - Mean scores for proposed organisational roles of TQM: general characteristics



The author's assertion in the introductory chapter that TQM is not an easily understood phenomenon is neither emphatically confirmed nor disproved by the sample. The sample expressed a "neutral" view that TQM is *easily understood*. The response was even less favourable to the statement that TQM can be *easily implemented*. That is to say the sample "disagreed". These observations are especially significant given that the sample are regarded as best practice TQM organisations.

The former suggests that the sample believe that TQM needs to be carefully studied and that it cannot glibly be picked up. The latter infers that organisations should not expect the introduction of TQM to be a smooth uncomplicated process or to immediately foster the desired new states. One of the two prevalent reasons that the sample cited for introducing TQM was as *a focus for culture change* (section 5.2). The author would suggest that although it may be relatively easy to understand and initiate use of the basic TQM tools and techniques, implementing and maintaining the cultural changes required is significantly more difficult. It is easy to overlook the fact that "culture change" implies that the desired new state of corporate culture is probably counter to the existing culture, and implies changes not only in behaviour but also in attitude. This is discussed more fully in section 9.2. As such, employees must be convinced that there is a need for change - often not an easy task - before the organisation can then expect employees to wholeheartedly participate.

The latter also infers that a thorough understanding of TQM does not necessarily imply or guarantee problem-free introduction of TQM.

In chapter 1, section 1.1 it was argued that one of the five broad areas of TQM with little consensus was the range of TQM. A number of findings presented in sections 6.3.1 and 6.3.2 have alluded to the true range of TQM. For instance, that TQM is *a way of working* and that TQM is a *management philosophy* respectively. A large number of the findings under *general characteristics* augment these previous suggestions and combine to give a much clearer picture of the range of TQM as perceived by those organisations who have mastered the approach.

The sample "strongly disagreed" that TQM is *a project*¹⁷⁵ or *a one-off process*. Clearly, when introduced successfully TQM is viewed as a permanent approach to conducting business.

The sample "disagreed" that TQM is either *sector specific* or *organisational dependent*. These findings clearly imply that TQM can be applied to any organisation in any industry sector. The sample also "disagreed" that TQM is *internal environment dependent* or *solely about production/service*. These findings infer that TQM embraces all functions or areas within the organisation, irrespective of their existing configurations or conditions, or irrespective of whether the functions are production/service delivery oriented or administratively oriented. Isolated improvement efforts in specific areas of the organisation are clearly not the aim of introducing

¹⁷⁵classified under *methodological foundations*.

TQM. However, it should be noted that these findings do not imply that the degree to which either internal functions, organisations, or industry sectors will be practically influenced by TQM will not differ. The degree of the influence and resultant change is largely dependent on the TQM "starting point" of each of these units of analysis¹⁷⁶.

The sample "disagreed" that TQM is *external environment dependent*. This disagreement infers that the validity of TQM as an approach to conducting business is not dependent on external influences such as competitors, economic conditions, trade policy or government policy, to name but a few.

The sample's "disagreement" that TQM is *absolute* supports the findings and argument that a methodological role of TQM is as *an enabling process*, and that organisations should not attempt to apply TQM in a *prescriptive* manner. The sample's "disagreement" that TQM is *ad hoc* supports the findings and argument that methodologically TQM's role is to act as *a guide for achieving organisational objectives* and to provide *a framework for company-wide improvement efforts* - the TQM approach is adopted to bring "systematic order" to the organisation's product/service delivery process and to its organisational improvement efforts.

The sample's "strong disagreement" that TQM is *a limited function* further supports the finding that TQM is *an enabling process*, and the finding that TQM is *a way of working*. TQM is applicable to all areas within an organisation and furthermore, it can have a significant impact on the effectiveness of all areas within an organisation. Finally, the sample's "strong disagreement" that TQM is *static* supports the findings and arguments relating to the fact that TQM is introduced because it is an approach that can resurrect and sustain an organisation's long term survival.

These inferences about the range of TQM further illustrate the sample's agreement that one of the *methodological foundations of TQM* is as *an enabling process*. Whatever the contingencies in terms of size, sector, ownership and scope of activities of an organisation, TQM's role is to enable the organisation to configure its business processes in a manner that will enable it to best exploit the resources available to it, secure competitive advantage and capitalise on a position of superior relative quality performance.

¹⁷⁶This in turn infers that assessing this starting point should be one of the key first tasks in a TQM rollout.

6.4 Influence of *Size* and *Class* of Organisation on Organisational Role of TQM

χ^2 test of significance was carried out on all forty three statements to examine the influence of *size* and *class* of organisation on the role of TQM. χ^2 test of significance at 95 percent confidence indicated that statistically a difference was perceived for four of the statements. The data pertaining to these statistical suggestions were further examined: (a) to search for explanations for the suggested differences and (b) to enable the author to make an assessment of whether or not each statistical suggestion reflected a difference sufficient for it to be represented in the development of the preliminary conceptual map.

The χ^2 test of significance indicated that statistically large organisations were more likely than SMEs to "agree" or "strongly agree" that TQM is *a management process*. The reason for this observation was not immediately clear¹⁷⁷. The χ^2 test of significance indicated that statistically large organisations were more likely than SMEs to "agree" or "strongly agree" that TQM is *about ensuring customer satisfaction*. The reason for this observation was not immediately clear. More importantly however, reference back to the data showed that nevertheless, none of the SMEs had "disagreed" that TQM was *about ensuring customer satisfaction*. On this basis the observation was deemed not to call for further investigation. The χ^2 test of significance indicated that statistically organisations with manufacturing orientation were more likely to "agree" that TQM is a *blueprint for the future* than service organisations. No pertinent explanation based on the inherent differences between manufacturing and service organisations could be found¹⁷⁸.

The fourth significant difference concerned the statement that TQM is *external environment dependent*. The data showed that whilst 81 percent of large organisations "agreed" or "strongly agreed" that TQM is **not** external environment dependent compared to - the lower - 71 percent of SMEs, the remainder (19 percent) of the large organisations "agreed" or "strongly agreed" that TQM is external environment dependent compared to only 7 percent of SMEs. The remaining 21 percent of SMEs expressed a "neutral" view¹⁷⁹. This suggests that on the whole SMEs are more able to introduce and use TQM independent of their contingencies that are dictated by the external

¹⁷⁷It was only possible to hypothesize that the reason pertained to the fact that deploying TQM in large organisations is inherently a more complex task than deploying TQM in SMEs, and therefore is likely to require greater management buy-in and commitment and wider management coordination.

¹⁷⁸The χ^2 statistics for these three statistical suggestions were: $\chi^2=7.48$, with $\alpha=0.05$; $\chi^2=4.92$, with $\alpha=0.05$; and $\chi^2=10.3$, with $\alpha=0.05$ respectively.

¹⁷⁹ $\chi^2=7.67$, with $\alpha=0.05$.

environment. Clearly for a small proportion of the large organisations in the sample, some aspects of a best practice TQM approach are dependent on contingencies dictated by their associated external environment.

Examination of the relative proportions¹⁸⁰ in the response for each of these four statistically suggested differences indicated that they did not represent dramatic divergence in opinion, and therefore were not deemed meaningful enough to be represented in the development of the preliminary conceptual map. However, these differences would form an interesting subject for future research.

6.5 Factor Analysis Applied to Organisational Role of TQM

The two stage exploratory factor analysis was applied (for detailed description see section 4.4.2) to investigate the empirical factor structure of the participants' response to the forty three statements describing the organisational role of best practice TQM. The factor analysis was independently applied to the three components of TQM's organisational role: *purposes*, *methodological foundations* and *general characteristics*. As such six analyses were conducted. The results of the factor analysis and the "new explanatory variables" subsequently formed are presented in this section.

In the discussions that follow, tables 6.5.1a, 6.5.2a and 6.5.3a, and tables 6.5.1b, 6.5.2b and 6.5.3b show the results of the stage 1 and stage 2 factor analyses respectively. The tables show the factor component variables, their factor loadings, factor eigenvalues and percent of variance. Factor loadings greater than 0.5 are indicated in bold type face. In all six analyses the case to variable ratios were valid ratios for factor analysis. This was confirmed by the Kaiser-Meyer-Olkin measure of sampling adequacy values (KMO) and Bartlett Test of Sphericity / Significance values associated with each analysis. These values are shown in the respective tables, and indicated that the factor analysis output could be considered as a valid representation of the input variables. The analyses for each of the three components of TQM's organisational role are discussed in turn below. In the discussions that follow tables 6.5.1c, 6.5.2c and 6.5.3c summarise the new explanatory variables that were formed and their component variables.

¹⁸⁰percentage large organisations : percentage SMEs; OR percentage manufacturers : percentage M/S organisations : percentage service organisations, for each point on the five-point scale.

6.5.1 Stage 1 and stage 2 factor analysis findings - purposes of TQM

Table 6.5.1a summarises the results of the stage 1 factor analysis applied to the statements describing the *purposes of TQM*. Principal component analysis extracted four factors and Varimax rotation converged in six iterations. From the four factors, three new explanatory variables were suggested. These related to factor 2A, to factor 3A and to factor 4A. One variable, *a blue print for the future (k)* was excluded from the interpretation of the analysis because it loaded on to factors 1A and 3A with similar factor loadings of greater than 0.5.

Table 6.5.1a. Factor loadings on (stage 1) twelve variable set of purposes of TQM

Variable		Factor 1A	Factor 2A	Factor 3A	Factor 4A
<i>a way of working</i>	d	-0.107	0.071	0.107	0.882
<i>a set of core values</i>	f	0.434	-0.106	0.109	0.577
<i>a change agent for organisational culture</i>	i	0.440	0.404	0.314	-0.238
<i>a process for longterm survival</i>	j	0.368	0.369	0.747	0.054
<i>a blueprint for the future</i>	k	0.567*	-0.177	0.547*	0.111
<i>an expression of company image/purpose</i>	l	0.833	-0.193	0.070	0.037
<i>about ensuring constancy of purpose</i>	o	0.575	0.244	0.020	0.477
<i>about ensuring customer satisfaction</i>	s	-0.130	0.840	-0.002	0.038
<i>about fostering competitive advantage</i>	t	-0.107	0.007	0.874	0.125
<i>about building consensus</i>	r	0.766	0.091	0.092	-0.114
<i>about corporate identity</i>	v	0.758	-0.009	0.023	0.202
<i>an end in itself</i>	ff	-0.024	-0.870	-0.092	-0.048
Eigenvalue		3.065	1.915	1.768	1.486
Pct of Var		25.54%	15.96%	14.73%	12.39%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.609; Bartlett's Test of Sphericity = 187.705 with Significance = 0.00.
 *variable excluded from analysis due to similar factor loadings >0.5 on factors 1A and 3A.

Factor 2A comprised two variables. The negative factor loading of the second variable, *an end in itself (ff)* indicated an inverse relationship to the first variable, *about ensuring customer satisfaction (s)*. This negative factor loading correlates with the variable's mean value of 1.3, which indicated that the participants "strongly disagreed" that TQM *is an end in itself*. This qualifies the first variable *about ensuring customer satisfaction* in the sense that ensuring customer satisfaction through TQM is an endless (or ceaseless) purpose. The new explanatory variable **TQM is about ceaselessly ensuring customer satisfaction** was therefore suggested for factor 2A.

Factor 3A comprised two variables, *a process for long-term survival (j)*, and *about fostering competitive advantage (t)*. The participants "agreed" that the former variable was a purpose of

TQM, and "strongly agreed" that the latter variable was a purpose of TQM. Causality, specifically: the latter leads to the former, was introduced to explain this factor. That is to say *TQM is a process for long-term survival* because it is *about fostering competitive advantage*. As such a new explanatory variable **TQM is a process for fostering sustainable competitive advantage** was suggested. The author was initially concerned that this suggested new explanatory variable did not contain specific reference to 'long-term survival' as in the first variable. However, when reconsidered it was decided that 'sustainable' adequately described 'long-term survival'.

Factor 4A also comprised two variables. The first variable, *a way of working (d)*, expresses the holistic nature of TQM. The second variable intimates that this 'way of working' is based on *a set of core values (f)*. The two variables were therefore combined and the new explanatory variable **TQM is a way of working underpinned by a set of core values** was suggested.

Four variables positively loaded onto factor 1A, and factor 1A appeared to contain two sub-factors. The first sub-factor, comprising variables *an expression of company image / purpose (l)* and *about corporate identity (v)*, suggested a purpose or interaction related to the organisation's external environment. The second sub-factor comprised variables *about ensuring constancy of purpose (o)* and *about building consensus (r)*. These two variables could both be described as 'qualitative' attributes of internal operations that apply organisation-wide. In both sub-factors however, one of the variables ((v) in the first sub-factor, and (r) in the second sub-factor) had a mean score that indicated a "neutral" agreement rating from the participants, and hence caution was exercised in suggesting new explanatory variables. Judgement was deferred until the influence of variables (l) and (o) in factor analysis stage 2 (in which variables (v) and (r) would be excluded) was known.

The stage 2 input variable condition (i.e. only those variables which received a mean value indicating "agreement" or "strong agreement" (mean \geq 3.5)) reduced the number of variables included in the factor analysis from twelve to nine. Principal components extracted three factors (one less than at stage 1) and Varimax rotation converged in six iterations. One variable, *about ensuring customer satisfaction (s)* was excluded from the interpretation of the analysis because it loaded on to factors 1B and 2B with similar factor loadings of greater than 0.5. The results are shown in table 6.5.1b.

Table 6.5.1b. Factor loadings on (stage 2) nine variable set of 'agreed' purposes of TQM

Variable		Factor 1B	Factor 2B	Factor 3B
<i>a way of working</i>	d	-0.054	-0.200	0.864
<i>a set of core values</i>	f	0.093	0.444	0.606
<i>a change agent for organisational culture</i>	i	0.678	0.218	-0.106
<i>a process for longterm survival</i>	j	0.852	0.253	0.161
<i>a blueprint for the future</i>	k	0.426	0.656	0.183
<i>an expression of company image/purpose</i>	l	0.150	0.851	0.082
<i>about ensuring constancy of purpose</i>	o	0.262	0.280	0.611
<i>about ensuring customer satisfaction</i>	s	0.485*	-0.564*	0.062
<i>about fostering competitive advantage</i>	t	0.635	-0.081	0.170
Eigenvalue		2.110	1.907	1.597
Pct of Var		23.45%	21.19%	17.74%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.639; Bartlett's Test of Sphericity =102.047 with Significance =0.00.
*variable excluded from analysis due to similar factor loadings >0.5 on factors 1B and 2B.

Stage 2 analysis served to add more clarity, and all three stage 2 factors were subsequently defined as new explanatory variables. Essentially, the factor which was lost from the findings at stage 1 was factor 2A. This was primarily because one of factor 2A's variables, *an end in itself (ff)*, was excluded from the analysis, and variable *about ensuring customer satisfaction (s)* was excluded from the rotated factor matrix interpretation as described above. The new explanatory variables suggested for stage 1 factors 3A and 4A both featured again within two stage 2 factors, but each was joined by an extra variable. Variable *about ensuring constancy of purpose (o)* joined variables *a way of working (d)* and *a set of core values (f)* in factor 3B. The suggested stage 1 new explanatory variable was modified to **TQM is a way of working that ensures constancy of purpose, underpinned by a set of core values**. Variable *a change agent for organisational culture (i)* (which did not feature in the stage 1 analysis interpretation due to factor loadings of less than 0.5) joined variables *a process for long-term survival (j)* and *about fostering competitive advantage (t)* in factor 1B. Initially, the author was cautious about including variable *a change agent for organisational culture* in the new explanatory variable that was suggested at stage 1, first and foremost because it was important not to diminish the importance and significance of the variables individually. These three variables all had high mean scores. However, after further deliberation it was decided that combining the three variables would provide a more meaningful context than keeping them separate. The suggestion at stage 1 was therefore modified to form the new explanatory variable **TQM is a process for fostering an organisational culture that can deliver sustainable competitive advantage**.

The variables *a blueprint for the future (k)* and *an expression of company image/purpose (l)*

constituted factor 2B. These variables appear to share two common themes. The first theme could be described as "a plan for the future", and secondly, like the first sub-factor described for stage 1 factor 1A these variables also suggest a purpose or interaction related to the organisation's external environment. It was decided after deliberation that overall, the connections between the variables in factor 2B were stronger and more meaningful than the connection proposed at stage 1. This was because considered together these two common themes share a higher level distinct underlying theme relating to "marketing" the organisation's future. That, in addition to its purposes associated with the internal goals/objectives or operation of the organisation, TQM is also a "marketing" tool for the organisation's interactions with its external environment. These two variables are quite distinct from the other *purposes of TQM* variables. Thus, the new explanatory variable **TQM is a vehicle for differentiating the organisation's offering** was developed for factor 2B.

Table 6.5.1c summarises the new explanatory variables that were formed and their component variables.

Table 6.5.1c Summary of new explanatory variables - Purposes of TQM

	variable	new explanatory variable / observation
factor 1B:	<i>a change agent for organisational culture (i)</i> <i>a process for long-term survival (j)</i> <i>about fostering competitive advantage (t)</i>	TQM is a process for fostering and organisational culture that can deliver sustainable competitive advantage
factor 2B:	<i>an expression of company image / purpose (l)</i> <i>a blueprint for the future (k)</i>	TQM is a vehicle for differentiating the organisation's offering
factor 3B:	<i>a way of working (d)</i> <i>a set of core values (f)</i> <i>about ensuring constancy of purpose (o)</i>	TQM is a way of working that ensures constancy of purpose, underpinned by a set of core values

6.5.2 Stage 1 and stage 2 factor analysis findings - methodological foundations of TQM

Table 6.5.2a summarises the results of the stage 1 factor analysis applied to the variables describing the *methodological foundations of TQM*. Principal component analysis extracted six factors and Varimax rotation converged in eight iterations. Three of the six factors, factor 1C, factor 3C and factor 4C, were clearly meaningful and enabled three new explanatory variables to be suggested. The variables making up factor 2C hinted at broader constructs, however at this stage confidence in the associative relationships was not high enough for a new explanatory variable to be suggested. One variable, *a means of channelling company effort (u)*, was excluded from the interpretation of the analysis because it loaded on to factors 2C and 3C with similar factor loadings of greater than

0.5.

The calculated mean scores for all four variables in factor 1C indicated that the participants "disagreed" that they described the organisational role of TQM. The main underlying theme within factor 1C was "range" of TQM. Taking into account this state of "disagreement", variables *solely input focused (jj)* and *solely output focused (kk)* infer that TQM is focused on and impacts on the whole organisational transformation process. Variable *only process oriented (pp)*, again "disagreed" with, infers that the manner in which, or the means through which TQM affects the operations of the organisation do not always necessarily have to be focused around processes. Variable *prescriptive (hh)*, expresses "range" in a slightly different way to the other three variables. Here, "range" is expressed in terms of 'behaviour', rather than 'extent'. That the role of TQM is not considered to be *prescriptive* by the participants, infers that the manner in which, or the means through which TQM affects the operations of the organisation are not imposed or defined by rules. The common underlying theme of "range" suggested that factor 1C qualified for proposal as a new explanatory variable. The variables suggested that in broader terms, **TQM is a flexible, thorough and all encompassing approach.**

Factor 2C seemed to contain variables that express *methodological foundations* in terms of how TQM effects a quality oriented organisation state: by *enabling*, by *integrating*, by *guiding*, by *fostering*. However, it was difficult to express the four variables together through the suggestion of a new explanatory variable. Whilst a connection clearly exists, each variable also has its own distinct significance or effect.

The two variables in factor 3C, *a means of harnessing the competence and expertise of people (m)* and *a means of fostering new ideas (n)* tend to refer to the "contribution of people" as their common theme. Further, they make factor 3C contain a dimension of "creation" and a dimension of "capture". Combining these variables through direct association suggested the new explanatory variable **TQM is a means of encouraging and harnessing the competence, expertise and creativity of people.**

Table 6.5.2a. Factor loadings on (stage 1) eighteen variable set of methodological foundations of TQM

Variable		Factor 1C	Factor 2C	Factor 3C	Factor 4C	Factor 5C	Factor 6C
<i>a management philosophy</i>	a	-0.011	-0.032	0.033	0.812	-0.192	0.173
<i>an anti-thesis of scientific management</i>	b	-0.108	0.120	0.084	-0.176	0.603	0.049
<i>a set of quality improvement tools</i>	c	-0.102	-0.203	0.032	-0.042	0.385	0.779
<i>a management process</i>	e	0.029	0.199	-0.069	0.832	-0.008	-0.105
<i>a guide for achieving organisational objectives</i>	g	0.067	0.556	0.050	0.159	0.010	0.377
<i>a framework for company-wide improvement efforts</i>	h	0.048	0.140	0.197	-0.046	0.757	-0.051
<i>a means of harnessing the competence and expertise of people</i>	m	-0.231	-0.148	0.785	0.178	0.267	-0.127
<i>a means of fostering new ideas</i>	n	-0.062	0.122	0.746	-0.327	0.050	0.280
<i>an enabling process</i>	p	-0.338	0.657	0.084	-0.351	0.106	-0.003
<i>a means of fostering programme controlled continuous change</i>	q	-0.320	0.500	0.398	-0.127	0.132	-0.082
<i>a means of channelling company effort</i>	u	0.419	0.598*	0.570*	0.230	0.061	-0.144
<i>an integrating device</i>	w	0.035	0.731	-0.129	0.227	0.022	-0.148
<i>outcome focused</i>	x	-0.197	0.381	0.405	-0.161	-0.517	-0.237
<i>a project</i>	cc	0.288	0.061	-0.045	0.065	-0.337	0.694
<i>prescriptive</i>	hh	0.649	0.078	0.009	0.120	0.000	0.197
<i>solely input focused</i>	jj	0.901	-0.008	-0.212	0.010	-0.069	0.011
<i>solely output focused</i>	kk	0.849	-0.156	-0.098	-0.062	-0.070	0.140
<i>only process oriented</i>	pp	0.791	-0.070	0.003	-0.017	0.076	-0.193
Eigenvalue		3.028	2.22	1.957	1.844	1.635	1.572
Pct of Var		16.83%	12.33%	10.87%	10.24%	9.09%	8.73%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.446; Bartlett's Test of Sphericity =261.786 with Significance = 0.00.
*variable excluded from analysis due to similar factor loadings >0.5 on factors 2C and 3C.

Factor 4C was perhaps the clearest of the six stage 1 factors. Variables *a management philosophy (a)* and *a management process (e)* have a plainly evident common underlying foundation, that of "management". Considering the implications of 'philosophy' and 'process' in the management context, led the two variables to be confidently combined through direct association to suggest the new explanatory variable **TQM is a management model / paradigm**. No meaningful association or casual relationships could be identified for the variables in factor 5C or factor 6C.

The stage 2 input variable condition (only variables with mean ≥ 3.5) reduced the number of variables included in the factor analysis from eighteen to twelve. Principal components halved the number of factors extracted (from six at stage 1) to three, and Varimax rotation converged in five iterations. The results are summarised in table 6.5.2b.

Factor 3D retained exactly the same variable composition as stage 1 factor 4C, substantiating the validity of **TQM is a management model / paradigm** as a new explanatory variable.

Table 6.5.2b. Factor loadings on (stage 2) twelve variable set of 'agreed' methodological foundations of TQM

Variable		Factor 1D	Factor 2D	Factor 3D
<i>a management philosophy</i>	a	-0.087	0.028	0.799
<i>a set of quality improvement tools</i>	c	-0.410	0.713	0.035
<i>a management process</i>	e	0.067	-0.089	0.840
<i>a guide for achieving organisational objectives</i>	g	0.330	0.366	0.366
<i>a framework for company-wide improvement efforts</i>	h	0.099	0.655	0.000
<i>means of harnessing the competence and expertise of people</i>	m	0.257	0.554	0.056
<i>a means of fostering new ideas</i>	n	0.396	0.630	-0.243
<i>an enabling process</i>	p	0.676	0.229	-0.167
<i>means of fostering programme controlled continuous change</i>	q	0.648	0.402	-0.039
<i>a means of channelling company effort</i>	u	0.699	0.248	0.292
<i>an integrating device</i>	w	0.583	-0.021	0.416
<i>outcome focused</i>	x	0.723	-0.082	-0.022
Eigenvalue		2.743	2.067	1.830
Pct of Var		22.86%	17.22%	15.25%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.612; Bartlett's Test of Sphericity =140.117 with Significance=0.00.

Variables *a means of harnessing the competence and expertise of people (m)* and *a means of fostering new ideas (n)* (i.e. stage 1 factor 3C) remained together but were joined in factor 2D by variable *a set of quality improvement tools (c)*, and variable *a frame-work for company-wide improvement efforts (h)*. These two latter variables explicitly add a dimension of "improvement"

to the factor, complementing the improvement orientation implicit in the two former variables. In contrast to the stage 1 analysis, the highest rated methodological foundation *a framework for company-wide improvement efforts* was now in a factor that was meaningful. However, the participant's view of variable *a set of quality improvement tools* as descriptive of the organisational role of TQM was only borderline between "agreement" and a "neutral" view (mean=3.51). It was decided that if all four variables were combined into a single new explanatory variable there was a danger of depreciating the variables' individual importance, especially that of variable *a framework for company-wide improvement efforts*. Therefore, factor 2D was redefined as two sub-factors, keeping and hence confirming the stage 1 suggestion **TQM is a means of encouraging and harnessing the competence, expertise and creativity of people** as a new explanatory variable, and adding the new explanatory variable **TQM is a technically supported framework for company-wide improvement efforts**.

The stage 1 factor 2C grouping of variables (p), (q) and (w) was repeated in factor 1D, which also contained two other variables, *a means of channelling company effort* (u) and *outcome focused* (x). However, the stage 1 factor 2C variable *a guide for achieving organisational objectives* (g) no longer featured. The five variables were not related to one another strongly enough to be defined as a single new explanatory variable. Again, the potential loss of importance of an individual variable influenced this judgement. After examining the five variables more closely it was decided that *an enabling process* (p) and *an integrating device* (w) were closely related, and that *a means of fostering programme controlled and/or continuous change* (q) and *a means of channelling company effort* (u) were also closely related. An issue that remained was how the variable with the highest factor 1D loading, *outcome focused* (x), fitted in with these two perceived sub-factors, if at all. Two alternative sets of new explanatory variables which avoided repeating the *outcome focused* reference were developed and scrutinised further. The set: **TQM is a means of channelling company effort for controlled continuous change** and, **TQM is an enabling process focused on outcome and integration**, was chosen on the basis that *outcome focused* shared the same level of "generality" as *an enabling device* and *an integrating device*, whereas the other two variables were much more specific.

Table 6.5.2c summarises the new explanatory variables that were formed and their component variables.

Table 6.5.2c. Summary of new explanatory variables - Methodological foundations of TQM

	variable	new explanatory variable / observation
factor 1D (sub 1):	<i>a means of fostering programme controlled and/or continuous change (q)</i> <i>a means of channelling company effort (u)</i>	TQM is a means of channelling company effort for controlled continuous change
factor 1D (sub 2):	<i>an enabling process (p)</i> <i>an integrating device (w)</i> <i>outcome focused (x)</i>	TQM is an enabling process focused on outcome and integration
factor 2D (sub 1):	<i>a set of quality improvement tools (c)</i> <i>a framework for company-wide improvement efforts (h)</i>	TQM is a technically supported framework for company-wide improvement efforts
factor 2D (sub 2):	<i>a means of harnessing the competence and expertise of people (m)</i> <i>a means of fostering new ideas (n)</i>	TQM is a means of encouraging and harnessing the competence, expertise and creativity of people
factor 3D:	<i>a management philosophy (a)</i> <i>a management process (e)</i>	TQM is a management model / paradigm

6.5.3 Stage 1 and stage 2 factor analysis findings - general characteristics of TQM

Table 6.5.3a summarises the results of the stage 1 factor analysis applied to the variables describing the *general characteristics of TQM*. Principal component analysis extracted four factors and Varimax rotation converged in six iterations. Overall, the variables grouped meaningfully, however, it was only possible at this stage to suggest a new explanatory variable for factor 2E.

Table 6.5.3a. Factor loadings on (stage 1) thirteen variable set of general characteristics of TQM

Variable		Factor 1E	Factor 2E	Factor 3E	Factor 4E
<i>a proven method of improving business results</i>	y	0.067	-0.536	0.224	-0.434
<i>a one-off process</i>	aa	0.070	0.019	0.931	0.063
<i>static</i>	bb	0.101	-0.045	0.755	0.571
<i>absolute</i>	dd	0.274	0.157	0.769	0.192
<i>ad hoc</i>	ee	0.081	0.028	0.206	0.866
<i>a limited function</i>	gg	0.166	0.072	0.235	0.738
<i>solely about production / service</i>	ii	0.673	0.329	0.066	0.409
<i>organisational dependent</i>	ll	0.477	0.710	0.038	0.087
<i>sector specific</i>	mm	0.718	0.416	-0.035	0.402
<i>internal environment dependent</i>	nn	-0.070	0.877	0.074	-0.109
<i>external environment dependent</i>	oo	0.362	0.743	0.201	0.151
<i>easily understood</i>	qq	0.691	0.101	0.177	-0.095
<i>easily implemented</i>	rr	0.879	-0.101	0.179	0.003
Eigenvalue		2.709	2.448	2.292	2.221
Pct of Var		20.84%	18.83%	17.63%	17.08%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.661 ; Bartlett's Test of Sphericity = 323.190 with Significance = 0.00.

Factor 1E appeared to contain two sub-factors. Firstly, variable *easily understood (qq)* with

variable *easily implemented* (rr). Secondly, variable *solely about production/service* (ii) with variable *sector specific* (mm). The former two variables are quite closely associated in that they holistically (non-specifically) describe TQM from the point of view of what could be termed "ease of use". The sample expressed a "neutral" view that TQM is *easily understood*, and "disagreed" that TQM is *easily implemented*. Caution therefore had to be exercised in suggesting them as a new explanatory variable. In addition, making a negatively oriented reference in a new explanatory variable, such as "TQM is not about . . .", was not favoured by the author unless absolutely necessary. The latter two variables (second sub-factor) were not so closely related to each other, though "scope" (as with methodological foundation factor 1C) appeared to be the underlying connection. It was decided not to draft suggested new explanatory variables for factor 1E.

Factor 2E comprised four variables. However, one variable did not fit the theme of the factor. The negative sign of the factor loading of variable *a proven method of improving business results* (y) meant that its significance in the factor was the opposite of the significance of the three other variables. This is consistent with its mean value which indicated "agreement" as descriptive of the organisational role of TQM by the participant group, as opposed to the mean values for the three other variables which all indicated "disagreement" by the participant group. Irrespective of the negative factor loading, variable *a proven method of improving business results* was excluded from the interpretation of factor 2E. Acknowledging their status of being "disagreed" with, variables *organisational dependent* (ll); *internal environment dependent* (nn) and *external environment dependent* (oo) combine to infer the "universal applicability" of TQM. That is to say, the applicability and use of TQM is not restricted to a sub-sector of the business population. A new explanatory variable **TQM is a universally applicable approach** was suggested.

It was difficult to meaningfully differentiate between the two factors 3E and 4E along any clear underlying dimension. Variable *static* (bb) appeared in both factors, though the factor loading in factor 3E was much higher (0.755) than that in factor 4E (0.571). Even with variable *static* (bb) excluded from factor 4E on this basis, a clear differentiator between the two factors was still not apparent. Hence, no new explanatory variables were suggested at this stage.

According to the stage 2 input variable condition (only variables with mean ≥ 3.5), twelve of the thirteen variables classified as *general characteristics of TQM* would have been excluded from the stage 2 analysis because the participants either "strongly disagreed", "disagreed" or expressed a

"neutral" view that they were descriptive of the role of TQM. As such the factor analysis would have had only one input variable. However, an insight into information describing what "TQM's role is not" was deemed potentially and equally as valuable as the insights into what "TQM's role is". Instead therefore, the stage 2 factor analysis input variable condition for *general characteristics* was redefined so that it was only those variables with a mean score that reflected either "strong disagreement", "disagreement" or a "neutral" view that were included in the analysis.

This modified stage 2 input variable condition (only variables with a mean <3.5) reduced the number of variables included in the factor analysis of *general characteristics* from thirteen to twelve. Principal components reduced the number of factors extracted from four (at stage 1) to three, and Varimax rotation converged in five iterations. Two variables were excluded from the interpretation of the analysis because they loaded on to factors 2F and 3F with similar factor loadings of greater than 0.5: *solely about production/service (ii)*, and *sector specific (mm)*. The results are summarised in table 6.5.3b. In the stage 1 analysis it was possible to suggest only one new explanatory variable. Stage 2 findings supported many of the suggested relationships cited at stage 1, and new explanatory variables were formed for all three factors.

Table 6.5.3b. Factor loadings on (stage 2) twelve variable set of 'agreed' general characteristics of TQM

Variable		Factor 1F	Factor 2F	Factor 3F
<i>a one-off process</i>	aa	0.768	-0.073	0.084
<i>static</i>	bb	0.944	-0.027	0.117
<i>absolute</i>	dd	0.716	0.194	0.223
<i>ad hoc</i>	ee	0.687	0.138	0.106
<i>a limited function</i>	gg	0.645	0.252	0.090
<i>solely about production / service</i>	ii	0.297	0.514*	0.586*
<i>organisational dependent</i>	ll	0.067	0.817	0.320
<i>sector specific</i>	mm	0.211	0.619*	0.612*
<i>internal environment dependent</i>	nn	-0.028	0.839	-0.247
<i>external environment dependent</i>	oo	0.224	0.736	0.259
<i>easily understood</i>	qq	0.114	0.094	0.750
<i>easily implemented</i>	rr	0.142	0.025	0.881
Eigenvalue		3.103	2.696	2.376
Pct of Var		25.86%	22.47%	19.80%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.647; Bartlett's Test of Sphericity = 314.895 with Significance = 0.00.
 *variables excluded from analysis due to similar (high) factor loadings on factors 2F and 3F.

Factor 1F was the combining of stage 1 factors 3E and 4E. As previously suggested this infers that the differences cited between factors 3E and 4E were negligible rather than significant. Each factor

1F variable had its own distinct independent meaning, but when the five variables were considered together, it was apparent that the factor contained some elements relating to "duration", and some elements relating to "scope". To avoid forming a cumbersome and lengthy new explanatory variable, but also to preserve the individual variable significance, the variables were split into two sub-factors on this differentiating basis. Wishing to express the new explanatory variables in a positive context, variables *a one-off process (aa)*; *absolute (dd)* and *a limited function (gg)* were developed into the new explanatory variable **TQM is a broad and permanent approach**, and variables *static (bb)* and *ad hoc (ee)* were developed into the new explanatory variable **TQM is an active and systematic approach**.

Factor 2F was the same as previous factor 2E, but with the clearly misplaced variable (*NOT*) *a proven method of improving business results (y)* removed. This variable's absence substantiated the previously suggested new explanatory variable **TQM is a universally applicable approach**. Factor 3F comprised one of the suggested sub-factors (variables *easily understood (qq)* and *easily implemented (rr)*) of stage 1 factor 1E. Now in an independent state, these variables were developed into the new explanatory variable **TQM is a challenging approach**.

Table 6.5.3c summarises the new explanatory variables that were formed and their component variables.

Table 6.5.3c. Summary of new explanatory variables - General characteristics of TQM

	variable	new explanatory variable / observation
factor 1F (sub 1):	<i>a one-off process (aa)</i> <i>absolute (dd)</i> <i>a limited function (gg)</i>	TQM is a broad and permanent approach
factor 1F (sub 2):	<i>static (bb)</i> <i>ad hoc (ee)</i>	TQM is an active and systematic approach
factor 2F:	<i>organisational dependent (ll)</i> <i>internal environment dependent (nn)</i> <i>external environment dependent (oo)</i>	TQM is a universally applicable approach
factor 3F:	<i>easily understood (qq)</i> <i>easily implemented (rr)</i>	TQM is a challenging approach

6.5.4 Summary and further observations of factor analysis of the organisational role of TQM

Through a two stage factor analysis twenty nine of the original forty three statements describing the organisational role of TQM were translated into twelve underlying theoretical constructs. It

must be stressed that the factor analysis procedures were used only as a guide. The formation of the new explanatory variables was underpinned by meaningful relationships (causal or associative) identified between them. The meaningful conversion of this proportion of input variables can be considered highly successful.

In section 1.1 it was argued that TQM remains open to a wide variety of interpretations. A lack of consensus had been identified relating to five specific facets of the TQM concept: elements, implementation, management style, channels that facilitate culture change and range. This view was not unique to the author. This investigation has helped to bridge the consensus gap for one of the five facets. Three of the new explanatory variables developed relate directly to the "range" of TQM. Two relate to its external range of applicability. Firstly, in terms of its situational applicability, **TQM is a universally applicable approach** (factor 2F). Secondly, in terms of its durational applicability, there is no evidence here to suggest that TQM is anything other than a **broad and permanent approach** (factor 1F (sub-factor 1)). Indeed, TQM was considered by many organisations as a defensive (defend existing position against new competitors), an offensive (improve competitive capability and gain competitive advantage) and a change strategy (introduce wide-ranging organisational change) (chapter 5 section 5.2). Further, during the stage 1 analysis it was suggested through consideration of the constituent variables of factor 1C, that in terms of its operational applicability, TQM is a flexible, thorough and all-encompassing approach.

The third new explanatory variable relating to "range of TQM" was factor 3D - **TQM is a management model / paradigm**. This was a significant finding, suggesting that TQM is a new pattern of management challenging the main competing models that have emerged in the West.

CHAPTER 7: STRATEGIC ROLE OF TQM

7.1 Introduction

In Delphi round 1 questionnaire participants were asked if they thought that TQM in their organisations was linked with the *corporate* strategy of the organisation. Ninety two percent of participants (47) replied positively, only six percent responded negatively¹⁸¹. This confirmed findings in chapters 5 and 6 that the introduction of TQM was a deliberate strategic decision for most organisations in the sample. TQM was introduced for strategic rather than operational reasons.

Nevertheless, it would be un-wise to conject about the nature of the relationship between TQM and strategy. It would be unwise to assume for example either that TQM is an element on the strategy formation process agenda, or that strategy formation is an element of TQM. Review of the TQM literature (section 2.10.2.4) suggested that examination of the relationship between TQM and the strategic level processes and considerations of an organisation appears to have been largely neglected. Thus, having established the existence of a strong link between TQM and *corporate* strategy, it was deemed necessary to ascertain what role TQM plays in relation to strategy within the best practice organisations. This issue is addressed within this chapter.

The remainder of the chapter comprises five sections. In section 7.2 the method of investigation is described. The findings are presented in two sections: *conceptual focus* (section 7.3) and *operational focus* (section 7.4). This format mirrors the format of the strategy investigations of the Delphi round 2 questionnaire.

Conceptual focus refers to the influence that quality and TQM have on shaping, defining and enabling the delivery of strategy and

Operational focus refers to the strategic issues that TQM addresses in the best practice TQM environment.

In these two sections, the logic underlying the perceived agreement ratings is proposed and

¹⁸¹As expected, with such a high proportion of positive responses, χ^2 test of significance showed no significant difference in views according to either *size* or *class* of organisation.

explained. In section 7.5 the influence of *size* and *class* of organisation on the strategic role of TQM is discussed. In section 7.6 the results of factor analysis procedures applied to the strategic roles of TQM are discussed.

Prior to the design of the survey instrument a *Reference of key terms* was compiled by the author from the relevant strategy literature. The purpose of this was to clarify the broad meaning of a number of key terms and general strategy concepts used in the investigation and referred to in the ensuing discussion. This is presented in appendix 7.1.

7.2 Method of Investigation

A focus group session was used to generate a list of statements describing the possible relationships between strategy and TQM. The group comprised research colleagues with experience in the field of TQM. The list generated was then segmented into two types of statements. The first comprised those pertaining to the *conceptual focus* of TQM with strategy and the second comprised those pertaining to the *operational focus* of TQM with strategy. The two lists were refined by the author by (i) eliminating the duplication of statements with the same meaning and (ii) combining and/or redrafting statements with similar meanings. A review of the TQM literature helped to ensure that a potentially important relationship had not been overlooked. The survey instrument, and hence statements, were externally validated by the committee of five known and experienced TQM practitioners from industry. Their comments, criticisms and recommendations were considered by members of the original focus group and the final version of the survey instrument was drafted. Participants were asked to indicate their level of agreement with each statement in the two lists on a five-point Likert scale¹⁸².

7.3 Conceptual Focus

As was mentioned previously, *conceptual focus* refers to the influence that quality and TQM have on shaping, defining and enabling the delivering of strategy. To investigate this influence, three lines of enquiry were pursued through the Delphi round 2 questionnaire. Firstly as described above, participants were asked to indicate their level of agreement with the statements describing the possible *conceptual* relationships between strategy and TQM. Secondly, participants were asked if their organisation regarded **product, process and service quality as a generic business**

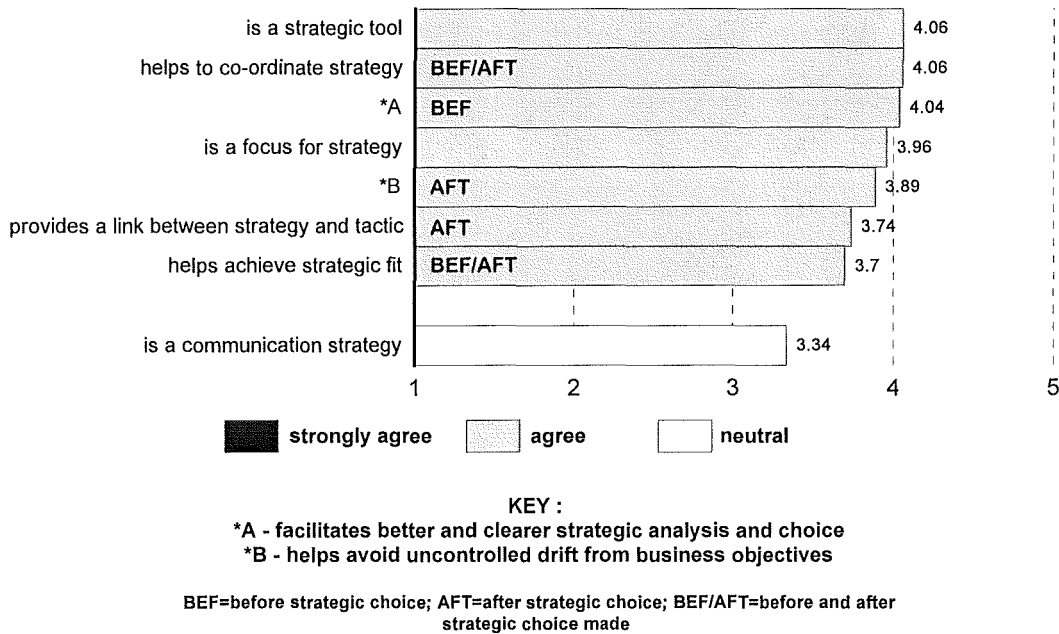
¹⁸²(5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree and 1 = strongly disagree).

strategy. Thirdly, participants were asked if their organisation regarded TQM as a *generic strategy underpinning / supporting other efforts of the organisation*. Findings for each of these three investigations are presented in the following three sections respectively.

7.3.1 Conceptual relationships (statements) between strategy and TQM

The procedure described in section 7.2 resulted in a list of eight statements describing possible *conceptual* relationships between TQM and strategy. Figure 7.3.1 shows the calculated mean value for each statement, which are ranked in descending mean value order.

Figure 7.3.1 - Mean scores for proposed *conceptual* relationship statements



Two general observations can be made. Firstly, the mean agreement values for the eight statements all fell in the upper half of the five point scale. Seven of the statements had mean values >3.5 and <4.5 indicating "agreement". Only one statement had a mean value indicating a "neutral" view. Thus, the sample clearly agreed that TQM has a wide-ranging role at the organisations' strategic level, even though, none of the statements received a mean value that would indicate "strong agreement".

Secondly¹⁸³, if we say that the organisation's strategy has been defined once the strategic choices have been made, then the eight statements can be classified according to the strategic phase to which they relate: *before* the strategic choices have been made; *after* the strategic choices have been made; or, to *both before and after* the strategic choices have been made. This could easily be done for five of the eight statements. The two statements *TQM is a strategic tool* and *TQM is a focus for strategy* were difficult to classify. However, transposing these classifications on to figure 7.3.1 suggested that TQM's influence on strategy *before* the strategic choices have been made is marginally stronger than its influence *after* the strategic choices. It would be unwise to attach any major significance to this observation, however, it does nevertheless confirm that the introduction of TQM goes beyond enabling the delivery of strategy, that is, it has a major influence also on the shaping and defining of strategy.

In the following discussion, drawing on examination of appropriate literature, the additional documentation supplied by the participants and internal logic of the author, the logic underlying the primary findings is proposed and explicated¹⁸⁴.

The best practice sample "agreed" that TQM is *a focus for strategy*. In section 6.3.1, the sample expressed a similar level of agreement that one of the "purposes of TQM" was that it provided the organisation with *a set of core values*. The author proposes that there is a direct link between the two in the form of a causal relationship from the latter to the former:

as a set of core values, TQM provides focus (direction) for strategy.

Quinn (1996) proposed that effective strategies develop around a 'few key concepts and thrusts' which give them cohesion, balance and focus, and that some thrusts are temporary, while others are carried through to the end of the strategy. Temporary thrusts are generally related to the specific details of actual product or service offerings. These specific details can change rapidly as a result of increased customer expectations for change and innovation in the goods and services they purchase. For this reason temporary thrusts are largely unavoidable. The more permanent thrusts are related to the generic details of the organisation's market offering(s). As such, these permanent thrusts require a strategic focal point, a point on which the efforts across the

¹⁸³with reference to the definition of strategy developed and defined in appendix 7.1.

¹⁸⁴The sequence in which the *statements* are discussed broadly follows their ascending perceived importance. Where appropriate this sequence is altered so that *statements* which share the same underlying logic can be discussed accordingly or to aid the flow of the discussion.

organisation (e.g. business units, functions and individuals) can converge. Hamel and Prahalad (1993) proposed that in many companies, probably most, there is no strategic focal point. The author proposes that through the adoption of TQM core concepts (the *set of core values*) as strategic values, TQM provides the organisation with such a focal point. That is to say it provides *a focus for strategy*.

These strategic values must not be confused with the organisation's strategic goals and objectives. It is entirely possible that an organisation devoid of strategic values can define, pursue and realise its strategic objectives. The distinction is that strategic values transcend goals and objectives - they express convictions and expectations common to all of the permanent and temporary thrusts. Therefore, in their absence an organisation must contend with all of the problems associated with chasing temporary short-term thrusts: confusion, trade-offs and duplication of effort to name but a few. Further, unlike temporary thrusts, an organisation has a clear choice whether or not it adopts strategic values that can become enduring to the organisation's strategic direction.

The best practice sample "agreed" that TQM *helps to co-ordinate strategy*. It was proposed earlier that effective strategies develop around a 'few key concepts and thrusts'. However, all organisations, in pursuit of these few thrusts, have to develop multiple goals and objectives that will exist in a complex hierarchy (Simon, 1964)¹⁸⁵. The hierarchy is a consequence of the cascade of goals and objectives to the operational (activity) level. It is extremely unusual for such a complex hierarchy of goals and objectives not to require an equally complex pattern of activities¹⁸⁶. These requirements have implications for one of the most important functions of strategy - *to guide and integrate the diverse administrative and operating activities of the organisation* (Hofer and Schendel, 1986).

The author would suggest that TQM's influence on *helping to co-ordinate strategy* occurs both before and after the strategic choices have been made. The author would suggest that without TQM, the various components of the organisation may lack guidance as the goals and objectives are cascaded down to the operational level, but that more importantly, without the necessary coordination that TQM can provide, sub-component objectives may begin to take precedence over total organisational objectives. This is a situation that almost always dissipates organisational

¹⁸⁵Simon, M. A. (1964), "On the concept of organisational goals", *Administrative Science Quarterly*, 1964-1965, pp. 1-22, cited in Quinn (1996, p. 3).

¹⁸⁶Even though it may be argued that, the extent of this complexity is largely a function of the nature of the organisation's business and the size of the organisation.

resources and that occasionally even threatens organisational effectiveness (Hofer and Schendel, 1986). Organisational units must be coordinated to support the intended thrust patterns or else the total strategy will fail (Quinn, 1996).

In the first instance, it is TQM's organisational role as *a framework for company-wide improvement efforts* that helps to coordinate strategy. As was discussed in section 6.3.2, a framework provides an essential structure through which strategic considerations / improvement efforts can be systematically identified, prioritised and actioned. TQM also makes a number of more specific operational provisions that help to coordinate strategy. At this juncture it is sufficient to note that they comprise: mission/vision dissemination; top-down bottom-up strategy (policy) deployment and improved communication. Top-down bottom-up strategy (policy) deployment is especially important for coordinating strategy vertically within the organisation. These provisions are discussed in detail in forthcoming sections 7.4 and 9.2.

The sample "agreed" that TQM *facilitates better and clearer strategic analysis and choice*. It may be argued that the overriding purpose of strategy is to answer two basic questions: *are changes required ?* and/or *would changes be beneficial ?* To answer these questions an organisation needs to have a clear picture of what it would be changing from and, what it would be changing to. It must also recognise that the validity of the answers to these questions is likely to be transient. That is to say, due to the changing nature of the external environment, they may not be valid for long. With this in mind it is logical to assert that the more the organisation knows about the environmental factors it must interact with, the greater the likelihood that the answers it reaches will remain valid. Rumelt (1996) proposed that it is only once an organisation has obtained a good grasp of the basic economic foundation that supports and defines the business, that it is possible to study the consequences of key trends and changes. Without such an understanding there is no good way of deciding if change in strategy is necessary and, what kinds of changes are most crucial.

In this respect, the author proposes that the influence of TQM helps the organisation to avoid making premature and/or flawed judgements about future direction. This is because it changes the mode of strategic analysis and choice. That is to say it alters the emphasis that is placed on the various inputs to strategy development and, it alters the way in which they are used.

Clear strategic analysis and choice should enable the organisation to answer two specific and

crucial questions, which Quinn (1996) articulated as:

does the strategy concentrate superior power at the place and time likely to be decisive ? and

has the strategy defined precisely what will make the enterprise superior in power - that is, "best" in critical dimensions - in relation to its opponents ?

The mode of strategic analysis and choice that is required to answer these questions is fundamentally different from the traditional approach of setting financial goals and then looking to see whether market conditions will support the numbers. Butz Jr (1995) pointed out that the classic models for strategic planning approach - beginning with performance objectives (the majority of which are expressed in financial terms), then examining customers, competitors and the environment to find ways to achieve the numbers - has two faults: (i) it is based largely on projections of current activities and (ii) it assumes that the company, not its customers, can ensure its success. Two other major faults of the classic models can be added to Butz Jr's (1995) observations. Firstly, that examining customers, competitors and other environmental factors with reference to previously defined financial performance objectives inherently tends to limit or bound the scope of their examination, and this can be very dangerous¹⁸⁷. Secondly, the classic models tend to overlook careful examination of the organisations' ability to make any changes to its operations that would consequently be necessary. In other words, the classic models tend not to answer the latter of the two questions articulated by Quinn (1996).

It would appear that in a TQM environment the mode of strategic analysis and choice is fundamentally different. Two of the three highest rated "purposes of TQM" (section 6.3.1) were *about ensuring customer satisfaction* and *about fostering competitive advantage*. In the best practice TQM environments major emphasis is placed on consideration of the customer, the competitor and the environment. Further, evidence suggests that the sequence in which these inputs are used when making strategic choices in a TQM environment is essentially the reverse of the classic approach. The findings in section 8.2 would lead the author to propose that the means of collecting the strategy inputs is significantly influenced by TQM. The basis for collection of inputs in classical models of strategy development can be described as 'periodic audits', often

¹⁸⁷To illustrate this point consider the situation when the performance objectives that have been set are actually very easily attainable. In this situation, the perceived validity of the strategy may be confirmed quickly but before the factors that may adversely affect the organisation in the future have actually been discovered.

performed by a small executive team. In a TQM environment the basis for the collection of these inputs can be described as 'continuous appraisal'. The organisation is therefore able to start the strategic choice process with existing explicit knowledge of (a) the sources of wealth realisation (customers) and (b) the barriers to wealth realisation (competitors), and that is not limited in scope by pre-determined financial goals. Further, due to the various 'self-appraisal' mechanisms that are inherent to TQM organisations, the organisation is able to add to the above considerations explicit knowledge of its capabilities for wealth realisation. An added benefit is that information collected in this manner tends to be objective versus subjective.

Thus, the influence of TQM extends the scope and detail of the inputs to strategic analysis and choice, and the strategic analysis and choice process in effect takes the form of continuous self-assessment. As Butz Jr (1995) pointed out, after establishing a customer-value-based strategy, a financial analysis will then ensure that adequate [financial] performance can be attained.

The best practice sample "agreed" both that TQM *helps to avoid uncontrolled drift from business objectives* and that TQM *provides a link between strategy and tactic*. Clearly defining objectives and goals is not a guarantee that they will be followed. 'Deployment' tends to be an infinitely more complex task than 'definition'. This is especially so when specific goals and objectives of subordinate units may change in the heat of campaign or competition, but the overriding objectives of the strategy for all units must remain clear enough to provide continuity and cohesion for tactical choices during the time horizon of the strategy (Quinn, 1996). Typical dangers of uncontrolled drift from business objectives are: squandering resources on competing projects; potentially lucrative ideas being abandoned prematurely (Hamel and Prahalad, 1993) and constantly shifting priorities. Their existence, particularly when in combination, can lead to the very core definition of business changing frequently. According to Hamel and Prahalad (1993) even infrequent changes to subordinate unit's goals and objectives are often enough to confuse both investors and employees and, to compromise the potential gains from the cumulativeness of month-by-month, year-by-year strategic decisions. All goals and objectives should be understood and decisive (Quinn, 1996) - that is, if they are achieved they should ensure the continued viability and vitality of the organisation vis-a-vis the organisation's competitors.

The author would suggest that *providing a link between strategy and tactic* is essentially the means of *helping to avoid uncontrolled drift from business objectives*. That is to say TQM *helps to avoid*

*uncontrolled drift from business objectives by providing a link between strategy and tactic*¹⁸⁸. A sound strategy should be readily absorbable into the culture of the firm - meaningful for day-to-day as well as for long-range actions, decisions and plans (Schonberger, 1992). When there is the absence of a link between strategy and tactic, non strategic projects and other efforts can easily displace the strategic improvements that are needed to achieve positive progress. The author proposes that the influence of TQM enables the organisation to make a permanent link between the goals and objectives it pursues and the various operating plans that guide its day-to-day activities. It strengthens the links between objectives and the means to achieve those objectives. The principal mechanism that it uses to achieve this, the author would suggest, is policy deployment. This is discussed in more detail in section 9.2. The author would further suggest that it is partly by *helping to avoid uncontrolled drift from business objectives* that TQM fulfils its organisational role of *ensuring constancy of purpose*.

The sample "agreed" that TQM *helps achieve strategic fit*. By 'strategic fit' the author refers to the match between the offering the organisation is making to current and potential customers and the capability of the organisation to deliver that offering. It is important to stress that 'offering' is used here in its broadest sense. It refers not just to the actual product or service, but to all the associated attributes that can affect the customer's perception of the product/service package. The strategic choices that the organisation makes must neither overtax available resources nor create unsolvable sub problems (Rumelt, 1996). As such, 'fit' not only refers to the quantity of resources required but also to the appropriateness of the resources. Ultimately, organisations must effect a fit between their resources and the market characteristics and opportunities they pursue. Grant (1991) noted that strategic failure is often due to strategies which extend the firm's activities beyond the scope of its capabilities. Conversely, the organisation may not make best use of its capabilities - it may fail to utilise its capabilities fully or effectively. It was argued previously that TQM *facilitates better and clearer strategic analysis and choice*. Furthermore, it enables the organisation to evaluate the relationship between the company and its competitive environment in a frequent systematic way. This 'frequent and systematic' evaluation comprises a number of the sub-elements of TQM (section 8.2) which combine to create what is in effect a 'bottom-up' component of strategy describing the organisation's capabilities. Thus, the knowledge is invariably in place to critically appraise the feasibility of closing potential gaps between the strategic alternatives and the

¹⁸⁸A point of clarity that needs to be made is between strategy and tactic. According to Mintzberg (1996), while "strategy" refers to the important things, "tactic" refers to the details. Quinn (1996) elaborated further on the difference to the effect that: *tactics* are the short-duration, adaptive, action-interaction realignments that opposing forces use to accomplish limited goals after their initial contact; *strategy* defines a continuing basis for ordering these adaptations toward more broadly conceived purposes.

organisation's capabilities.

The proposed conceptual statement *TQM is a communication strategy* received a "neutral" rating by the participants. It was found however that *communication* was a strategic issue that is addressed by TQM (section 7.4 - *Operational focus*). These findings suggested that to assert that TQM is a communication strategy would be to take far too narrow a view. TQM should not be seen primarily as a communication exercise - communication is just one of a number of strategic issues addressed by TQM.

TQM is a strategic tool was one of the two highest rated statements describing the conceptual relationship between TQM and strategy. The preceding discussion has attempted to explicate the importance of TQM to the strategy processes by explaining the logic underlying the primary data. It may be argued that TQM has a positive influence on strategic analysis, strategy development, strategy evaluation and strategy realisation. The findings suggest that a key influence of TQM on the strategy process is that it combines together what are often referred to as the top-down and the bottom-up strategic approaches. This blend is extremely important with respect to *facilitating better and clearer strategic analysis and choice, helping to coordinate strategy, and providing a link between strategy and tactic*. As Hamel (1996) explained:

"A top-down process often achieves unity of purpose: the few who are involved come to share a conviction about the appropriate course of action and can secure some degree of compliance from those below. A bottom-up process can achieve diversity of perspective: many voices are heard and many options are explored. But unity without diversity leads to dogma, and diversity without unity results in competing strategy agendas and the fragmentation of resources."

The author shares the view, with Schonberger (1992), that although the TQM principles won't make the strategic decisions and choices for an organisation, they can improve the odds that good decisions will be made. They can also improve the likelihood that the decisions and choices will be deployed and pursued effectively over the strategic time horizon. It would appear that in the benchmark TQM organisations' view, the basics of TQM can effectively govern much of what conventionally required executive-level strategic planning and goal-setting. It is reasonable to propose that it is for these reasons that the participants "agreed" that, above all, *TQM is a strategic tool*.

Looking at the arguments put forward in this section led the author to synthesise a map of the

apparent principal causal relationships between the statements describing TQM's strategic conceptual focus and the statements describing the organisational role and span of application of TQM (chapter 6). This would be useful in later stages of the theory development (chapter 10). The map is given in appendix 7.3.1

7.3.2 *Product, process and service quality as a generic business strategy*

Ninety two percent of participants (43) responded positively when asked if their organisation regarded product, process and service quality as a *generic business strategy*. Only eight percent (4 participants) responded negatively¹⁸⁹. A very small number of the participants responding positively chose to expand on how they saw product, process and service quality as a *generic business strategy (GBS)*. This small number precluded detailed analysis for consensus building purposes. However, the following three responses (table 7.3.2) provided salient illustrations of how organisations operationalise these three aspects of this *GBS*.

In the Reference of key terms (appendix 7.1) business strategy was differentiated from corporate strategy. Business strategy primarily addresses how an organisation should compete in its chosen market positions. Essentially then, the positive response would indicate that the best practice organisations believe that within their chosen market positions, "quality" along all three major competitive dimensions of product, process and service should be the source of competitive advantage.

Table 7.3.2 - Illustration of how organisations operationalise product, process and service quality as a generic business strategy

	PRODUCT	PROCESS	SERVICE
case 1:	through ISO9000	through Total Quality Speed Initiative	through customer satisfaction
case 2:	new product development (to keep ahead of, and excite the customer)	putting in place structures which manage via key business processes rather than functions	the denominator for each of the organisations strategic elements
case 3:	product range expansion via entry into new areas	maintaining a strong technology base	service and reliability - customer service and business support, closely linked to plants

¹⁸⁹ χ^2 test of significance at 95 percent confidence indicated that this findings was not influenced by either *size* or *class* of organisation.

7.3.3 TQM as a generic strategy underpinning / supporting other efforts of the organisation

Ninety four percent of participants (44) responded positively when asked if their organisation regarded TQM as a *generic strategy* underpinning / supporting other efforts of the organisation. Only three participants responded negatively¹⁹⁰. Approximately one quarter of the participants who responded positively chose to expand. Again, this number precluded detailed analysis for consensus building, but nevertheless offered valuable insights about why TQM should be regarded as a generic strategy underpinning or supporting other efforts of the organisation. The responses are shown in table 7.3.3 below.

Table 7.3.3 - Reasons why participants regard TQM as a generic strategy underpinning or supporting other efforts of the organisation

- | | |
|----------|--|
| case 1: | TQM is an underlying consideration in the planning and implementation of the other strategic initiatives and the programs that support them. |
| case 2: | Total quality is about continuous improvement of all aspects of the business. |
| case 3: | A true TQM focus will focus on improving product quality, service quality, time and cost in parallel; not one at expense of the others. |
| case 4: | TQM is reflected in the way our management work, cascading through the organisation by example. |
| case 5: | TQM is an integrating strategy across our diverse business. |
| case 6: | The TQM process is used as the methodology, or the basis for actually running the company. |
| case 7: | TQM is the foundation of our business strategy. It is the creation of vision and core values. |
| case 8: | TQM is regarded as being the driver of all our efforts. |
| case 9: | The principles of TQM (four - customer focused quality) underpin our commitment to quality. |
| case 10: | TQM is seen as the way we must run our business. It is the method of following business process across functional boundaries. |
| case 11: | The need for continuous improvement through a structured approach is common through the organisation - the concept of a set of clear improvement goals underpinned by detailed improvement projects provides a unifying process. |
-

Two salient observations can be made from these responses. Firstly, many of TQM's organisational roles that were deemed important by the participants (section 6.3) appear within these statements: *a set of core values* was evident three times; *a way of working* was evident three times and *a framework for company-wide improvement efforts* was evident three times. *An integrating device* and *about ensuring constancy of purpose* were also evident.

¹⁹⁰ χ^2 test of significance at 95 percent confidence indicated that this findings was not influenced by either *size* or *class* of organisation.

Porter (1980) identified three generic strategies: overall cost leadership; differentiation and focus. Juxtaposing the findings in this section against these three generic strategies shows that TQM does not fall directly into any single one of them. However, the strategic influence of TQM exhibits the characteristics of the 'differentiation' strategy more closely than the 'overall cost leadership' or 'focus' strategies.

According to Johnson and Scholes (1989) 'differentiation' can be achieved in many different ways within the value chain, or in terms of the linkages with the value chains of suppliers channels or customers, and often it is linkages between different activities within an organisation's value chain which are of most importance in sustaining advantage. For the best practice sample, the simultaneous pursuit of product, process and service quality would appear to provide one strong focused linkage.

Johnson and Scholes (1989) further proposed that new strategic directions may well provide an opportunity to strengthen these linkages, or even become a new basis of differentiation from other providers. The motivations for introducing TQM discussed in section 5.2 and the evidence presented here would suggest that TQM was introduced by the best practice organisations to give them a new strategic direction. The discussions presented in section 7.3.1 suggested that the influence of TQM ensures that deliberate choices are made about the type of competitive advantage the organisation seeks to attain. The author would suggest that for best practice organisations, these deliberate choices pertain directly to product, process and service quality, which then provide the new basis of differentiation from other providers. Improving 'quality' may be an aim for the majority of organisations, however, the analysis presented here would suggest that organisations become 'best practice' when they recognise 'overall quality leadership' through TQM as their underlying generic strategy.

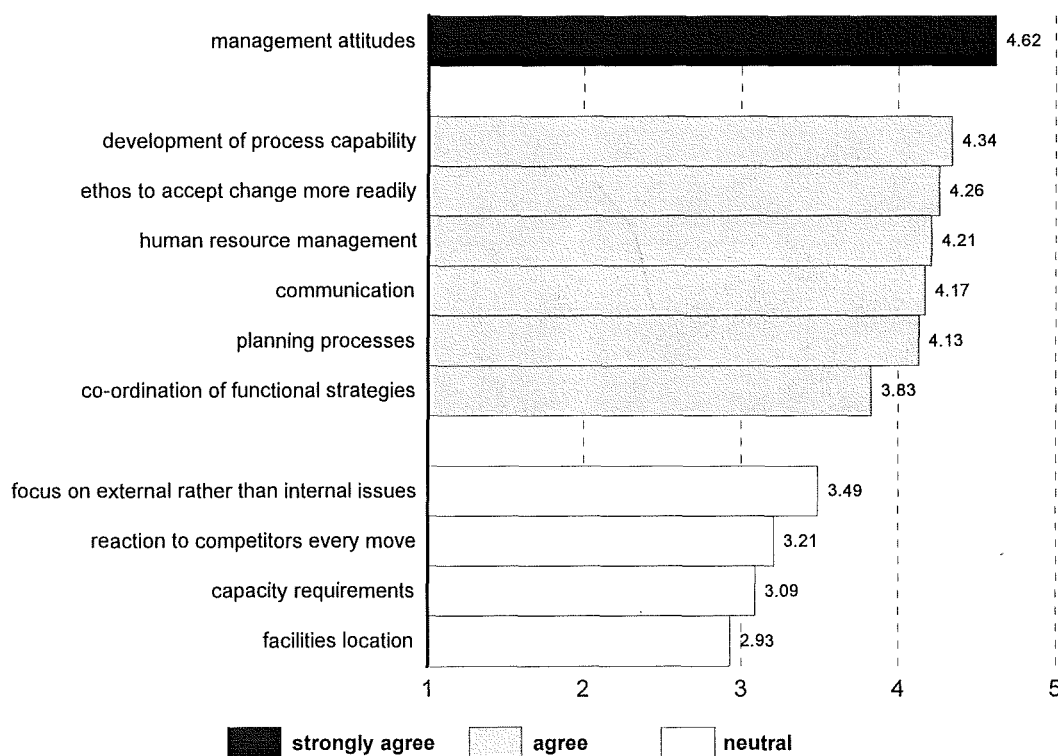
7.4 Operational Focus

This section reports the best practice sample's viewpoint on important elements of strategic management affected by TQM. The procedure described in section 7.2 resulted in a list of eleven statements describing possible strategic issues¹⁹¹ addressed by TQM. Figure 7.4 shows the calculated mean values for each statement, which are ranked in descending mean value order.

¹⁹¹A definition of a 'strategic issue' is given in appendix 7.1.

The figure shows that the majority of the statements fell towards the high side of the five point scale. Nevertheless, the distribution was quite wide. Mean values ranged from 2.93 up to 4.62. Participants were in "agreement" with six of the strategic issues and expressed a "neutral" view for four of the strategic issues. For one strategic issue, *management attitudes*, the sample were in "strong agreement" that it was directly addressed by TQM.

Figure 7.4 - Means scores for proposed strategic issues addressed by TQM



In the following discussion, drawing on examination of appropriate literature, the additional documentation supplied by the participants and internal logic of the author, the logic underlying the primary data findings is proposed and explicated¹⁹².

The "strong agreement" expressed by the participants that TQM directly addresses the strategic issue of *management attitudes* suggests that in the best practice TQM organisations the attitude of management can have a major impact on the success of the strategy. More importantly, literature has suggested that attitude influences both the process and content of strategy, and that TQM

¹⁹²The sequence in which the *statements* are discussed broadly follows their ascending perceived importance. Where appropriate this sequence is altered so that *statements* which share the same underlying logic can be discussed accordingly or to aid the flow of the discussion.

concepts and practices influence management attitudes [Mintzberg (1987), Kim and Mauborgne (1997), Butz Jr (1995), Schonberger (1992), Harber et al (1993) and Fredendall and Robbins (1995)]. That is, by influencing management attitudes TQM also influences the organisation's strategic mindset. The strategic role of TQM as described by *conceptual focus* is not unsusceptible to digression. Departure from a set of ideals is an inherent threat for any organisation, especially when change is a necessary characteristic of business operations. The author would propose that realisation of the *conceptual focus* of TQM on strategy is dependent on the management of the organisation creating, allowing, encouraging and most important of all practising the appropriate behaviours and attitudes. Three important ways in which TQM concepts and practices positively influence management attitudes in this respect were identified. Each is discussed in turn.

The first influence concerns senior management attitude towards lower level management. In section 6.3.1 it was reported that *about ensuring customer satisfaction* and *about ensuring constancy of purpose* were perceived by the sample to be important purposes of TQM. Senior management attitudes towards lower level management has an important connection in this respect.

Middle and junior managers have the challenge of gearing the organisation to meet customer needs, wants and expectations. It is primarily their responsibility to encourage the majority of the members of the organisation - their subordinates - to focus on and satisfy the customer. If they are to do this effectively, it is important that they too are motivated and that their performance is evaluated based on these same dimensions. However, as Butz Jr (1995) has argued, the performance of many managers continues to be measured by financial numbers. This can lead to sub-optimisation, with managers preferring to meet financial goals first and give the customer what is left. That is to say, there is a discontinuity between how they are motivated and what is expected of them in the wider sense. This 'expectation - motivation' gap often extends further. It was inferred under TQM *helps to achieve strategic fit* (section 7.3.1), that the long term success of an organisation is not only dependent on its ability to identify, acquire and build competency in strategic resources, but also on its ability to recognise and modify or eliminate non-value adding resources. It was noted that strategic failure is often due to strategies which extend the firm's activities beyond the scope of its capabilities. However, as Whitney (1996) noted, while many companies motivate and reward managers to build, expand and grow, they typically do not motivate and reward for the cutting back that makes growth and expansion possible, and the result is a confusion and tension that is not strategic. Evidence suggests that TQM directly addresses these contentious issues (section 8.2.4). That is, TQM changes the attitude of senior managers

towards the way performance of lower level managers are assessed and rewarded. Consequently, the likelihood of senior managers bestowing confusing or conflicting goals and expectations on their subordinate managers is significantly reduced.

The second influence concerns managers' perception of the extent of their's and other's role in strategy formation and in strategy execution. In the traditional model of strategy creation, the thinkers are assumed to be at the top and the doers down below (Hamel, 1996). This mindset can lead organisations to view strategic planning as an advisory or staff function, called in to tackle specific projects but somehow removed from the action themselves. As has been suggested previously (section 5.4.4 and section 6.3.2), in reality the thinkers or sources of strategic knowledge equally lie deep in the organisation and, the senior managers should strive more to facilitate the means of doing as opposed to simply controlling what needs doing.

It may be argued that in contrast to the traditional model of strategy, the scope of both management's and their subordinates roles are significantly expanded in a TQM environment. In effect by changing managements' attitude towards participation (as was evidenced in sections 5.4.4 and 5.4.5) TQM enables the major resource holders (management), and their subordinates, to converge at the same place at the same time (Hamel, 1996) for the purposes of both creating and executing strategy. To use a thematic analogy, Cummings (1993) noted the following about ancient Athenian's strategy:

"decision makers at all levels of the corporation were expected to think strategically, in accordance with the behaviour exhibited by those in leadership roles at higher levels of the Athenian system. [equally] *stratego* [leaders] were expected to both direct and take part in the thick of battle for a *strategos* not to play an active combat role would have resulted in a significant diminution in the morale of those fighting for his tribe."

By engaging managers in a learning process alongside those at the coalface, the élitist approach to strategy creation that engenders little more than compliance from employees can be quashed. By changing management's perception in this way, both strategy creation and execution tends towards an organisation-wide process.

The third influence concerns managements' attitude towards change. It is reasonable to assert that very rarely does change for the better happen by chance, rather, it must be instigated. Furthermore, that management's attitudes towards instigating change is largely dependent on two factors: (i)

management's ability to question and (ii) management's attitude towards being questioned. As was discussed in section 7.3.1 with reference to *facilitating better and clearer strategic analysis and choice*, TQM enhances management's ability to question the *status quo*. TQM also enhances management's ability to be questioned. Drawing on the insights of other researchers Miller (1994) explained that in some organisations challengers are seen by management as rebels, because, the policies they threaten are both sacred and highly rewarding to those in management. However, when wide-ranging view points are discouraged it is easy for an atmosphere of 'groupthink' to emerge, which can quickly narrow the concerns and capacities of the organisation [Janis (1977)]. When this happens major assumptions about customers and markets become "institutionalized" - that is, they are accepted as given [Zucker (1977)] and the organisation becomes complacent. The situation can be especially dangerous when the organisation has been enjoying a long period of success. Success can breed management over-confidence. Managers perceive that they truly understand and know how to control their environments [Meyer and Starbuck (1991) and Starbuck and Milliken (1988)] and become reluctant to consult or listen to subordinates or to look at what their competitors and customers are doing [Kets de Vries and Miller (1984)]. Evidence has suggested that TQM leads to a change in the mindset of managers from controllers to facilitators (section 5.4.5). Furthermore, that TQM improves the visibility of managers (section 5.4.2) and the approachability of managers (section 5.4.5) thus enabling them to harness the competence and expertise of all potential contributors to strategy formation. In this way TQM helps to remove management's natural need or tendency to attribute success to some pet policy, strategy or process, which as a result becomes resistant to change (Miller, 1994).

The third most highly rated strategic issue that the participants "agreed" TQM directly addresses was *ethos to accept change more readily*. It is reasonable to suggest that when management have their ability to question enhanced and, adopt a positive attitude towards being questioned, their attitude towards accepting change would also be enhanced. Furthermore, that acceptance of change as a norm underpins the longevity of any major process for improvement, and that management's and employees attitude towards change is generally a function of their perception of change. Subjectivity, lack of confidence and unwillingness to face reality (Andrews, 1996) brought about by isolation from strategic thinking may make it difficult for employees to relate fully to the organisation, may create a negative perception of change, and the usual consequence is the procreation of resistance to change. The author would propose that including employees in the strategy development process makes it extremely easy for them to relate to the strategic goals of the organisation and, that one of the best ways to get people to accept change is to allow them

to effect/lead change. It must be noted at this juncture that resistance to change does not necessarily mean that there is no desire to change. The two are not synonymous. In addition to helping overcome resistance to change, by changing management attitudes such that employees are involved in the strategy development process, TQM also helps the pro-change constituency that exists in every organisation to find its voice.

It would appear that the overall consequence of TQM's influence on the strategic issues of *management attitudes* and *ethos to accept change more readily* is to enable the organisation as a whole to challenge "strategic orthodoxy".

The participants "agreed" that TQM directly addresses the strategic issue of *development of process capability*. The author would suggest that this was because:

- (a) TQM re-defines "process capability",
- (b) TQM enables an organisation to identify and reach consensus about its core capabilities and
- (c) the process of continuous improvement inherent to TQM enables an organisation to invest in core capability building.

It has been argued that organisations can no longer judge competitiveness, their own or their competitors simply in terms of the price performance of end products/services [Stuart (1993) and Heinz (1994)], and that the embedded skills that give rise to the next generation of competitive products/services cannot be "rented in" by out-sourcing and OEM-supply relationships [Prahalad and Hamel (1990)]. Rather, a key determinant of an organisation's ability to *foster competitive advantage* is its ability to configure its resources into core capabilities [Hayes et al (1988), Prahalad and Hamel (1990) and Bourgeois (1996)]. Core capabilities are considered important because they are unique to the organisation and tend not to diminish with use. It would appear that TQM makes a number of important interventions in this respect.

Firstly, because TQM re-defines "process capability". Traditionally, "process capability" was associated with assessment of the proficiency of manufacturing processes, primarily the capital equipment. In a TQM environment process capability has a much broader scope. A strong characteristic of a TQM environment is a *process focus*. This is confirmed in section 8.2.3 where it is reported that *process focus* was identified by the participants as one of the five important main elements of a TQM approach. *Process focus* centres on thinking about work activities as chains

of inter-dependent sub-processes that transform inputs provided by suppliers to output required by customers. As such, processes have clearly defined outcome requirements. There is no limit to the scope of a process either in terms of number of sub-processes or in terms of time - processes may comprise many different 'traditional functional activities' if necessary. Therefore, "process capability" in a TQM environment extends beyond the traditional manufacturing process viewpoint, to include all the resources (for example capital, human, information technology and supply) that are needed to transform inputs into the desired outputs through a defined process.

Secondly, because through the adoption of *process focus* and its associated tools and techniques (section 8.2.3), TQM enables the organisation to comprehensively identify its existing critical capabilities. A large proportion of the key resources for building core capabilities are often intangible in nature. Therefore, there is a need for mechanisms that appraise and emphasise the softer aspects of corporate resources in addition to the harder aspects. Evidence suggests that the tools and techniques associated with *process focus* provide these mechanisms (section 8.2.3).

Thirdly, because the participatory mechanisms inherent to the TQM approach (sections 8.2.4 and 8.2.5) enables the organisation to reach consensus about its critical capabilities. It is reasonable to suggest that even without TQM an organisation can identify approximately its central strengths and critical vulnerabilities because members of the organisation develop reasonable judgements about what the organisation can do particularly well. However, if widespread consensus can be reached about its core capabilities, their application to identified opportunity can be evaluated with a high degree of confidence.

Fourthly, because the participatory mechanisms (sections 8.2.3 and 8.2.4) and the process of continuous improvement (section 9.2) inherent to the TQM approach enables the organisation to invest in core capability building. Unlike physical assets, which do deteriorate over time, [core] capabilities are enhanced as they are applied and shared (Prahalad and Hamel, 1990). According to Grant (1991) core capabilities are built through a process of continuous improvement that may span up to a decade or longer.

The participants "agreed" that TQM directly addresses the strategic issue of *human resource management*. Human resource management (HRM) in the past was largely viewed and used as a support function in the organisation. It may be argued that under the influence of TQM, HRM becomes a strategic issue for the organisation. Detailed discussions about TQM's influence on the

management of human resources are presented in chapter 8, where it is reported that *people focus* was identified by the participants as one of five important main elements of TQM. In section 8.2.4 the sub-elements of TQM associated with *people focus* that were rated by the participants as important to an effective TQM approach are discussed. However, it is important at this juncture to highlight a number of important connections between strategy, HRM and TQM.

Butz Jr (1995) argued that nearly all organisations proclaim that employees are their most valuable asset, yet many behave quite differently. Consequently, the people who could contribute to determining customer value and know about the organisation's capabilities and weaknesses are often not included in the strategy process. The preceding discussion on the strategic issue of *management attitudes* hinted that in the definition and delivery of strategy, wide-ranging participation is advantageous. In fact, it is reasonable to assert that careful and thorough attention to the management of human resources is a pre-requisite underpinning an organisation's ability to *make better and clearer strategic analyses and choices*, to *coordinate strategy* and to *avoid uncontrolled drift from business objectives*.

The capacity to think creatively about strategy is distributed widely in an organisation. It is impossible to predict exactly where for instance a revolutionary idea is forming, and thus the net must be cast wide (Hamel, 1996). Especially at the periphery of an organisation, people are forced to be more creative because they usually have fewer resources, and they are exposed to ideas and developments that do not conform to the company's orthodoxies (Hamel, 1996). Further, managers need to look beyond the company's products to the intellectual skills, management systems (Rumelt, 1996), creativity and rigour that actually create a maintainable competitive edge. The main implication of this type of "HRM outlook" is the necessity for the organisation to develop and use mechanisms for identifying and deploying the "human core capabilities" of the organisation.

The second highest rated *methodological foundation* of TQM (section 6.3.2) was *harnessing the competence and expertise of people*. Based on personal observation and examination of additional documentation supplied by participants the author would propose that under the influence of TQM and its associated mechanisms, people throughout the organisation are asked, and enabled to:

- look deeply into potential discontinuities;
- help define and elaborate the company's core capabilities;
- ferret out corporate orthodoxies and

- help search for unconventional strategic options (Hamel, 1996).

It is reasonable to conclude that *communication* is recognised by the best practice TQM companies as a strategic issue that is directly addressed by TQM for the following reasons. Firstly, *communication* allows participation. Under the influence of TQM processes are developed that let people in the organisation with competence and expertise be heard. The strategy process benefits from diversity of opinion and as Whitney (1996) has pointed out, even from dissension. For example, when it comes to evaluating a customer's strategic importance, Whitney (1996) suggested that the more spirited the debate, the more informed the ultimate decision would be. Secondly, *communication* can improve clarity and understanding. Not only does TQM enable employees to communicate ideas to management, it enables management then to give helpful advice back to the employees (or teams) about where they should for instance deepen and expand their work. Moreover, where organisational priorities are clear, decisions are less likely to be seen as idiosyncratic or politically motivated. Without the full and clear knowledge that good communication can facilitate, managers may find themselves engaging in non-value adding contentious debate (Whitney, 1996). Thirdly, *communication* is an important influence on commitment. Butz Jr (1995) argued that many organisations do not effectively communicate the strategic plan when completed, and consequently there is little chance of gaining the level of support necessary for its successful execution. These interventions are basic commonsense attributes, but underpin the realisation of the majority of the conceptual relationships expounded in section 7.3.1. It may be argued that if communication is taken for granted rather than continuously addressed as a strategic issue, the focus, coordination, facilitation and other important links provided by TQM's *conceptual focus* on strategy may be jeopardised. In particular, by directly addressing the strategic issue of communication, TQM plays a vital role in *helping to coordinate strategy*.

In depth discussion about *communication* is presented in chapter 8 where it is reported that *communication and measurement* was identified by the participants as one of five important main elements of TQM. In section 8.2.5 the sub-elements of TQM associated with *communication and measurement* are discussed. As such, the discussion in section 8.2.5 elaborates on the specific connections by which TQM enables important facets of communication to be realised. Nevertheless, in addition to the commonsense attributes described above there are a number of deeper, often overlooked reasons for treating *communication* as a strategic issue, which should be mentioned at this juncture. Firstly, people quickly become isolated, impotent and disconnected

from others (Hamel, 1996) without the support of the appropriate communication channels. Bringing the top and bottom of the organisation closer together in the creation of strategy through effective communication will help bypass the usually painful and laborious process where-by a lowly employee champions an idea up the chain of command (Hamel, 1996). Secondly, when managers and employees alike have incomplete communications relating to strategy development, they may exhibit a certain degree of timidity in carrying out the strategy. The author would suggest that the influence of TQM makes visible the crucial links that provide direction and assurance. Thirdly, for their openness and honesty toward their subordinates as part of the TQM process, it is usual for managers to be given respect and courtesy in return. Whilst clearly a positive organisational attribute, this may have the result of converting some employees to deference. In this situation communication mechanisms need to play a crucial role in ensuring that management do not overwhelm people who have become overly inclined to deference.

The participants "agreed" that TQM directly addresses the strategic issue of *coordination of functional strategies*. In section 7.3.1 it was reported that the participants also "agreed" that *TQM helps to coordinate strategy*. However, the mean value of 3.83 for *coordination of functional strategies*, falling in the lower half of the "agree" band, was notably lower than that for *helps to coordinate strategy*. This suggests that while the participants believe TQM is conceptually important for coordinating strategy, it does not necessarily achieve this solely through the coordination of functional strategies. It may be argued that there are two main factors that contribute to explaining this finding: (a) *process focus* and (b) *core capability*. Each factor is discussed in turn.

A conceptual influence that TQM has on strategy is the recognition that a cohesive strategy is best carried out through strategic processes, rather than through the traditional functional organisations (Butz Jr, 1995). In other words, instead of looking at the contribution of each function to the overall strategy, TQM enables the organisation to identify strategic processes that provide customer value and competitive advantage. This re-focusing upon the real sources of wealth potential and wealth generation (the organisation's customer) forces the organisation to consider processes that cross traditional functional boundaries.

Productive activity requires the cooperation and coordination of teams of resources. A capability is the capacity for a team of resources to perform some task or activity (Grant, 1991). Creating core capabilities is not simply a matter of assembling a team of resources. Like the 'few key

concepts and thrusts' mentioned previously (section 7.3.1), core capabilities involve complex patterns of coordination between people and between people and other resources. However, core capabilities tend to be sets of skills that must cut across functional boundaries. The fragmentation of core capabilities becomes inevitable when an organisation's information systems, patterns of communication, career paths, managerial and employee rewards schemes and processes of strategy development do not transcend functional lines (Prahalad and Hamel, 1990). Interaction allows the organisation to consistently perform an activity better than functional competitors and to continually improve on the activity (Rumelt, 1996).

Thus, when an organisation (a) adopts a *process focus* and (b) focuses on the development of core capabilities, the co-ordination of functional strategies becomes a secondary issue. That is to say, TQM re-organises work activity away from the functional structure, de-emphasising the necessity for the organisation to co-ordinate functional strategies. It is important to note however that the key word here is 'de-emphasising'. Even with a process/core capability focus, coordination of functional strategies might still remain an issue for the organisation. A process/core capability focus does not 'automatically' remove all functional boundaries. Some boundaries it removes, but for others it can only change their nature, that is, from a boundary to an interface¹⁹³.

In comparison to the strategic issue *coordination of functional strategies*, the participants expressed stronger "agreement" that TQM directly addresses the strategic issue of *planning processes*. Strategies and objectives are intentions. The activity requires planning. Planning processes are the natural extension of co-ordinating strategy, at the operational (activity) level. Ackoff (1970) isolated the three chief characteristics of the planning mode: (1) planning is something done in advance of taking action, that is, it is *anticipatory decision making*; (2) planning is required when the future desired state involves a set of interdependent decisions, that is, a *system of decisions* and (3) planning is a process that is directed toward producing one or more future states which are desired and which are not expected to occur unless something is done. Thus, planning is important because planning is the means of linking and integrating the strategies and the physical means for achieving the strategies. Also, when the organisation is geared to processes that cross traditional functional boundaries, ownership must be established through planning to standardise and lead these processes (Butz Jr, 1995).

¹⁹³For example, a process/core capability focus involves re-definition of links between work activities and/or re-sequencing of work activities. Sometimes it would be advantageous to re-organise structurally in order to realise maximum potential of process capability. However, financial/economic considerations may preclude aspects of such structural re-orientation.

Plans can and should be to the fullest possible extent objective, factual, logical and realistic in establishing objectives and devising means to attain them (Steiner, 1969). The principle complexity in planning derives from the interrelatedness of objectives and of decisions rather than from the decisions themselves. But, this interrelatedness is the key element in planning and cannot be overlooked or ignored (Ackoff, 1970). Decisions made together in one systematic process will be less likely to conflict and more likely to complement each other than if they were made independently (Mintzberg, 1973). Evidence suggests that TQM adds process orientation to planning at the operational (activity) level, primarily through the introduction of policy deployment/hoshin planning (section 9.2). The tools and techniques of TQM also enable the organisation to define the urgency of actions, thus prioritising and improving the chances that the actions will occur when they are needed.

For four of the proposed strategic issues the sample expressed a "neutral" agreement that they were directly addressed by TQM. This can be interpreted to mean that the participants do not disagree that TQM directly addresses them, but they do not attach significant importance to them.

Firstly, the strategic issue *focus on external rather than internal issues*. As was alluded to in section 7.3.1¹⁹⁴, TQM would appear to combine the internal view of the organisation with the external view of the organisation. That is, TQM enables the organisation to effectively combine the internal analysis of phenomena within organisations (a preoccupation of many management gurus since the mid-1980s (Collis and Montgomery, 1995)) with an external analysis of the industry and the competitive environment (the central focus of the earlier strategy approaches (Collis and Montgomery, 1995)). In a TQM environment the two are inseparable - strategy is an organisation process in many ways inseparable from the structure, behaviour and culture of the company in which it takes place (Andrews, 1996). The implication here, is that in a TQM environment, a focus on external rather than internal issues is an irrelevant strategic issue.

Secondly, the strategic issue *reaction to competitors every move*. This finding expresses the participants view that strategy should set the pace and determine the course of events for the organisation, rather than reacting to them. As Quinn (1996) has explained, a prolonged reactive posture breeds unrest, lowers morale and surrenders the advantage of timing and intangibles to opponents. Ultimately such a posture increases costs, decreases the number of options available

¹⁹⁴see discussion for statements *facilitates better and clearer strategic analysis and choice and helps to achieve strategic fit*.

and lowers the probability of achieving sufficient success to ensure independence and continuity. A reactive posture neither *ensures constancy of purpose* or *customer satisfaction*, supports the *development of process capability*, nor *effectively channels company effort*. Rather, this finding supports the proposition that an aim of TQM is to help put the organisation into a position where it is the organisation's competitors that are forced to adopt the reactive posture. This finding augments the previously reported finding that TQM is perceived by the best practice organisations to be *a means of fostering competitive advantage* (section 6.3.1).

Finally, unlike *development of process capability* the participants neither "agreed" nor "disagreed" that TQM directly addresses the strategic issues *capacity requirements* or *facilities location*. On reflection, a connection between these two strategic issues and TQM would not be expected. The strategic issue *capacity requirements* concerns strategies for satisfying long term demand. It is reasonable to assert that other factors such as long term demand forecasts are more important in this case. In other words, determination of long-term capacity requirements is more concerned with long-range forecasting techniques rather than the tools and techniques of TQM. Similarly, it is reasonable to assert that the chief determinants of *facilities location* are factors such as cost and subsidies. Put another way, *facilities location* is more of an economic decision, rather than a decision that is reached through the application of TQM principles¹⁹⁵.

7.4.1 Further observations

It could be argued that at least four of the strategic issues discussed above are very closely related to, or are characteristics of the culture of the organisation: *management attitudes; ethos to accept change more readily; communication* and *focus on external rather than internal issues*. As Deshpande and Parasuraman (1986) admirably explained, organisations run into trouble when they fail to explicitly take into account their corporate cultures as they make major changes in strategy or enter different phases of their life cycles. Clearly then, in addition to environmental scanning and resource analysis, corporate culture must be considered as a full-fledged component of the strategic equation. It appears that by directly addressing the four strategic issues listed above, TQM helps to ensure that the vital cultural links in strategy formation and realisation are present. That is to say **TQM helps the organisation to permanently avoid strategic orthodoxy, by addressing the underlying corporate culture of the organisation.**

¹⁹⁵It may be argued that in essence these two strategic issues have acted as control variables. Their inclusion and the subsequent findings lends weight to the fact that the primary data makes sense. That is to say that the perceptions of the participants are genuine.

Looking at the arguments put forward in this section led the author to synthesise a map of the apparent principal causal relationships between the strategic issues directly addressed by TQM and (a) the statements describing TQM's strategic conceptual focus and (b) the statements describing the organisational role and span of application of TQM. This would be useful in later stages of the theory development (chapter 10). The map is presented in appendix 7.4.

7.5 Influence of *Size* and *Class* of Organisation on Strategic Role of TQM

χ^2 test of significance was carried out on all statements describing the strategic role (*conceptual* and *operational*) of TQM. χ^2 test of significance at 95 percent confidence indicated that statistically a difference was perceived for three of the statements. The data pertaining to these three statistical suggestions were further examined to: (a) search for explanations for the suggested differences and (b) assess whether or not the statistical findings reflected differences meaningful enough to be represented in the development of the preliminary conceptual map.

The χ^2 test of significance indicated that statistically large organisations were significantly more likely to "agree" that TQM is *a focus for strategy* than SMEs (88 percent versus 50 percent). It is important to note however that only seven percent of SMEs actually "disagreed". The reason for this observation was not immediately clear. Literature suggests however that generally there has been a lack of formal strategic planning in SMEs [Robinson (1982) and McKiernan and Morris (1994)]. It was possible to hypothesise therefore that this observation may indicate that, despite TQM, there may still be a lack of formal strategic planning or explicit strategy within SMEs. The χ^2 test of significance indicated that statistically large organisations were significantly more likely to "agree" that TQM directly addresses the strategic issue *reaction to competitors every move*¹⁹⁶. It was only possible to suggest that this infers that having introduced and mastered the TQM principles large organisations are still nevertheless better equipped than SMEs to closely track strategic moves made by competitors. The χ^2 test of significance indicated that statistically manufacturing organisations were significantly more likely to "agree" that TQM directly addresses the strategic issue of *communication* than service organisations. No pertinent explanation based on the inherent differences between manufacturing and service organisations could be found. Examination of the influence of *class* of organisation on the sub-elements of TQM associated with

¹⁹⁶N.B. This strategic issue had received a "neutral" overall agreement rating (mean value = 3.21).

communication and measurement (section 8.2.5) also provided no explanation¹⁹⁷.

Examination of the relative proportions¹⁹⁸ in the response data for each of these three statistically suggested differences indicated that they did not represent dramatic divergences in opinion, and therefore, were not deemed significant enough to be represented in the development of the preliminary conceptual map. However, these differences warrant investigation in future research.

7.6 Factor Analysis Applied to Strategic Role of TQM

The two stage exploratory factor analysis was applied (for detailed description see section 4.4.2) to investigate the empirical factor structure of the participants response to the statements describing the strategic role of best practice TQM. The factor analysis was independently applied to the two components of TQM's strategic role: *conceptual* and *operational*. The results of these analyses and the "new explanatory variables" formed are presented in the following sections.

7.6.1 Stage 1 and stage 2 factor analysis findings - conceptual strategic role of TQM

Tables 7.6.1a and 7.6.1b show the results of the stage 1 and stage 2 factor analyses applied to the variables describing the conceptual strategic role of TQM. The tables show the factor component variables, their factor loadings, factor eigenvalues and percent of variance. In both analyses the case to variable ratios of 47:8 and 47:7 respectively were valid ratios for factor analysis. This was confirmed by the Kaiser-Meyer-Olkin measure of sampling adequacy values (KMO) and Bartlett Test of Sphericity / Significance values associated with each analysis. These values are shown in the respective table and indicated that the factor analysis output could be considered as a valid representation of the input variables. Each analysis is discussed in turn below.

Table 7.6.1a summarises the results of the stage 1 factor analysis. Principal component analysis extracted only two factors and Varimax rotation converged in three iterations. Each factor contained four of the eight variables.

¹⁹⁷The χ^2 statistics for these three statistical suggestions were: $\chi^2=9.68$, with $\alpha=0.05$; $\chi^2=7.68$, with $\alpha=0.05$; and $\chi^2=9.68$, with $\alpha=0.05$ respectively.

¹⁹⁸percentage large organisations ; percentage SMEs; OR percentage manufacturers ; percentage M/S organisations ; percentage service organisations; for each point on the five-point scale.

Table 7.6.1a. Factor loadings on (stage 1) eight variable set of strategic conceptual roles of TQM

Variable		Factor 1G	Factor 2G
<i>is a focus for strategy</i>	a	-0.011	0.878
<i>helps to coordinate strategy</i>	b	0.298	0.793
<i>is a communication strategy</i>	c	0.691	0.146
<i>provides a link between strategy and tactic</i>	d	0.756	0.062
<i>helps avoid uncontrolled drift from business objectives</i>	e	0.217	0.714
<i>helps to achieve strategic fit</i>	f	0.778	0.244
<i>facilitates better and clearer strategic analysis and choice</i>	g	0.449	0.626
<i>is a strategic tool</i>	h	0.723	0.295
Eigenvalue		2.515	2.474
Pct of Var		31.43%	30.93%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.746; Bartlett's Test of Sphericity =135.106 with Significance =0.00.

Table 7.6.1b. Factor loadings on (stage 2) seven variable set of 'agreed' strategic conceptual roles of TQM

Variable		Factor 1H	Factor 2H
<i>is a focus for strategy</i>	a	0.903	-0.059
<i>helps to coordinate strategy</i>	b	0.800	0.295
<i>provides a link between strategy and tactic</i>	d	0.068	0.748
<i>helps avoid uncontrolled drift from business objectives</i>	e	0.673	0.298
<i>helps to achieve strategic fit</i>	f	0.210	0.839
<i>facilitates better and clearer strategic analysis and choice</i>	g	0.621	0.462
<i>is a strategic tool</i>	h	0.281	0.741
Eigenvalue		2.422	2.206
Pct of Var		34.60%	31.52%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.725; Bartlett's Test of Sphericity =119.427 with Significance =0.00.

Examination revealed that within both factors there seemed to be a possible sub-factor. In factor 1G, variable *provides a link between strategy and tactic (d)* and variable *helps to achieve strategic fit (f)*, are both associated with "capability". In factor 2G, variable *is a focus for strategy (a)* and variable *facilitates better and clearer strategic analysis and choice (g)*, are both associated with "arriving at the strategy". However, overall no obvious distinction between the two factors was apparent. It was therefore decided to postpone judgement until the influence of the one variable (*is a communication strategy (c)*) which was not "agreed" with was removed from the analysis in stage 2.

Table 7.6.1b summarises the results of the stage 2 factor analysis. Again, principal component analysis extracted only two factors and Varimax rotation converged in three iterations. Though the factor loadings for the variables differed from stage 1, each of the seven stage 2 variables qualified for inclusion in a factor (factor loading >0.5), and the two stage 2 factors mirrored those at stage 1 with one exception, the absence of the excluded variable *is a communication strategy*

(c). As such, stage 2 analysis added no further clarity to the observations made at stage 1.

In an attempt to verify the existence of the sub-factors proposed at stage 1, factor analysis was re-run, but this time fixed number of factors was requested¹⁹⁹. A three factor solution and a four factor solution were requested. Tables 7.6.1c and 7.6.1d respectively summarise the results.

Table 7.6.1c. Strategic conceptual role of TQM (fixed 3 factor solution)

factor 1b:	<i>helps to achieve strategic fit (f)</i> <i>is a strategic tool (h)</i>
factor 2b:	<i>is a focus for strategy (a)</i> <i>helps to coordinate strategy (b)</i>
factor 3b:	<i>provides a link between strategy and tactic (d)</i>

Table 7.6.1d. Strategic conceptual role of TQM (fixed 4 factor solution)

factor 1c:	<i>is a focus for strategy (a)</i> <i>facilitates better and clearer strategic analysis and choice (g)</i> <i>helps to coordinate strategy (b)</i>
factor 2c:	<i>helps to achieve strategic fit (f)</i> <i>facilitates better and clearer strategic analysis and choice (g)</i> <i>is a strategic tool (h)</i>
factor 3c:	<i>provides a link between strategy and tactic (d)</i>
factor 4c:	<i>helps avoid uncontrolled drift from business objectives (e)</i>

note: variable (g) features in both factor 1c and factor 2c because whilst factor loadings for both are >0.5, they are not similar in magnitude.

In both cases, two of the components of factor 2G (stage 1) and factor 1H (stage 2) were extracted into a factor (factor 2b in 3 factor solution, and factor 1c in 4 factor solution). These were variables *is a focus for strategy (a)* and *helps to coordinate strategy (b)*. 'Focus' and 'coordination' have a bi-directional causal relationship. That is to say coordinated activity is often the outcome of maintaining focus and, maintaining focus is often achieved through coordinated activity. Also in both cases, variable *provides a link between strategy and tactic (d)* was removed from factor 1G (stage 1) and factor 2H (stage 2), and featured as the only component of factors 3b (3 factor solution) and 3c (4 factor solution).

In the four factor solution, variable *facilitates better and clearer strategic analysis and choice (g)*,

¹⁹⁹incrementally requesting a larger number of factors than resulted from the default 'open' number of factors method provides a way of using the versatility of factor analysis to break down the variance further, even when the total variance that factor analysis has to work with is low.

joined variables *is a focus for strategy (a)* and *helps to coordinate strategy (b)* in factor 1c, and joined variables *helps to achieve strategic fit (f)* and *is a strategic tool (h)* in factor 2c.

Table 7.6.1e summarises the new explanatory variables that were formed and component variables.

Table 7.6.1e. Summary of new explanatory variables - Strategic conceptual role of TQM

variable	new explanatory variable / observation
factor 1H (subfactor): <i>is a focus for strategy (a)</i> <i>helps to coordinate strategy (b)</i> <i>facilitates better and clearer strategic analysis and choice (g)</i>	TQM helps to coordinate strategy because it provides a focus for strategy and facilitates better and clearer strategic analysis and choice
factor 2H (subfactor): <i>provides a link between strategy and tactic (d)</i> <i>helps to achieve strategic fit (f)</i>	TQM helps to achieve strategic fit because it provides a link between strategy and tactic

7.6.2 Stage 1 and stage 2 factor analysis findings - operational strategic role of TQM

Table 7.6.2a summarises the results of the stage 1 factor analysis applied to the variables describing the operational strategic role of TQM. The table shows the factor component variables, their factor loadings, factor eigenvalues and percent of variance. In the analysis the case to variable ratio of 47:11 was a valid ratio for factor analysis. This was confirmed by the Kaiser-Meyer-Olkin measure of sampling adequacy value (KMO) and Bartlett Test of Sphericity / Significance values associated with the analysis. These values are shown in the table and indicated that the factor analysis output could be considered as a valid representation of the input variables.

Table 7.6.2a. Factor loadings on (stage 1) eleven variable set of strategic operational role of TQM

Variable		Factor 1I	Factor 2I
<i>communication</i>	a	0.793	-0.127
<i>human resource management</i>	b	0.761	0.363
<i>development of process capability</i>	c	0.612	0.451
<i>facilities location</i>	d	0.457	0.348
<i>ethos to accept change more readily</i>	e	0.673	0.057
<i>focus on external rather than internal issues</i>	f	0.067	0.555
<i>capacity requirements</i>	g	0.106	0.706
<i>coordination of functional strategies</i>	h	0.575	0.445
<i>reaction to competitors every move</i>	i	0.095	0.849
<i>planning processes</i>	j	0.280	0.575
<i>management attitudes</i>	k	0.705	0.190
Eigenvalue		3.174	2.567
Pct of Var		28.86%	23.34%
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.729; Bartlett's Test of Sphericity =175.952 with Significance=0.00.			

At stage 1 principal component analysis extracted only two factors, the first comprising six variables and the second comprising four variables, and Varimax rotation converged in three iterations. One prominent observation from table 7.6.2a was that factor 1I included those variables that the participants had "strongly agreed / agreed" were strategic issues addressed by TQM, while factor 2I tended (three of the four variables, (f), (g) and (i)) to include those variables for which the participants expressed a "neutral" view that they were strategic issues addressed by TQM.

Factor 1I contained a possible sub-factor around the theme of "people issues", variables *human resource management (b)*, *ethos to accept change more readily (e)*, *management attitudes (k)* and possibly *communication (a)*. However, because the factor was large and these variables had very similar factor loadings it was not appropriate to progress further than this simple observation at stage 1.

In factor 2I, two potential sub-factors were observed. One comprising variables *focus on external rather than internal issues (f)* and *reaction to competitors every move (i)*, both relating to the "external environment". The other comprised variables *capacity requirements (g)* and *planning processes (j)*, both elements of "business planning". However, these relationships were not deemed substantial enough for new explanatory variables to be suggested for the sub-factors.

For the stage 2 factor analysis the number of variables was reduced from eleven (at stage 1) to seven. The factor analysis was unable to extract more than one factor. All seven variables with qualifying factor loadings (i.e. >0.5) were contained in one factor (and the solution was unable to be rotated). Hence, the solution was effectively redundant.

In an attempt to obtain more meaningful factors using the stage 2 input variable criterion, and/or verify the existence of the sub-factors proposed at stage 1, factor analysis was re-run but requesting a two, three and four factor solution²⁰⁰. Tables 7.6.2b, 7.6.2c and 7.6.2d respectively summarise the results.

The two factor solution grouped the variables in a slightly different manner to the stage 1 analysis. Factor 1J contained two potential sub-factors. The first related to "internal capability", comprising variables *development of process capability (c)* and *human resource management (b)*. The second

²⁰⁰N.B. KMO and Bartlett values for all three analyses indicated the solutions were valid representations of the input variables.

sub-factor contained two variables, the first of which, *coordination of functional strategies (h)* is largely reliant on the effectiveness of the second *planning processes (j)*. This sub-factor thus related to "effective deployment". Factor 2J, contained three of the four variable suggested as a sub-factor at stage 1. These, *communication (a)*, *ethos to accept change more readily (e)* and *management attitudes (k)* are issues related to "enabling the effectiveness of the organisations people".

Table 7.6.2b. Strategic operational role of TQM (fixed 2 factor solution)

factor 1J:	<i>development of process capability (c)</i> <i>human resource management (b)</i>
	<i>co-ordination of functional strategies (h)</i> <i>planning processes (j)</i>
factor 2J:	<i>communication (a)</i> <i>ethos to accept change more readily (e)</i> <i>management attitudes (k)</i>

Table 7.6.2c. Strategic operational role of TQM (fixed 3 factor solution)

factor 1b:	<i>human resource management (b)</i> <i>development of process capability (c)</i>
	<i>co-ordination of functional strategies (h)</i> <i>planning processes (j)</i>
factor 2b:	<i>ethos to accept change more readily (e)</i> <i>management attitudes (k)</i>
factor 3b:	<i>communication (a)</i>

Table 7.6.2d. Strategic operational role of TQM (fixed 4 factor solution)

factor 1c:	<i>human resource management (b)</i> <i>development of process capability (c)</i>
factor 2c:	<i>ethos to accept change more readily (e)</i> <i>management attitudes (k)</i>
factor 3c:	<i>planning processes (j)</i>
factor 4c:	<i>communication (a)</i>

The three factor solution split variable *communication (a)* from previous factor 2J, but otherwise left the factor components unchanged from the two factor solution. The four factor solution again bore much similarity to the previous two/three factor solutions. Variable *planning processes (j)* was split from factors 1J and 1b into a factor on its own, and variable *co-ordination of functional strategies (h)* was excluded from factors 1c and 3c due to similar (high) factor loadings. As such,

in the four factor solution the sub-factor relating to "capability" featured as a factor on its own, factor 1c. Otherwise the rotated matrix was unchanged.

Taking all the findings into consideration, the fixed 2 factor solution appeared to provide the most logical suggestions of associative relationships between the variables that the participants "agreed" described the operational strategic role of TQM. Juxtaposing the suggestions back against the underlying logic arguments presented in section 7.4, and reconsidering the individual merits of each of the 'operational focus' variables it was deemed appropriate to define three new explanatory variables. These are detailed in table 7.6.2e below.

Table 7.6.2e. Summary of new explanatory variables - Strategic operational role of TQM

	variable	new explanatory variable / observation
factor 1J (subfactor):	<i>development of process capability (c)</i> <i>human resource management (b)</i>	TQM strategically addresses effective internal resource and process capability
factor 1J (subfactor):	<i>coordination of functional strategies (h)</i> <i>planning processes (j)</i>	TQM strategically addresses the process of effective strategy deployment
factor 2J:	<i>communication (a)</i> <i>ethos to accept change more readily (e)</i> <i>management attitudes (k)</i>	TQM addresses the strategic issue of people effectiveness

CHAPTER 8 : MAIN ELEMENTS AND SUB-ELEMENTS OF TQM

8.1 Introduction

The aim of this chapter is to: "*identify the main elements of TQM and their associated sub-elements, where the sub-elements are the specific methods, processes and working practices involved in the TQM approach and hence, the means that underpin the fulfilment of the role of TQM*".

In the introduction to chapter 6 the author proposed that an awareness and understanding of the organisational role and span of application of TQM should significantly increase the likelihood of organisations positively selecting the most appropriate TQM methods, processes and working practices (collectively termed sub-elements). This chapter reports the investigation of what these sub-elements are in the best practice TQM organisations. These sub-elements represent the "operational reality" of TQM.

8.1.1 Method of investigation

With the large number of organisations taking part in the study, and the potential for each participant to generate an equally extensive list of important sub-elements using their own preferred reporting strategy, a very structured approach was considered essential. The task of analysing the response might otherwise have proved impossible, in turn jeopardising the meaningfulness of the response. The pre-coded investigative approach was therefore adopted.

The sub-elements of TQM would make the major contribution to the concepts of the proposed theory. The conceptual map, the relationships between the concepts and consequently the resultant theory, would therefore be affected by the sample's response to the pre-defined sub-elements. Furthermore, they would be affected by the choice of pre-defined sub-elements put forward in the survey instrument. It was necessary therefore to take steps to ensure that the investigation was not only structured but also comprehensive.

Five salient main elements of TQM were identified through an inductive study of TQM initiatives in other successful companies [Ghobadian (1993)]. These were: *management process, market focus, process focus, people focus* and *communication and measurement*. This framework (based

on existing research) appeared to be a good foundation for the investigation. In order to verify the saliency of these proposed five main elements, they were compared against two other existing sources. Firstly, against the appropriate literature contributions that have delineated the elements of TQM at the abstract level as opposed to the activity level. For details see section 2.6.2. Secondly, against the TQM models propagated by the major international quality awarding bodies. These were the Malcolm Baldrige (USA), European and Australian award frameworks. For details see section 2.6.5. These comparative examinations indicated that the framework reflected what is considered to be five main elements (or pillars) of the TQM approach, thus confirming the validity of the framework as the appropriate basis for the investigation.

Each of these five main elements was sub-divided into a number of associated salient sub-elements, again through inductive research, but augmented by a literature survey. The literature survey covered the wider business management literature in addition to the TQM literature. A wide range of pre-defined sub-elements was deemed important in order to ensure that the TQM literature - shown to be lacking in consensus (section 1.1) - did not restrictively influence the comprehensiveness of the response. As was reported in section 3.2.6, neither comprehensiveness nor parsimony have an absolute ruling, however it is recommended that in theory building researchers should err in favour of including too many factors (Whetten, 1989). This was firstly because it is easier to delete unnecessary or invalid elements, and secondly recognising that ideas will be refined by future research²⁰¹. Specific tools and techniques, for example brainstorming and Pareto analysis were not however included in any of the five lists²⁰². The framework and the five sub-element lists were independently scrutinised by the committee of five known and experienced TQM practitioners from industry. The committee unanimously supported the validity of the framework. The sub-element listings were scrutinised for comprehensiveness and for relevance of individual sub-elements. Recommendations were considered and the final version of the survey instrument was drafted and incorporated into the Delphi round 2 questionnaire. The instructions to the participants were twofold: (a) to indicate whether or not their organisation regarded each of the five main elements as important facets of their TQM efforts (yes/no) and (b) to indicate the degree of importance their organisation attached to each of the sub-elements associated with each main element. For the latter, consistent with good instrument design practice, a five point Likert

²⁰¹Nevertheless, it was necessary for the purpose of confining the five sub-element lists to a manageable size, to describe some sub-elements at a more abstract rather than activity level.

²⁰²Though potentially important to a best practice TQM approach, specific tools and techniques were not deemed to fit the definition of a TQM sub-element. A separate investigation was deemed more appropriate.

scale was used²⁰³.

The remainder of the chapter comprises three main sections. Section 8.2 commences with the presentation of general observations. In the remainder of section 8.2 the primary data is presented then, drawing on examination of appropriate literature, the additional documentation supplied by the participants and internal logic of the author, the logic underlying the primary data is proposed and explained. These findings are discussed under the five main element headings (sections 8.2.1 to 8.2.5)²⁰⁴. It was not the purpose of this investigation to re-define and explain the semantics of individual sub-elements. Much is already known about their semantics and recommended modes of operation. In addition, to a large degree it was considered likely that the specific semantics of each important sub-element would be unique to each organisation and its associated contingencies. Rather, the purpose of the investigation and hence the discussion that is presented was to identify the important sub-elements and explicate the logic underlying them. In section 8.3 the influence of size and class of organisation on the sub-elements of TQM is discussed. In section 8.4 the results of the factor analysis procedures applied to the sub-elements of TQM are presented.

8.2 The Main Elements of TQM

The vast majority of the sample agreed that each of the five main elements were important to their TQM efforts. Ninety six percent agreed with *management process*, *market focus* and *process focus*, and ninety four percent agreed with *people focus* and *communication and measurement*. These high sample percentages confirmed that these were five main pillars of the TQM concept. The absence of any additional comments suggested that in the participants view, there were not any other salient main elements. Each of these participants completed the second instruction described above for the proposed TQM sub-elements. A mean value was calculated for each sub-element. Figures 8.2.1 to 8.2.5 (in the following five sub-sections) show the TQM sub-elements associated with each main element, ranked in descending order of perceived importance.

8.2.1 *Sub-elements of TQM concerned with management process*

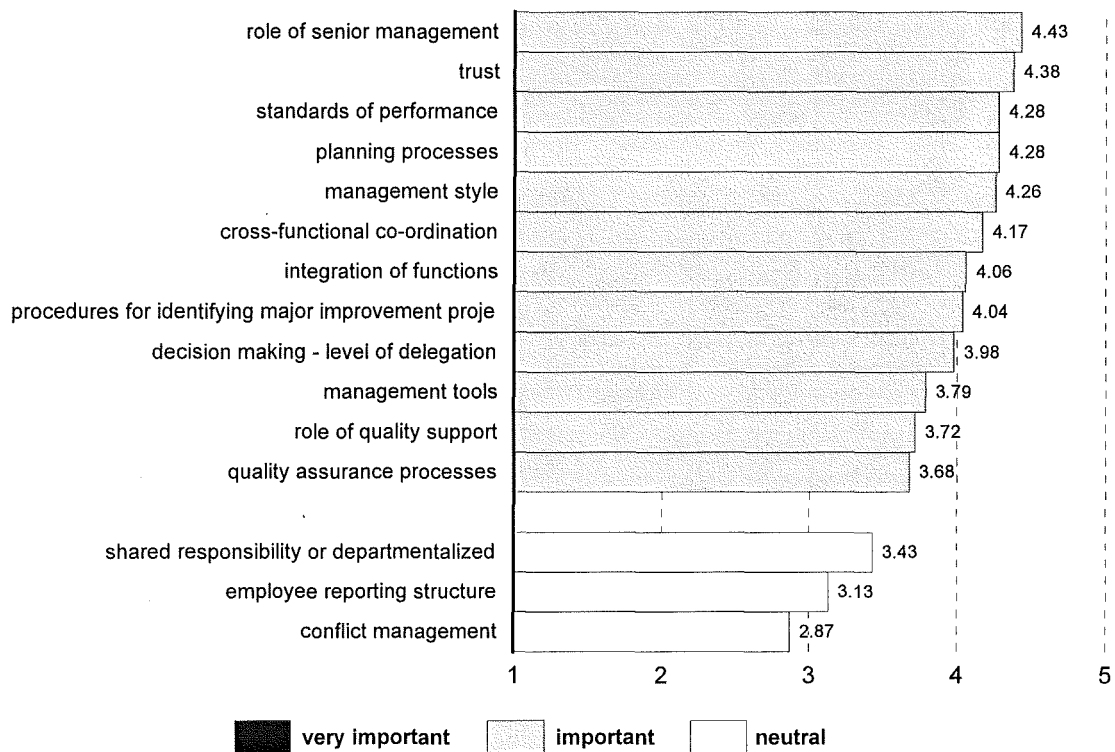
Figure 8.2.1 shows the calculated mean values for the proposed sub-elements of TQM concerned

²⁰³(5=very important, 4=important, 3=neutral, 2=not very important and 1=not important at all).

²⁰⁴The sequence in which the sub-elements are discussed in each section broadly follows their ascending perceived importance. Where appropriate this sequence is altered so that sub-elements which draw on the same underlying logic can be discussed accordingly.

with *management process*. Twelve sub-elements were considered "important" and the participants expressed a "neutral" view for three sub-elements²⁰⁵.

Figure 8.2.1 - Mean scores for TQM sub-elements concerned with *management process*



Role of senior management was the highest rated sub-element concerned with management process. Evidence has suggested that TQM is a broad management philosophy that permeates the whole of the organisation (section 2.5.5 and section 6.3) - the TQM approach has been shown to be much broader than just a focus on quality at the functional level of an organisation. It may be argued that a broad *role of senior management* is required otherwise the permeation will not take place. That is to say the role of senior management in a TQM approach must extend much further than that of a conventional quality manager. Furthermore, that *role of senior management* is important because senior management are in a position of influence. Their attitude and behaviour can have a powerful motivational effect on what happens below them in the organisation. The primary findings and their explication presented in the remainder of section 8.2 and, those presented in chapter 9, would appear to strongly support the proposition prompted by Zairi (1994) that, in a TQM approach success is defined in terms of human performance through creativity, problem-solving, teamwork, value-adding contributions and a dedication and commitment to

²⁰⁵Cut-off points for each of the categories was described in section 4.4.4.

continuous improvement. As Zairi (1994) suggested, an effective style of leadership in this context would therefore have to have a great impact on behaviour modification and changing people's attitudes. Examination of the role of TQM (chapter 6) and the strategic role of TQM (chapter 7) indicated that the more conventional role²⁰⁶ of senior managers must be modified for a TQM approach to be successful. For example, it was reported in section 6.3.2 that the TQM approach was concerned with *harnessing the competence and expertise of people*. These findings suggest that a change in the role of senior managers from "controllers" to "facilitators" is required. In section 9.2 the *role of senior management* becomes more explicit.

Trust was rated as the second most important TQM sub-element associated with management process. This infers that *trust* is part of the perceived ethos of TQM. *Trust* is demonstrated by the attitude and behaviour of the organisations' people and is important because employees and organisations have reciprocal obligations and mutual commitments, both stated and implied, that define their relationship (Strebel, 1996). Previous research [Golembiewski and McConkie (1975) and Zand (1972)] has proposed that high levels of trust would be positively associated with factors such as working relationships, interpersonal closeness and team cohesiveness (Coyle-Shapiro, 1995). *Trust* in colleagues taps two dimensions: a belief that co-workers would assist the individual should the need arise; and an individual's confidence in the ability of his/her co-workers (Coyle-Shapiro, 1995). Consequently, if an individual believes his/her co-workers will help them out, he/she in exchange will be more likely to have a reciprocal commitment. Thus, the feeling of trust and dependence between employer and employees, and between peers, reinforces mutual expectation and commitment. Results presented in section 9.2 suggest that in a TQM environment openness is encouraged and pursued. Openness has a multitude of advantages in an organisation, however, it may be argued that these advantages will only be reaped if the basis of relationships within the organisation is trust, confidence and mutual respect.

Importance was attached to *planning processes* and *standards of performance*. Planning is the process of establishing what actions need to be executed and when they should be completed in order to meet the business goals and objectives of the organisation. In support of TQM's roles as *a guide for achieving organisational objectives* and as *a framework for company wide improvement efforts* (section 6.3.2), *planning processes* are the necessary mechanism that

²⁰⁶Schonberger (1992) suggested that this comprised formulating strategies, setting high-level numerical goals and monitoring performance against those goals. Hamel (1996) suggested that the place one was likely to find the people with the least diversity of experience, the largest investment in the past, and the greatest reverence for industrial dogma was at the top of an organisation.

prioritises activity, helping to channel company efforts effectively. *Standards of performance* are key inputs into an organisations planning processes. All aspects of performance are largely meaningless unless they are relative. *Standards of performance* provide the basis against which measures of performance can be assessed. They differ from measures in that they tend to apply on a wider basis within the organisation, providing continuity while allowing variation in local targets. Thus, it may be argued that *standards of performance* are important for *ensuring constancy of purpose* (section 6.3.1). Put another way, ensuring that common standards exist throughout the organisation. Standards of performance are closely linked to benchmarking efforts discussed in the next section.

The importance attached to the sub-elements *management style* and *decision-making - level of delegation* would reflect the fact that in a TQM approach management must be clear about how, through their attitude and behaviour, they must position the human element in their organisations. As the findings presented in chapter 5 indicated, long-term corporate health and survival require a willingness to change, and core to this change is the need for managers to heed the opinions and practices of other people. Managers must give employees the space to develop ideas. Employees must have some freedom from control, from direction and from punishment for failures - in other words, managers must put the principle of tolerance into place (de Geus, 1997). The proposed sub-element *teamworking*, discussed more fully in section 8.2.4, was considered by the sample to be "very important". It may be argued that in particular, effective teamworking has important implications for management style. As Hayes (1997) explained, teamwork runs contrary to many established management practices where traditionally it was assumed that the manager knows best and will direct the work of other people. Teams need to be given enough authority to make day-to-day decisions about their work and enough power to make sure that their work can be properly executed. The transition from a centrally-controlled structure to a team-oriented one involves a very fundamental shift - in respect and also in *trust*. That is to say a shift from the view that human beings need to be carefully watched and controlled and are liable to abuse any freedom they are given, to the idea that if people are given responsibility and autonomy they will rise to it - if they are trusted they will become trustworthy (Hayes, 1997).

The proposed sub-elements *cross-functional coordination* and *integration of functions* were both rated as "important". *Cross-functional coordination* would typically involve the enhancement of communication channels between the functions in an organisation, enabling them to cooperate more effectively and hence work with a greater degree of synergy. *Cross-functional coordination*

is also an effective means of rapidly and comprehensively resolving issues of concern or problems that may arise²⁰⁷. Ancillary benefits of *cross-functional coordination* include helping people to feel as if they are contributing to the organisation (Holder and Walker, 1993), enabling people to learn what others do in their jobs and helping people to appreciate the value of other peoples jobs. Though *cross-functional coordination* clearly is important in a TQM approach, it is possible and desirable to go one step further through the *integration of functions*. This is essentially an extension of cross-functional coordination involving more wholesale and permanent changes. Schonberger (1994) made the pertinent point that for routine day-to-day work leaving employees in their functional compartments and putting in automated linkages may just be automating existing wastes and poor-quality responses²⁰⁸. The sample agreed that methodologically, TQM was *an integrating device* (section 6.3.2). This would infer that if employees are to break free from their functional responsibilities and functional mindset on a permanent basis, they must form cross-functional alliances by the way work flows from first operation to final output/outcome (Schonberger, 1994). A permanent solution is to attack the functional structure itself (Schonberger, 1994). The investigations reported in section 5.4.2 indicated that at the organisational level, integrative changes involved in the transition to a best practice TQM organisation were: redefining organisational structure, the assimilation of certain functions into others, merging of functions and relocation of functions. To varying degrees, *cross-functional coordination* and *integration of functions* would appear to help to align (a) objective setting processes, (b) operations and (c) review mechanisms throughout the organisation, both horizontally and vertically.²⁰⁹

Importance was attached by the sample to the sub-elements *procedures for identifying major improvement projects, management tools* and *role of quality support*. In their day-to-day activities it is relatively easy for employees or teams to identify opportunities for improvement to the processes or tasks with which they are associated or in close proximity. However, fostering and sustaining competitive advantage may require improvement efforts that are more extensive and go beyond the local level. It is reasonable to suggest that major improvement projects tend to arise more out of planned investigative activity rather than through *ad hoc* local discussions or by

²⁰⁷*Ad hoc* groups comprising employees who possess the relevant knowledge may be formed to serve temporarily as decision makers. The group, which may consist of shop floor workers, managers, technical experts and indeed suppliers and customers, comes together to do a job, then disbands with everyone going back to their regular jobs or to the next assignment.

²⁰⁸Schonberger (1994) also referred to the "strangers" syndrome, which can plague multi-functional improvement teams in which people from different departments meet periodically to solve a specific problem.

²⁰⁹It may be argued therefore that in addition to supporting TQM's role as *an integrating device*, these two sub-elements would also support TQM's role of *ensuring constancy of purpose*.

chance. The importance attached to the sub-element *procedures for identifying major improvement projects* would suggest that the best practice TQM organisations believe that systematic mechanisms should be in place for this purpose. Furthermore, when it is possible to consider them in combination, a large number of small improvement opportunities may in fact be found to represent an opportunity for a major improvement project. It may be argued that there is little point going through the time and expense of developing and using systems for evaluating customer satisfaction, service performance, employee performance and tracking complaints (discussed in section 8.2.5) if nothing is done to pro-actively act on the results. The importance attached to *management tools* quite simply would infer that if management are to fulfill their role and adopt the management style required in a TQM approach, and if they are to lead by example and demonstrate best practice behaviours, they must be equipped with the necessary tools to support them in their efforts. *Quality support* (which may take a number of structural forms, for example internal consultants), represents an essential source of knowledge and, a knowledge gathering capability, that any member or area of the organisation can draw on in its particular improvement efforts. It also represents a proactive function for recommending best practices to those areas within the organisation that may benefit.

Quality assurance processes were also perceived to be "important". Review of the TQM literature (section 2.10.3.2) suggested that although the true business value of *quality assurance systems* was unclear, quality assurance processes could act as a foundation on which to build total quality. The author would suggest that the perceived importance extends further. Examination of the TQM literature (section 2.5.5) also indicated that TQM was considered to be a broad philosophy. This observation would appear to be supported by the findings reported in chapter 6. That is to say that TQM is not concerned only with the soft cultural aspects of organisational behaviour. Rather, an aim of TQM is to bridge the gap between systems thinking and the human relations dimension. An important focus of the former is achieving consistent quality performance. Therefore TQM also provides the systems component, one aspect of which is *quality assurance processes*.

Two proposed sub-elements that received a "neutral" rating from the best practice sample were *employee reporting structure* and *conflict management*. The author would propose that whilst 'communication' is essential in a TQM approach (section 8.2.5), the flat integrated organisational structure, with activities organised around processes and employees organised into teams, places much less emphasis on the need for the organisation to define *employee reporting structures*. That is, reporting lines are established on a needs basis rather than a permanent rigid structure. *Conflict*

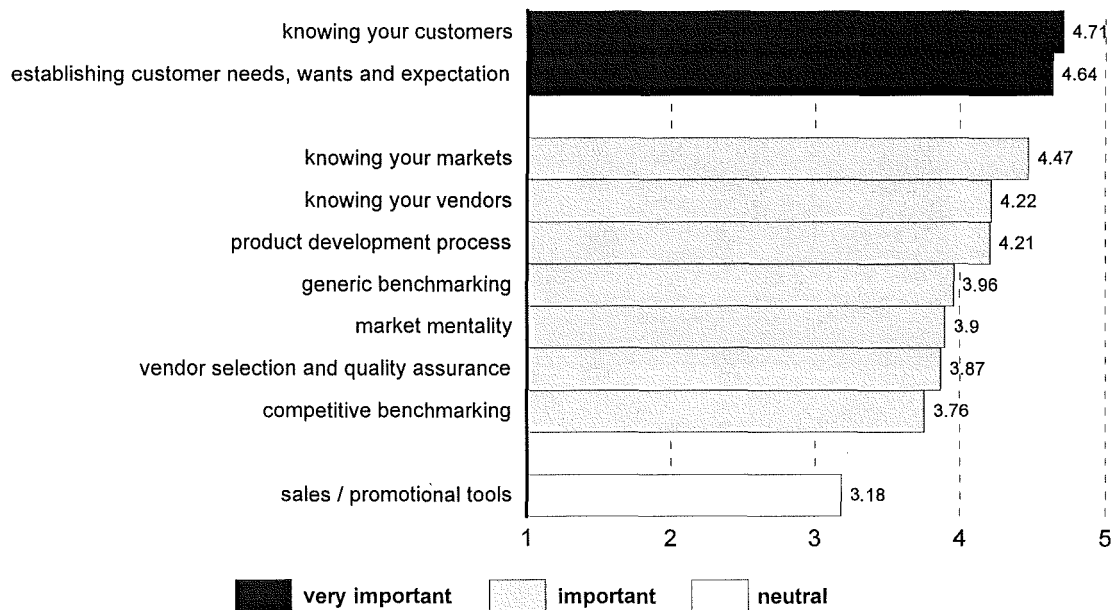
management was the sub-element concerned with management process perceived to be of least importance. The "neutral" view for this sub-element would suggest that whilst even the best practice organisations acknowledge that there will inevitably be conflict from time to time and therefore it is important that it can be addressed in a systematic managed fashion, it also represents the idea and value that in a TQM environment people (and processes) should be organised such that there is the minimum opportunity for conflict.

The proposed sub-element *shared responsibility or departmentalised*, which a priori would be expected to have been regarded as "important", was also rated with "neutral" importance. No clear explanation for this findings was apparent. The author could only suggest that on reflection the meaning of the sub-element may have been vague. This suggestion would appear to be supported by the finding reported in section 9.2 that *shared responsibility* was considered to be an "important" necessary condition for the attainment of an organisation wide quality ethos.

8.2.2 Sub-elements of TQM concerned with market focus

Figure 8.2.2 shows the calculated mean values for the proposed sub-elements of TQM concerned with *market focus*. Two sub-elements were considered "very important" and seven were considered "important". The participants expressed a "neutral" view for one sub-element.

Figure 8.2.2 - Means scores for TQM sub-elements concerned with *market focus*



The two sub-elements of TQM that were rated as "very important" were *knowing your customers* and *establishing customer wants, needs and expectations*. It is a basic principle of commerce and industry to try to determine what customers want and what they will buy. Clearly, in a TQM environment it is fundamental. In section 6.3.1 it was argued that an organisation's perception and knowledge of its targeted customer's needs, wants and expectations should drive its operational and strategic decisions. Whitney (1996) asserted that even in technology-driven companies customers (or customer groups) must be analysed first because they should determine the product/service line, not vice versa.

All aspects of performance may be important to customers, but, they are rarely equally important (Slack, 1991). The customer is arguably the best source of information about what influences their buying behaviour, and *establishing their wants, needs and expectations* should enable the organisation to differentiate which aspects of performance are essentially order-winners (criteria that win orders) and which are qualifiers (the minimum level of performance that the customer will consider). Schonberger (1992) pointed out that getting thoroughly close to the customer also provides insights about the competition. Whitney (1996) further pointed out that even if not all of the organisation's customers value what the organisation does best, it may nevertheless be strategically important to hold on to them as they may provide insights into vital technologies or other core competencies. The inference here is that getting to know customers is not only important for understanding what they want in the short term, but also for enabling the organisation to assess the (future) long-term strategic importance of the customer to it. Whitney (1996) proposed that one of the reasons organisations lose focus is because they are ignorant of the true profitability of customers, products and services²¹⁰.

The sub-element *knowing your markets* is essentially an extension of *knowing your customers*. One of the crucial elements in an organisation's development of its longer-term strategies is deciding how it is going to position itself in the markets available to its fundamental core offering (Porter, 1980). As Collis and Montgomery (1995) explained, valuable resources must be joined with other resources and embedded in policies and activities that distinguish the organisation's position in the market - after all, competitors too can have core competencies. In this respect,

²¹⁰With this in mind, Whitney (1996) suggested a number of questions that organisations should ask of their customers: *Does the customer truly value what we do well or does it require products and services that introduce unnecessary complexity and strain our systems?; Does the customer provide an opportunity for us to grow?; Can we learn from the customer, perhaps through its technology, marketing skills, or management techniques?; Does it provide a springboard to other important customers or customer groups?; Are they growing, and if so are we prepared to take active advantage of their growth rather than merely react to it?*

investing in competencies without examining the competitive dynamics that determine industry attractiveness is dangerous - by ignoring the marketplace an organisation risks investing heavily in resources that will yield low returns. Thus, positioning decisions are crucially dependent on a comprehensive knowledge of market conditions and dynamics. Segmentation and analysis of the customer base would reveal more long term trends in the wants, needs and expectations of both current and potential new customers.

Product development process was also considered to be an "important" sub-element. It would appear that time-to-market is a key order winner in many markets [Vesey (1992); Gupta et al (1992) and Haddad (1996)]. With the strong emphasis placed on ensuring customer satisfaction and, with the propensity for customer requirements and preferences to change ever more rapidly, it is imperative that the organisation has a *product development process* that is geared for rapidly translating the customer requirements and expectations that have been determined into the saleable goods/services. Furthermore, it may be argued that a prominent expectation of the customers of many types of markets (particularly consumer markets) is a long-term (or perpetual) focus on product innovation²¹¹.

Vendor selection and quality assurance and *knowing your vendors* were both rated as "important" sub-elements. Vendors are essentially an extension of the organisations own transformation/service delivery processes. A pre-requisite for effective transformation or service delivery processes is correct and timely inputs. *Vendor selection and quality assurance* is the process by which an organisation can seek to ensure that they are getting what they want, need and expect, on time and within specifications (Sink, 1991) from their suppliers. It represents the development and maintenance of standards, specifications and requirements through open communication channels (Sink, 1991). Furthermore, *knowing vendors* capability, in terms of the organisation's own order winning and order qualifying criteria, can help to reduce unnecessary resource consumption that results from false assumptions about vendors' capability. In section 9.2 it is argued that a large proportion of quality problems and opportunities cannot be properly diagnosed without the input and participation of external suppliers. In this respect it is arguable that knowledge of vendors' propensity to work closely with the organisation for mutual benefit can significantly impact operational efficiency and effectiveness. In combination, these two sub-elements suggest that in

²¹¹This finding would appear to add weight to the proposition of Flynn et al (1996), that whilst the traditional product development literature would suggest that there is a trade-off between product innovation speed and quality, the recent quality management literature would indicate that there may be a substantial amount of overlap between the practices associated with fast product innovation and quality management.

the best practice TQM organisations emphasis is changed from exclusively "incoming quality assurance", to what might be described as "selection and management of up-stream systems".

Generic benchmarking and *competitive benchmarking* are important tools for verifying current and projected business performance objectives and standards. Geanuracos and Meiklejohn (1993) observed that it is not unknown for companies to find that their most testing targets are already being achieved by competitors. Further, Collis and Montgomery (1995) proposed that a common experience when resources are evaluated against the standard of competitive superiority is that the organisation does not actually have any unusually valuable resources. Benchmarking helps organisations deal with a common, perhaps universal, problem: over-estimating their own excellence and under-estimating that of competitors. Miller (1994) reported that many researchers²¹² have argued that success induces organisations to converge on and adhere to established themes and practices - they refine existing strategies and normally depart from the *status quo* only under the duress of crisis. Further, that according to Levitt and March (1988) and Weick (1979), managers of formerly thriving enterprises frequently fail to pick up signals that would suggest the need for change. Grant (1991) reached a similar conclusion, that organisations frequently fall victim to past glories, hopes for the future and wishful thinking, adding that a key problem in appraising capabilities is maintaining objectivity. The critical task Grant (1991) suggested, is to assess capabilities relative to those of competitors²¹³. *Competitive benchmarking* involves direct comparison with direct competitors. *Generic benchmarking* is an attempt to emulate the most efficient business functions of other organisations regardless of industry (McReynolds and Fern, 1992). *Competitive* and *generic benchmarking* enable an organisation to set standards of performance against the best results of analogous or of world class organisations and processes respectively.

Preceding arguments have emphasised that information about customer wants, needs and expectations is critical to a successful TQM approach because, as Cole et al (1993) suggested, this information should drive important processes such as goal-setting, problem identification and problem solving. With this in mind, the author would suggest that the importance the participants

²¹²Hinings and Greenwood (1988), Miller (1990, 1993), Miller and Friesen (1984) and Tushman and Romanelli (1985).

²¹³Rumelt (1996) went as far as to suggest that because every organisation is in competition with all potential suppliers of each activity in its value chain, it must benchmark its selected core competencies against all other potential suppliers of that activity and continue to build those core capabilities until it is demonstrably best.

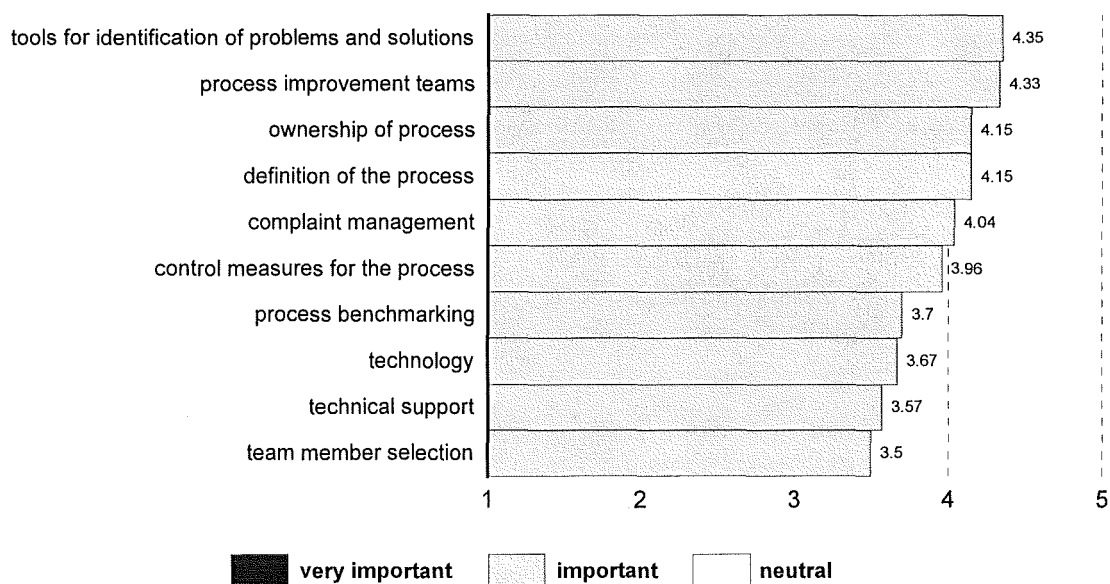
attached to the TQM sub-element *market mentality* represents the notion that marketing should be cascaded throughout the organisation rather than being restricted to a marketing function. That is to say, that an isolated function cannot possibly, on its own, gather or be expected to gather the customer, market and competitor oriented information required to fulfill TQM's important aims of *ensuring customer satisfaction, fostering competitive advantage and ensuring constancy of purpose*²¹⁴.

The participants expressed a "neutral" view that *sales/promotional tools* were an important sub-element of TQM. Preceding arguments would appear to support the proposition that whilst *sales / promotional tools* may be important in some situations, in a TQM approach there is a shift in emphasis towards the ability of the organisation to sell products/services based on its perceived competence, track record and reputation.

8.2.3 Sub-elements of TQM concerned with process focus

Figure 8.2.3 shows the calculated mean values for the proposed sub-elements of TQM concerned with *process focus*. All of the proposed sub-elements were considered "important".

Figure 8.2.3 - Means scores for TQM sub-elements concerned with *process focus*



²¹⁴The previously cited questions that Whitney (1996) proposed should be asked of customers serve to illustrate the extensive scope of customer related information desired in a TQM approach.

Although no sub-elements associated with process focus were rated as "very important", the primary data indicates that the process-view is taken very seriously by the best practice TQM organisations. According to Ascari et al (1995), regardless of the starting state of the organisation and the nature of its change efforts, processes focus the minds and energies of the organisation on the customer. Walsh (1995) explained the logic further. That is, that the process-view describes the organisation as a hierarchy of core, key and sub-processes, linking 'what should get done' and 'what does get done'. The implication is that without the process-view, there can be a point of detachment between what should happen as defined by the organisation's customers and what does happen as determined by the organisation.

Process improvement teams and tools for the identification of problems and solutions were the two highest rated sub-elements concerned with process focus. A process can be defined as "any activity or group of activities that take an input, add value to it, and provide an output to an internal or external customer" (Geanuracos and Meiklejohn, 1993). It is reasonable to assert therefore, that the redesign of appropriate processes can yield significant enhancements in delivered customer value and increase the overall efficiency and effectiveness of the organisation (Ascari et al, 1995). The importance attached to the latter sub-element would suggest that for the process-view to be effective, process improvement teams must have the appropriate tools at their disposal. Stein (1993) commented that the impact on quality and continuous improvement is substantial when people - particularly those at the frontline - are given the proper tools and are empowered to make key decisions. It was observed that these two sub-elements both received marginally higher mean values than the TQM sub-element *procedures for identifying major improvement projects* associated with management process (section 8.2.1). It may be argued that this highlights the fact that many small improvements to everyday processes and tasks are just as important as major improvement projects (if not more important). Major improvements often require substantial additional effort with the removal of people from their workplace. The smaller improvements have an inherent advantage that they can often be executed in tandem with normal everyday tasks.

The sub-element *definition of the process* has two important functions. *Process definition* starts with the internal or external customer requirements either in terms of outcomes such as order winners and order qualifiers or outputs. The process is then mapped back to the required inputs (and hence to the outcome/output required from the supplying process). Firstly therefore, it ensures that the process accurately supports requirements as dictated by customers. Secondly, it helps the organisation to identify wasteful redundancies and overlap in company effort by clearly defining

boundaries and interfaces between processes.

A process owner can be defined as the person or group of persons who have most interest in and most knowledge of the process and, as Walsh (1995) suggested, regardless of seniority. It may be argued that *process ownership* also has two important functions. Firstly, as was inferred above, because *process ownership* is not exclusive, it can be both a source of empowerment and a source of motivation for employees at all levels within the organisation²¹⁵. Secondly, ownership is a way of focusing individuals on the important tasks that contribute to the organisation's overall objectives. A characteristic of a process is clear boundaries. With ownership of processes therefore, it is reasonable to suggest that individuals can see much more clearly tangible results and outcomes from their actions.

Once a process has been defined (and if either necessary or advantageous, improvements have been made to the process), to ensure that the process remains effective and/or does not go out of control it would be necessary to continuously or regularly monitor and evaluate the performance of the process. *Control measures for the process* defined in terms of the process's desired outcome or output(s), are the first signal of problems with the process, and as such a pre-requisite for directing corrective action. By highlighting persistent problems, *control measures for the process* would also be useful for channelling the efforts of process improvement teams.

Despite the best efforts of an organisation and the establishment of *control measures for the process*, a problem with a process may not become apparent until the product/service (the process outcome/output) has either reached the next process which is to add value to it (if an internal customer), or has reached the external customer. *Complaint management* would enable the process owners to capture salient information relating to errors in the process(es) under their ownership, from their internal or external customers. This information could then be systematically analysed for permanent corrective action purposes. Furthermore, managed properly and, in particular collectively, complaints might prove to be a vital source of information for identifying process modification requirements that might otherwise be difficult to detect, or for identifying opportunities for process improvement.

It is reasonable to suggest that while *control measures for the process* and *complaint management*

²¹⁵In section 8.2.4 it is reported that *empowerment* and *motivation* were considered to be "important" TQM sub-elements associated with 'people focus'.

are important for signalling problems and channelling the efforts of process improvement teams from a reactive point of view, they would be less adequate in supporting these teams proactive improvement efforts. When there are no major problems with processes, but nevertheless improvements to the effectiveness of processes are sought, a comparative standard against which objectives for improvement can be defined would be required. *Process benchmarking* - the comparison of a process in the organisation against the equivalent of another organisation - represents an important mechanism for the identification of standards of process performance in this respect.

The proposed sub-element *technical support* only marginally received a rating of "important". The author would propose that as was described in section 5.4.2, this finding reflects the fact that in the best practice organisations the technically oriented supporting functions are largely decentralised and integrated with the normal business processes. However, it must be stressed that this does not mean that technical support is redundant in a TQM environment. Clearly technical support is important - it would appear to be the location and responsibility for technical support that changes. The proposed process focus sub-element *team member selection* received a mean value rating of 3.5, hence only just qualifying as an "important" sub-element. The author would propose that this finding suggests that *team member selection* is not a major issue when the organisation organises itself according to a process focus. That is to say, for the normal every-day operation of a process, the associated process team would be selected according to the definition of the process - selection would not be a separate disconnected issue. Further, that team member selection would also not be a major issue in relation to process improvement teams because, the people best qualified to take responsibility for the improvement are those organisation members who already have ownership of the process.

Relative to most of the other sub-elements concerned with process focus the TQM sub-element *technology* also received a low rating of importance. It would appear that technology is not considered to be one of the key determinants of how a best practice TQM company should organise its operations. As will be apparent from the arguments presented in the next section, it is reasonable to suggest that rather, this finding reflects the importance attached to TQM's perceived role as *a means of harnessing the competence and expertise of people*.

In section 6.3.2 the finding that the best practice TQM organisations emphasise outcomes rather than solely focusing on outputs was reported. It is reasonable to suggest that one of the crucial

mechanisms that enables focus on outcomes within an organisation is adoption of the process-view. Because all processes have a customer, and because process definition starts with definition of the requirements of these customers, the process-view forces internal customers to clearly and explicitly define their requirements, or forces the process owners to take the steps necessary to clearly and explicitly define the requirements of the external customer. Ultimately therefore, it is the requirements of the final customer in the chain, or the outcome of the chain of processes, that must be clearly defined first.

The primary data and their explication presented above would lead the author to suggest that the adoption of the process view is one of the key mechanisms supporting TQM's perceived methodological role *as a framework for company-wide improvement efforts* (section 6.3.2). Further, because the process view requires that an organisation defines its activities as chains of tasks regardless of their "traditional functional association", the process view also would directly appear to support TQM's perceived role as *an integrating device*.

8.2.4 Sub-elements of TQM concerned with people focus

Figure 8.2.4 shows the calculated mean values for the proposed sub-elements of TQM concerned with *people focus*. Three sub-elements were considered "very important" and thirteen were considered "important". The participants expressed a "neutral" view for two sub-elements.

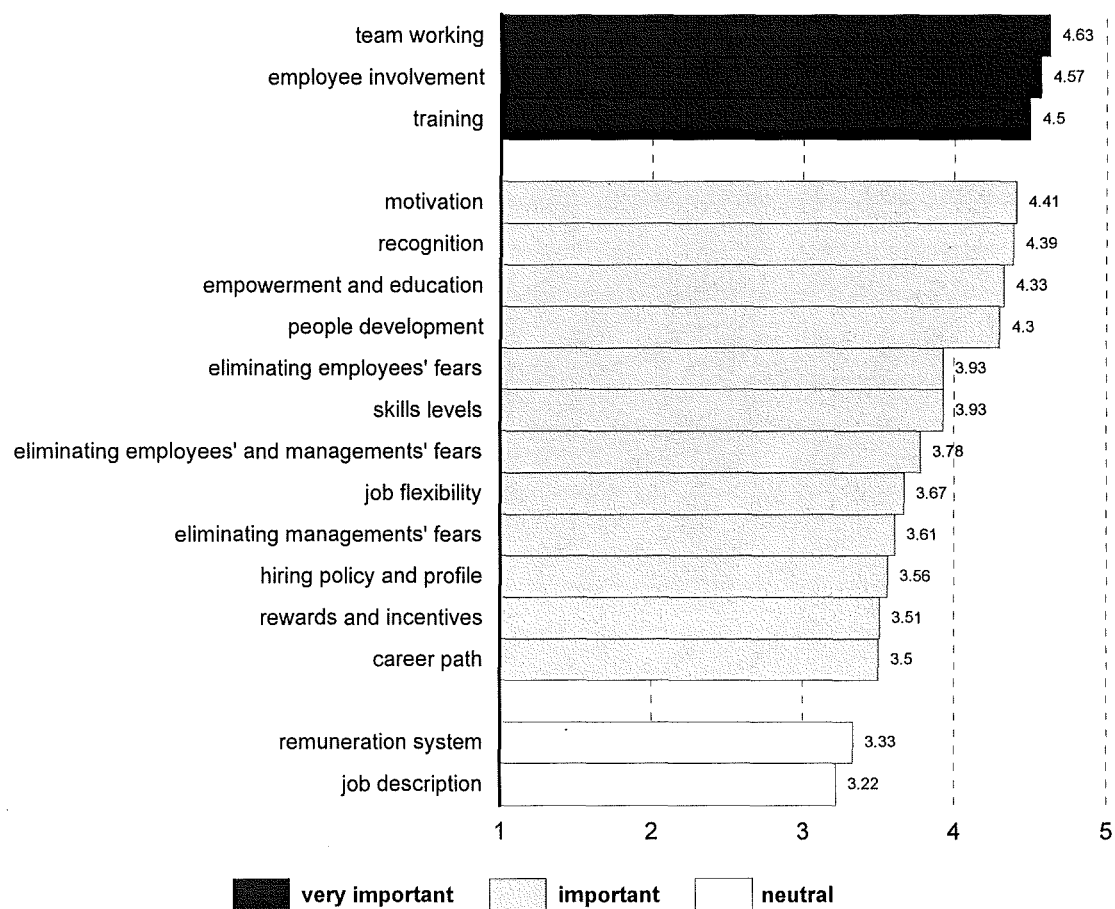
These sub-elements largely represent the ways in which the best practice TQM organisations provide the essential support that enables the members of the organisation to fulfill the roles desired and/or expected of them in a TQM environment. The three TQM sub-elements concerned with people focus that were rated as "very important" were:

- *teamworking*,
- *employee involvement* and
- *training*.

The Delphi round 2 questionnaire also investigated the *necessary conditions* that must exist in an organisation for a "quality ethos" to permeate an organisation in its entirety. It was found that the participants in general agreed strongly that these *necessary conditions* also included 'teamworking', 'employee involvement' and 'training'. To avoid unnecessary duplication, the logic underlying

these three TQM sub-elements is discussed in detail in chapter 9. It is important at this juncture, however, to briefly propose how these three TQM sub-elements are broadly related to each other and to other TQM sub-elements. The organisation of tasks and activities around *teamworking* is one of the primary mechanisms that enables *employee involvement*. Furthermore, this enables moves towards desirable orientations such as cross-functional coordination and integration of functions to take place. Organisations adopting a process focus require substantially greater team and group working than functionally structured settings. To be effective, *teamworking* and *employee involvement* must be supported by *training, recognition, empowerment and education* and *people development*. These three sub-elements signify a shift in attitude that is well expressed by Oakland (1993): if employees are to accept their full share of responsibility, they must be able to participate fully in the making and monitoring of arrangements for achieving the requirements of their work place.

Figure 8.2.4 - Means scores for TQM sub-elements concerned with *people focus*



Motivation was the fourth highest rated sub-element concerned with *people focus*. Such perceived importance would suggest a recognition by the best practice organisations that key capabilities that

create competitive advantage come from people, however if the organisation is to harness these capabilities it must be attentive to the employees' motivations. It may be argued that *motivation* is both a driver and a desirable consequence in a best practice TQM approach. "A driver" because it underpins employees' receptivity to become fully involved in the organisations activities, to release their knowledge and skills, and helps to establish their commitment. "A consequence" because reciprocally, when employees are given the opportunity to participate and, their participation is acknowledged and appreciated by the organisation, their motivation to continue to contribute would be increased. Sink (1991) suggested that people do not typically think their way into a new way of acting, they normally act their way into a new way of thinking. Holder and Walker (1993) observed that if employees are given a chance to contribute their "know-how" and hard work, they have shown over and over again that they have much to give.

Empowerment and education is an important mechanism through which the organisation can nurture employees to support change, and also give them responsibility for engendering change and taking some control over their own destiny (Hamel, 1996). According to Hayes (1997) organisational psychologists have known for a long time that when people are empowered and hence given responsibility, they act in a much more responsible way. Hamel (1996) would support this observation, stating that "*that which is imposed is seldom embraced*". More specifically, empowerment is desirable because it enables employees to solve problems and satisfy customers without time consuming action approvals (Rodrigues, 1994). Furthermore, Reicheld and Sasser (1990) proposed that encouraging employees to take the initiative to solve customer problems and eliminate the source of complaints results in customers treating them better in return. The overall exchange becomes more rewarding and, people enjoy their work more. Consequently, both customers and employees would want to continue and develop their relationship with the organisation. It is reasonable to argue however, that empowerment is likely only to be effective if the employees are equipped with the necessary knowledge that will enable them to make appropriate decisions and deliver the required actions. That is to say effective empowerment is dependent on the intellectual ability of employees, and hence appropriate *education*.

The author would argue that the importance attached to the sub-elements *skills levels* and *job flexibility* derives fundamentally from the best practice organisations' preference and propensity for teamworking and a focus on processes. The value of a "process focus" was explained in section 8.2.3. It may be argued that this orientation requires substantially greater team and group working from employees than functionally structured settings. The process view and teamworking

arrangements do not simply represent configurations comprising groups of individuals, in which, each group of individuals work in close physical proximity to one another. Rather, they represent configurations in which each of the groups of individuals collectively take ownership of a process or activity that in scope and magnitude far outweighs that of individual tasks. Further, though some members may bring specialist skills to the group, it may be argued that the skills that enable the group to be effective in terms of shared values, shared motivations and shared beliefs about how the process/team activity should be managed and executed, are shared skills. Such scope, collective responsibility and the need for shared skills therefore demands that the individuals comprising the group have a wide range of skills and the ability to be flexible in task assignments. The sample also attached importance to the more abstract sub-element *people development*. This would signify realisation by the best practice TQM organisations that the means for the development of employees can and should extend beyond the direct education and training activities.

The sample attached substantially more importance to *recognition* than to *rewards and incentives*. The latter only marginally qualified as an "important" TQM sub-element. Further, the participants expressed "neutral" importance for the proposed sub-element *remuneration system*. Wilkins (1983) suggested that while work assumptions focus on the work to be accomplished and how it is to be performed, reward assumptions guide thinking about why one should or should not implement the work assumptions. In other words, reward assumptions form the basis for motivation in a work culture. A considerable body of organisational behaviour research has shown that strategies that can help organisations motivate, reward and retain valuable employees focus on intrinsic rewards [Herzberg (1987), Brook and Brook (1989), Mower and Wilemon (1989), Braham (1989) and de Leon and Taher (1996)]. Further, that extrinsic rewards are not as powerful as intrinsic rewards. Intrinsic rewards may be supported by extrinsic rewards - *rewards and incentives* such as compensation, benefits and bonuses - but extrinsic rewards are secondary. *Recognition* - a non-financial expression of appreciation - is an important form of intrinsic reward. It may be argued that recognition encourages total quality behaviour. According to Hudetz (1994/1995), important aspects of a company's mission are lost when the focus is on *rewards*, and that the essentials - improvement, innovation, quality, teamwork and customer focus, end up secondary to the reward²¹⁶. Nevertheless, there would also appear to be broad agreement in the research referred to, that financial compensation must be present in a sufficient amount for intrinsic rewards to

²¹⁶Strebel (1996) would add that in the context of a major change initiative, management sensitivity to this dimension of their relationship with subordinates is crucial to gaining commitment to new goals and performance standards.

succeed. That is to say, it is *recognition* that counts, so long as the financial *rewards* are enough (Mower and Wilemon, 1989).²¹⁷

Eliminating employees' fears and *eliminating managements' fears* were both perceived to be "important" sub-elements. It was argued in section 8.2.1 that the bases of relationships in a TQM environment are trust, confidence and mutual respect. It is reasonable to suggest that *eliminating employees fears* and *eliminating managements fears* significantly underpins an organisation's ability to nurture and establish these bases of relationships. Within an organisation fear can take many forms: fear of others, fear of failure, fear of appearing ignorant and fear of loss of power. Examination of the TQM literature (section 2.8) indicated that one of the major obstacles that has been encountered in introducing and sustaining a TQM approach is fear of change. Strebel (1996) has suggested that managers and employees view change differently, and they commit to change in different ways to bring it about²¹⁸. Nevertheless, as Holder and Walker (1993) suggested, change causes many to feel insecure - uncertain about where it might lead. It may be argued that fear is an inherent human condition, and resistance to change, whether conscious or unconscious, is how this inherent human condition tends to manifest in organisations. Investigation of the organisational role of TQM (chapter 6) indicated that TQM is about mobilising an organisation for continuous change. The elimination of fear therefore has particular significance. Whatever form fear may take in an organisation it is generally accepted that fear is a barrier to improvement and innovation. Logothesis (1992) suggested that in an environment of fear, efforts and actions are directed more towards personal survival rather than towards the achievement of business objectives. The finding would support Sink's (1991) and Holder and Walker's (1993) suggestion, that fear is a certainty that must be anticipated, confronted and managed.

Hiring policy and profile was considered to be an "important" sub-element. This is the first opportunity the organisation has for identifying a potential new employee's orientation towards quality, teamwork, responsibility and customer service. The author would suggest that an

²¹⁷Herzberg (1987) referred to this as the "motivation-hygiene" theory.

²¹⁸Strebel (1996) suggested that top level managers tend to see change as an opportunity to strengthen the business by aligning operations with strategy, to take on new professional challenges and risks, and to advance their careers. For many employees on the other hand, change is neither sought after nor welcomed because it is seen as disruptive and intrusive - it upsets their balance. There would also appear to be agreement in the literature (section 2.8.1) that fear of change within management tends to reside more at the middle management level: empowering people implies less power for middle managers, and if they are accustomed to managing in an autocratic style (a common pre-TQM management styles discussed in section 5.4.4) this appears to be a net loss situation to them.

important ingredient in establishing trust and displaying to the members of the organisation that their contributions are valued, is making sure that people enter and the organisation with the right understanding of what is expected of them. As such, new employees should be judged as much on the basis of their fit with the company's values and principles as they are on their ability to fulfill the technical requirements of the job.

Career path received a mean value rating of 3.5, hence only just qualifying as an "important" sub-element. Traditionally, career path was associated with climbing the supervisory and management hierarchy. The author would propose however, that the desirable structural orientations (flat management hierarchy, decentralisation of specialist functions and integration of functions) and the preferred mode of operation (organising around processes and through teamwork) of a TQM approach places less emphasis on direct attention to career path. Rather, that career progression in a TQM environment is much more concerned with the responsibility attained by an individual as part of a collective group entity.

Job description was the TQM sub-element associated with people focus that received the lowest rating. The rating reflected "neutral" importance. It has been suggested that redefinition of jobs is an integral part of change in all organisations [Ascari et al (1995)]. However, this finding would suggest that *job description* is not necessarily considered the appropriate mechanism in a TQM approach. According to Ackoff (1993), *job descriptions* limit what people are allowed to do at work and prevent them from using all they know in what they do, and furthermore, they are based on the assumption that those who prepare the description know better how to do the job described than those who have to do it. Ackoff (1993) asserted that this assumption was generally false. Furthermore, the terms of a *job description* rarely capture the importance of commitment.

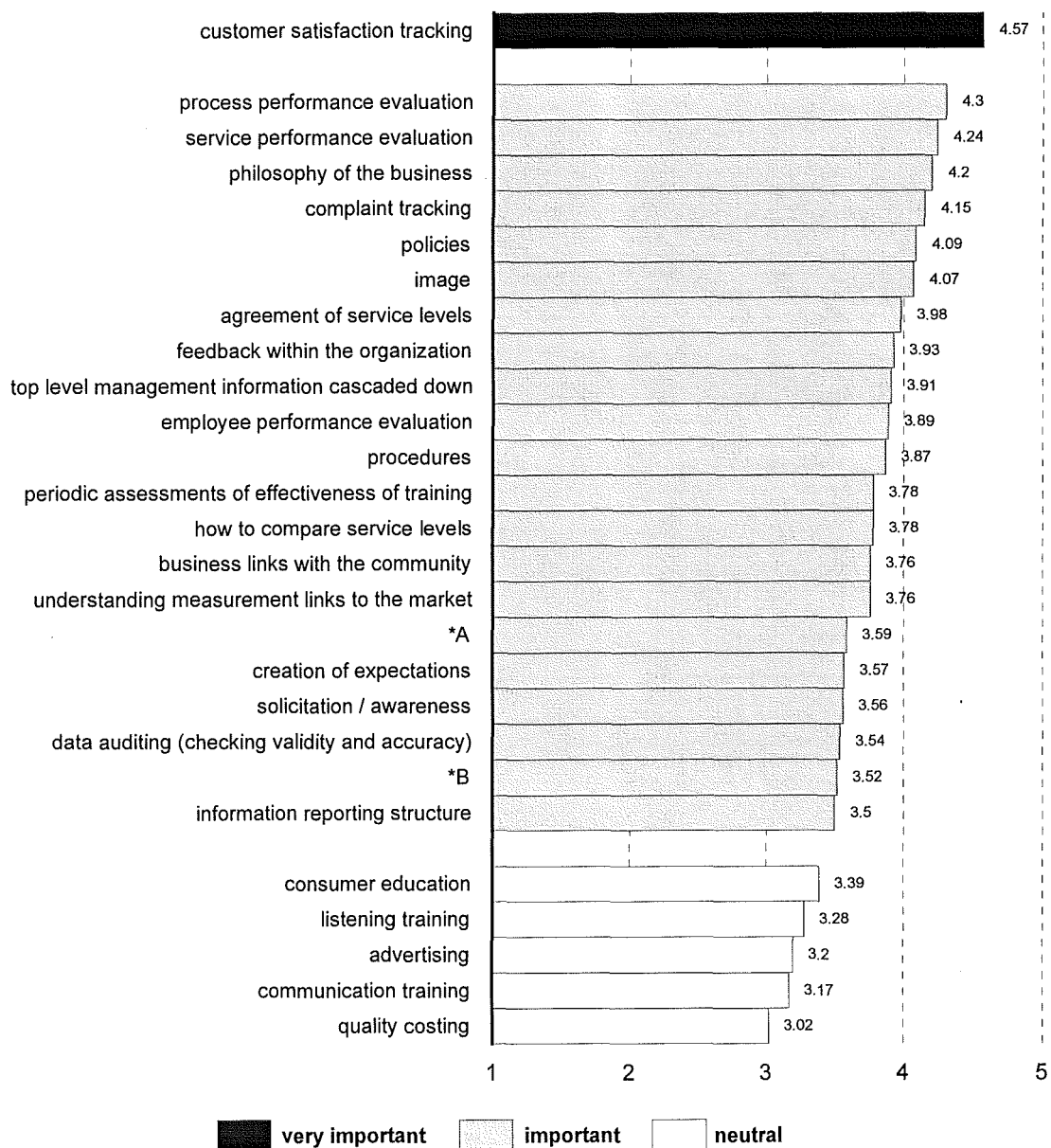
8.2.5 Sub-elements of TQM concerned with communication and measurement

Figure 8.2.5 shows the calculated mean values for the proposed sub-elements of TQM concerned with *communication and measurement*. One sub-element was considered "very important" and twenty one were considered "important". The participants expressed a "neutral" view for five of the sub-elements.

The findings and supporting arguments would indicate that the important sub-elements associated with *communication and measurement* are linked back to and support the important TQM sub-

elements associated with the other four main elements of TQM.

Figure 8.2.5 - Means scores for TQM sub-elements concerned with *communication and measurement*



KEY: A - defining activities to be pursued during planning, implementing and reviewing B - describing roles and responsibilities of each key individual during each step in 'A'

Given the finding that the most important perceived purpose of TQM was *ensuring customer satisfaction* (section 6.3.1)²¹⁹, it was not unexpected that *customer satisfaction tracking* was rated "very important". *Customer satisfaction tracking* is the essential feedback mechanism in an

²¹⁹and the primary data findings for the TQM sub-elements associated with *market focus* (section 8.2.2).

organisation's efforts to accurately determine and deliver products/services that satisfy, customer's real wants, needs and expectations. The information provided by customer satisfaction measurement should enable the organisation to close any gaps between what it perceives its customers require, and the actual customer requirements and expectation. *Customer satisfaction tracking* represents a proactive commitment to customers. This is in contrast to the more traditional approach of relying on financial results and customer complaints tracking as the organisation's indication of its performance in satisfying its customers. The traditional approach has the inherent disadvantage that only a small proportion of dissatisfied customers may actually complain to the organisation, thereby generating a rather unrepresentative sample of customer related problems (Oakland and Beardmore, 1995)²²⁰.

That is not to say however that the best practice organisations are not interested in complaints. This was shown by the sample's response to the proposed sub-element *complaint tracking* which was perceived to be "important". As was explained in section 8.2.3, despite efforts to prevent customer related problems, problems may not always become apparent until the product/service has reached the customer. It may be argued that when used pro-actively in conjunction with other methods, *complaint tracking* can be an excellent source of customer related information. Furthermore, it is not only the quality of goods and services sold that is important to customers, but also their after sales experience with the organisation, such as performance in complaint handling (Whitehall, 1992). Preventing customers from telling others of bad purchase/service experiences, by successfully handling complaints is a well-recognised and highly useful way of reducing the number of negative comments about purchase/service performance that get into circulation, thus leaving the good points looking better (Williams, 1993b).

The latter suggestion, points to the logic underlying the relative perceived importance of five other sub-elements concerned with communication and measurement. *Image* was perceived to be "important". So too, though to a lesser extent, were *creation of expectations* and *solicitation/awareness*. However, the sample expressed a "neutral" view for the sub-elements *consumer education* and *advertising*. These five proposed sub-elements are all concerned with an organisation's external communications. It may be argued that by consistently demonstrating competence, organisations *solicit* customers and, *create expectations* that the customer can be confident will be delivered. In other words, when the quality of the product/service offering and

²²⁰A consequence in a TQM environment would be that inaccurate information would be fed to process improvement teams for making modifications and improvements to the processes under their ownership.

its associated delivery process is consistently high, the need for the organisation to pursue the often resource intensive processes of *consumer education* and *advertising* are reduced. In effect, *consumer education* and *advertising* are done on behalf of the organisation by satisfied customers disseminating their satisfaction²²¹.

Process performance evaluation and *service performance evaluation* were the second and third highest rated sub-elements associated with communication and measurement. Such importance would infer that the best practice TQM organisations change their measurement practices so that the main focus relates to the performance of processes and service rather than functions. Geanuracos and Meiklejohn (1993) asserted that the fastest ways an organisation can add value to its operations is by tracking, analysing and devising measures to monitor core business processes, and determining the measures which best indicate desired performance from the customer service viewpoint²²². Walsh (1995) explained that when an organisation is managed functionally it tends to measure what interests senior managers the most - the key performance outcomes. Under a process view on the other hand, the organisation still measures the key performance outcomes, but because it is focused on processes, it is also attentive to the in-process measures which affect the key performance outcomes namely, the key performance drivers. In further support of the logic underlying the perceived importance the sample attached to the sub-element *employee involvement* (section 8.2.4), Walsh (1995) made the point that this change of mindset leads organisations to ask the question, "*who knows best about the drivers and how the way the organisation works affects them ?*", and that the answer directs the organisation to the people who perform the day-to-day operations. Thus, *process performance evaluation* and *service performance evaluation* are important measurement mechanisms that help the organisation to ensure that key business and value-adding transformation processes are effective and build quality into goods or services. Sink (1991) describes these mechanisms as "in-process quality management and assurance".

The sample rated both *policies* and *procedures* as "important" sub-elements of TQM. *Policies* and *procedures* are the mechanisms through which, once identified or developed, best practices in any area of an organisation can be captured in order to provide subsequent direction (*policies*) and guidelines (*procedures*) to the members of the organisation. In this way, it may be argued that *policies* and *procedures* support TQM's role as a *guide for achieving organisational objectives*.

²²¹This argument would further support the finding that *sales / promotional tools* was not considered to be an "important" sub-element of TQM (section 8.2.2).

²²²where the author proposes that the customer service viewpoint relates to that of both internal and external customers.

It would appear that to be effective and value-adding, the systematic evaluation and measurement efforts discussed previously must be underpinned by *effective feedback within the organisation*, that includes *top level performance information pushed down and communicated throughout the organisation*. That is to say an effective TQM approach requires not only extracting, collecting and organising information, but also sharing it widely. It may be argued that the importance of feedback in a TQM approach is very wide-ranging. The following discussion attempts to capture some of the salient reasons²²³.

Examination of the strategic role of TQM (section 7.3.1) indicated that strategies, tactics and plans should be discussed as systematically, openly and widely as possible at all levels in the organisation. Preston and Saunders (1994) suggested that only good information fed back from the operational level could enable the organisation and particularly its leaders to make those strategic decisions which would further enhance organisational performance. Schonberger (1994) asserted that the dissemination of information, especially about processes and outcomes, is the lifeblood of TQM group and team working. The author would suggest that employees need to have a clear picture of what would signify to them that the tasks and activities under their ownership have been completed successfully and, if there is room for improvement. Furthermore, Hutt (1994) proposed that although it can be agreed that in theory everything is measurable, in many activities these measures may not be apparent. Employees at all levels in the organisation need to know what performance standards they are aiming for. Sathe (1983) would add that no matter how well-thought-out, procedures (justifiably observed to be an "important" TQM sub-element) cannot anticipate all of the operational contingencies that might conceivably arise.

To achieve two way communication of comprehensive, accurate and reliable information in an organisation, leaders must first be willing to listen and learn and hence be accessible and be seen to be accessible (Preston and Saunders, 1994). They must then reciprocally provide the members of the organisation at lower levels with pertinent information. Hayes (1997) suggested that internal communication about the achievements of the organisation itself and, encouraging staff to be aware of their own contribution to those achievements, is a way of allowing people to feel good about belonging to their working groups and teams. According to Preston and Saunders (1994), the sharing of information at all levels in an organisation is part of the process of empowerment. The author would suggest that the sub-element *top level performance information pushed down and communicated throughout the organisation* is a crucial determinant of the necessary condition for

²²³An inclusive discussion would be beyond the scope of this write-up.

the attainment of organisation-wide quality that the participants identified as "very important", *active and visible participation of top management* (section 9.2).

Further, there is broad agreement that communication is critical to the management of change, and successful implementation of change efforts requires a great deal of communication, coordination and cooperation (Sink, 1991). Good communication allows people to know that they are part of the company evolution and thereby facilitates the change process by creating minimum surprise and resistance (Preston and Saunders, 1994). The author would suggest that these traits of communication in particular help to ensure organisation-wide acceptance of and buy-in to a business management approach based on total quality.

Employee performance evaluation was rated as an "important" sub-element of TQM. This would appear to be for a number of salient reasons. Firstly, it can help to ensure that employees are assigned appropriately to the tasks, activities and processes that will make best use of their strengths, and that they are not assigned to tasks, activities or processes for which they have yet to attain the required level of competence. The latter arguably can have undesirable consequences. As Oakland and Beardmore (1995) pointed out, lack of skills and knowledge can be immediately off-putting to customers, which could then result in a lack of confidence both in the customers perception of the organisation and on the part of the individual delivering the particular service. Secondly, *employee performance evaluation* can be used to encourage employees to measure their work in terms of its value to the customer, rather than its cost to the company. Thirdly, *employee performance evaluation* has an important connection with respect to *involvement* and *recognition*. It was argued in section 8.2.4 that if employees are to be receptive to increasing their scope of involvement and commitment to involvement, then it is important for the organisation to provide the reciprocal commitment of recognising (and when appropriate rewarding) their efforts. In this respect measurement and evaluation mechanisms are necessary for accurately and justifiably establishing where and when recognition should be bestowed²²⁴. Finally, as Boaden and Dale

²²⁴A common example of traditional management behaviour (section 5.4.4) is fire-fighting, where an individual will drop everything else and focus on a crisis. However, as Palmer and Wilson (1995) have suggested, a common traditional response (and especially when the affliction is of potentially catastrophic proportions) is that the individual is regarded as a hero and is financially rewarded. They contrasted this observation against the behaviour of individuals working in a total quality manner - they plan and look ahead, iron out systems problems, introduce simpler processes, train other employees and listen to the requirement of internal customers. That is to say they expend effort to avoid the crisis occurring in the first place. However, this inherently gives them less visibility (particularly with superiors) and hence they do not gain the high profile of their fire-fighting peers. The implication thus is that to encourage positive response from employees and to create the appropriate basis for motivation, an organisation needs to adopt new ways of measuring managerial and employee performance, and new ways of bestowing reward.

(1994) pointed out, motivation is increased when people are able to see the impact of their activities and efforts on key result areas and measures.

In section 8.2.4 it was reported that *training* was found to be a "very important" supporting sub-element of TQM. The primary data findings reported in chapter 6 supported the argument that a key role of TQM is to establish systematic links between the objectives of the organisation and the task and improvement objectives of individuals and teams. Weak links would result in conflicting expectations, conflicting standards and a general lack of harmony within the organisation. This problem can be exacerbated if supporting training efforts are not deployed effectively. Researchers have frequently observed that training, which can absorb resources very quickly is often wasted when it is disconnected from clearly specified task or improvement objectives [Pye (1988), Haywood (1992) and Krishnan et al (1993)]. This would support the finding that *periodic assessments of effectiveness of training* was considered to be an "important" TQM sub-element. It would appear however, that the perceived importance extends further. A broader objective of engaging members of the organisation in training activities is to effect positive attitudinal and behavioural change. Previous research by Tannenbaum et al (1991) led them to conclude that simply participating in training activities *per se* was not sufficient to bring about attitudinal and behavioural change. Rather, it was training fulfilment (i.e. pertinent, effective and successful training) that played a central role in the development of post-training activities.

Agreement of service levels, how to compare service levels, and understanding measurement links to the market were all considered to be "important" TQM sub-elements. It is reasonable to suggest that *agreement of service levels* is a crucial link in the cycle of processes concerned with determining customers' requirements and clarifying their expectations. That is to say, the organisation's ability to satisfy customers may easily be undermined if it does not attempt to ensure that the identified customer requirements are translated into agreed deliverables. *Agreement of service levels* could help the organisation to ensure that it delivers products/services to its customers to the agreed quality and, at the agreed time. As such, *agreement of service levels* could also help convey to customers the organisation's commitment to consistently delivering to requirements. *How to compare service levels* would be important because differing approaches to the establishment of service levels may be required for different customers, and because different customers may define "service level" in different ways. Therefore, for the purpose of gauging and/or establishing an overall service level, comparative mechanisms would be required. The author would argue that underpinning both the effective use of information gathered from

customers/external sources and, the ability to establish agreement on service levels, is the need for an organisation to understand the important measurement links to its actual and potential markets.

The author would propose that *agreement of service levels* and *understanding measurement links to the market* were perceived to also be "important", for another more subtle reason. This relates to the management information system of the organisation, which in the past may have been set up primarily for internal communication purposes, with few direct linkages to the external environment. Drawing on the insights of other researchers, Miller (1994) explained that these "traditional" management information systems do not track the things managers believe to be unimportant or unchanging, but instead focus attention on what is thought to have mattered in the past²²⁵. Even in many successful businesses, managers develop the self-assurance to home in very precisely on what they believe explains their success. Their information systems then fix upon this and ignore everything else²²⁶. Such focused systems institutionalise and routinise gaps in organisational intelligence²²⁷, and problems can become the only means motivating managers to stray from their formal systems and to gather non-routine information. The implication is that if information processing and communication is too internally focused it can insulate the firm from its environment, preventing top managers from noticing important external challenges. It may be argued that because the two sub-elements *agreement of service levels* and *measurement links to the market* inherently involve direct linkages to external customers and environment, they help the organisation to overcome these problems and establish a permanent external focus.

The closely associated sub-elements *defining activities to be pursued during planning, implementing and reviewing* and *describing roles and responsibilities of each key individual during planning implementing and reviewing* were both considered to be "important" sub-elements. In section 6.3.2 it was reported that a key perceived methodological role of TQM was *harnessing the competence and expertise of people*. It was argued that a large proportion of the useful information in an organisation is in the form of the expertise, knowledge and past and ongoing experiences of all contributing employees. As Schonberger (1994) has pointed out, it is only truly useful however, if means can be found to extract the information from individuals and feed it to all the others.

The relatively low importance rating for the proposed sub-element *data auditing (checking data*

²²⁵(Starbuck (1985) and Staw et al (1981))

²²⁶(Meyer and Starbuck (1991))

²²⁷(Starbuck and Milliken (1988) and Wilensky (1971))

validity and accuracy) would suggest that whilst an aim of the TQM approach would appear to be to minimise the necessity of checking data validity and accuracy (section 5.4.10), in certain circumstances data auditing would nevertheless be a constructive activity in support of accurate and reliable fact-based decision making. The sub-element *information reporting structure* was only just perceived to be "important". The author would propose that this finding reflects a view, that whilst "information reporting" is clearly crucial in a TQM approach as has been explicated above, the value-adding nature of information that is desired, de-emphasises the establishment of information reporting structures, which if not constantly reviewed might easily start to impose rigidity on information sharing.

Two proposed sub-elements that were considered to be of "neutral importance" were *listening training* and *communication training*. On a priori grounds, these would have been expected to have been considered important. It may be argued that if an organisation is moving towards a team culture, skills in communication and listening would be essential. Previous discussions would support this proposition. As such, no clear explanation for these primary data findings were apparent. The author can only suggest that the participants may have taken the meaning of these sub-elements too literally. That is to say that they were interpreted in the context of formal training sessions (for example in making presentation).

Quality costing was the lowest rated proposed TQM sub-element concerned with communication and measurement. The author would suggest that the extensive use of *quality costing* would change the focus of the TQM approach of an organisation from broad to narrow. That is to say it may deflect the attention of the members of the organisation away from the broader/softer roles of TQM, towards a more restricted view bounded by cost considerations. Furthermore, evidence would suggest that in practice quality costing is difficult to operationalise, in particular the categorization of costs into the various generic types of quality costs [Bamford (1995)].

The primary data and supporting arguments presented in this section clearly suggest that communication and measurement must not be isolated undertakings in a TQM environment. The important sub-elements would appear to close the loop in the organisation's efforts to *ensure customer satisfaction, ensure constancy of purpose, harness the competence and expertise of people* and *integrate*. More specifically, the evidence would indicate that the important communication and measurement sub-elements play a key role in:

- developing the strategic direction of the organisation;

- setting and reviewing objectives and standards of performance;
- defining key processes and their critical measurable factors and
- providing insight into how to train, motivate, educate and empower employees (Geanuracos and Meiklejohn, (1993).

That is to say, the 'measurement' related sub-elements provide the key data and information, and the 'external' and 'internal' communication related sub-elements provide the key collection and dissemination mechanisms. A frequently expounded tenet of quality improvement is that "you only improve what you measure". However, as Schonberger (1992) proposed, aggregate numbers that are planned and measured high in the organisation hierarchy have little relevance to the work of most people in the organisation. The findings presented would appear to support this view and, furthermore, that a best practice TQM approach requires everyone in the organisation to be working on improvement that is both measurable and meaningful in the context of their own jobs.

8.3 Influence of *Size* and *Class* of Organisation on Sub-Elements of TQM

χ^2 test of significance was performed on all TQM sub-elements that were rated as important. χ^2 test of significance at 95 percent confidence indicated that statistically a difference was perceived for one sub-element according to *size* of organisation and for ten sub-elements according to *class* of organisation. The data pertaining to these statistical suggestions were further examined to: (a) search for explanations for the suggested differences and (b) assess whether or not the statistical findings reflected differences meaningful enough to be represented in the development of the conceptual map. Tables 8.3a and 8.3b show these sub-elements, the nature of the observed differences, the χ^2 statistics and proposed reasons for the observed differences.

Table 8.3a - Important TQM sub-elements: differences between views of large organisations and SMEs

MAIN ELEMENT:	SUB-ELEMENT:	NATURE OF THE DIFFERENCE:
process focus	<i>technology</i> <i>($\chi^2=7.79$, with $\alpha=0.05$)</i>	Whilst 92% of SMEs agreed or strongly agreed that technology is an important sub-element of TQM, only 48% of large organisations agreed to some extent, and nearly one quarter (24%) disagreed or strongly disagreed. Previous discussions showed that a process focus is equally important to both large organisations and SMEs. However, in SMEs there are a smaller number of people to mobilise into the TQM process and it may therefore be easier for SMEs to introduce technology considerations in the TQM process. Also in SMEs it is likely that a greater proportion of the workforce will be closer to the technology than in large organisations.

Table 8.3b - Important TQM sub-elements: differences between views of manufacturing, service, and M/S organisations

MAIN ELEMENT:	SUB-ELEMENT:	NATURE OF THE DIFFERENCE:
management process	<i>integration of functions</i> ($\chi^2=10.7$, with $\alpha=0.05$)	91% of manufacturing organisations agreed or strongly agreed that integration of functions is an important sub-element of TQM. However, 38% of M/S organisations expressed a neutral view, and 34% of service organisations either expressed a neutral view or disagreed. It is possible that organisations with a service orientation tend to have more inherently integrated functions as part of normal business practice than manufacturing organisations, and therefore do not perceive integration of functions as much of a key TQM concern as manufacturing organisations would.
market focus	<i>knowing your vendors</i> ($\chi^2=11.1$, with $\alpha=0.05$)	Service organisations were the exception. Only 42% agree to some extent that knowing your vendors is an important sub-element of TQM, compared to 80% for manufacturing organisations, and 92% for M/S organisations.
	<i>vendor selection and quality assurance</i> ($\chi^2=10.2$, with $\alpha=0.05$)	Again service organisations were the exception. One third agreed, one third expressed a neutral view, and one third disagreed that vendor selection and quality assurance is an important sub-element of TQM. Service organisations tend to be less reliant on suppliers and vendors as the services they provide tend to be generated by themselves, rather than by adding value to raw materials or other physical inputs. Therefore, knowing vendors capability and performance would be less of a priority to service organisations.
process focus	<i>technology</i> ($\chi^2=10.2$, with $\alpha=0.05$)	Only 25% of service organisations agreed that technology is an important sub-element of a TQM programme. 33% of service organisations disagreed. Manufacturing and M/S organisations agreed to a much greater degree. Interestingly however, manufacturing organisations (67%) were almost twenty percent lower in agreement compared to M/S organisations (85%). It is plausible to suggest that manufacturing organisations tend to be more capital intensive than service organisations (who are inherently more labour intensive). Manufacturing technology will therefore be a prime concern to them. It should be pointed out however that one would expect information technology to be equally as important to service organisations. In this respect, the low agreement might be influenced by a perception in service organisations that information technology is a support resource rather than a value-adding resource.
	<i>control measures for the process</i> ($\chi^2=9.94$, with $\alpha=0.05$)	M/S organisations (85% in agreement) attach more importance to control measures for the process as a sub-element of TQM than both manufacturing organisations (71% in agreement) and service organisations (58% in agreement). No meaningful explanation for this observation was apparent.

people focus	<i>motivation</i>	64% of service organisations were in agreement that motivation is an important element of TQM. The other 36% expressed a neutral view. However, both manufacturing (95%) and M/S organisations (92%) were much more in agreement.
	$(\chi^2=12.3, \text{ with } \alpha=0.05)$	The author would suggest that this a reflection of an inherent difference between manufacturing organisations and service organisations that relates to employees' responsibilities for organising their own time. In manufacturing organisations the 'time of delivery' for the various tasks constituting the workload is less well defined than in service organisations where the 'time of delivery' is more often than not intrinsically well-defined. Thus, in manufacturing organisations the responsibility for organising and developing plans for the achievement of tasks lies much more with employees. The inference is that therefore, in their efforts to sustain and improve organisational effectiveness, manufacturing organisations have more reason to be concerned with the level of motivation of employees.
	<i>job flexibility</i>	There was little consensus about this sub-element. Agreement ranged from 85% of M/S organisations, through 55% of manufacturing organisations, to only 18% of service organisations. The neutral view ranged from 64% of service organisations, through 27% of manufacturing organisations, to 15% of M/S organisations. 18% of service organisations, and 18% of manufacturing organisations were in disagreement with this sub-element.
	$(\chi^2=11.8, \text{ with } \alpha=0.05)$	Clearly however, job flexibility appears to be more important as a sub-element of TQM to organisations with a manufacturing orientation. Multi-skilling is a relatively new concept in manufacturing industries and is an excellent way of encouraging participation, ownership and commitment. It is therefore a concept to be exploited as part of the TQM process. The primarily neutral view for service organisations is perhaps a reflection that multi-skilling and job flexibility are more inherent in their normal business practice.
	<i>employee involvement</i>	All M/S organisations agreed that employee involvement is an important sub-element of a TQM programme, as did 95 % of manufacturing organisations. However, 27% of service organisations expressed a neutral view, with surprisingly only 73% in agreement. Again, the lower rate of agreement for service organisations may be due to a greater degree of natural involvement and participation, implying that involvement is not seen as an addition to normal business practice.
	$(\chi^2=6.50, \text{ with } \alpha=0.05)$	
communication and measurement	<i>process performance evaluation</i>	Whilst approximately one quarter of manufacturing organisations expressed a neutral view and none disagreed, and one quarter of service organisations expressed a neutral view or disagreed that process performance evaluation is an important element of TQM, all M/S organisations agreed to some extent. From this observation it may be argued that combining a product and a service delivery offering requires greater emphasis on the process oriented approach to doing business, rather than the task oriented approach. In this respect, process performance evaluation would be very important to M/S organisations.
	$(\chi^2=10.5, \text{ with } \alpha=0.05)$	

.....
*how to compare
service levels*

($\chi^2=11.3$, with $\alpha=$
 0.05)

As might be expected manufacturing organisations were the exception. Only 38% were in agreement that how to compare service levels is an important element of TQM, compared to 85% of M/S organisations, and perhaps slightly lower than expected, 73% for service organisations. Comparing service levels is a key competitive determinant for service organisations.

Consultation of the data pertaining to the statistical findings suggested that only in the case of the sub-elements *technology*, *knowing your vendors* and *vendor selection and quality assurance* were the observed differences²²⁸ sufficient enough to be included in the development of the preliminary conceptual map.

8.4 Factor Analysis Applied to the Sub-Elements of TQM

The two stage exploratory factor analysis was applied (for detailed description see section 4.4.2) to investigate the empirical factor structure of the participants response to the sub-elements of the best practice TQM. The factor analysis was applied to each set of sub-elements for each of the five main elements of TQM presented in section 8.2 independently. The results of the factor analysis and the "new explanatory variables" subsequently formed are presented in five sub-sections (8.4.1 to 8.4.5).

The participants had rated all the TQM sub-elements associated with process focus as "important" (i.e. all had mean values ≥ 3.5). There was therefore no stage 1 factor analysis to perform on the process focus sub-elements. In the following sub-sections, tables 8.4.1a, 8.4.2a, 8.4.4a and 8.4.5a show the results of the stage 1 factor analyses. The tables show the factor component variables, their factor loadings, factor eigenvalues and percent of variance. In all four analyses the case to variable ratios of 47:15, 47:10, 47:17 and 47:27 respectively were valid ratios for factor analysis. This was confirmed by the Kaiser-Meyer-Olkin measure of sampling adequacy values (KMO) and Bartlett Test of Sphericity / Significance values associated with each analysis. These values are shown in the respective table, and indicated that the factor analysis output could be considered as a valid representation of the input variables.

Tables 8.4.1b, 8.4.2b, 8.4.3a, 8.4.4b and 8.4.5b in the following sub-sections show the results of the stage 2 factor analyses. In all five stage 2 analyses the case to variable ratios of 47:12, 47:9,

²²⁸difference according to *size*, and difference according to *class* of organisation.

47:10, 47:15 and 47:22 respectively were valid ratios for factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy values (KMO) and Bartlett Test of Sphericity / Significance values associated with all five analyses (as shown in the respective tables) indicated that the factor analysis outputs could be considered as a valid representation of the input variables.

8.4.1 Stage 1 and stage 2 factor analysis findings: sub-elements concerned with management process

Table 8.4.1a summarises the results of the stage 1 factor analysis. Principal component analysis extracted four factors and Varimax rotation converged in seven iterations. The first three factors each had clear themes and there was a marked distinction between the themes.

Table 8.4.1a. Factor loadings on (stage 1) fifteen variable set of management process TQM sub-elements

Variable		Factor 1K	Factor 2K	Factor 3K	Factor 4K
<i>planning process</i>	a	-0.205	0.162	0.696	-0.104
<i>integration of functions</i>	b	0.247	-0.028	0.724	-0.078
<i>employee reporting structure</i>	c	0.402	0.290	-0.198	0.075
<i>cross-functional coordination</i>	d	0.401	-0.004	0.639	0.270
<i>decision making - level of delegation</i>	e	0.675	-0.057	0.191	0.067
<i>standards of performance</i>	f	0.139	0.881	0.015	0.133
<i>quality assurance processes</i>	g	0.031	0.525	0.169	-0.716
<i>management style</i>	h	0.811	0.242	-0.010	0.068
<i>management tools</i>	i	0.433	0.288	0.320	0.448
<i>shared responsibility or departmentalised</i>	j	0.327	0.131	0.016	0.587
<i>conflict management</i>	k	-0.139	0.373	0.093	0.567
<i>role of senior management</i>	l	0.665	-0.006	0.084	0.130
<i>role of quality support</i>	m	0.106	0.886	0.182	0.063
<i>trust</i>	n	0.493	0.077	0.275	-0.270
<i>procedures for identifying major improvement projects</i>	o	0.134	0.165	0.591	0.433
Eigenvalue		2.588	2.284	2.096	1.791
Pct of Var		17.25%	15.24%	13.97%	11.94%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.574; Bartlett's Test of Sphericity =183.950 with Significance =0.00.

Factor 1K was clearly associated with the "manner/fashion" of management, comprising variables *decision making - level of delegation (e)*, *management style (h)* and *role of senior management (l)*. Variable *decision making - level of delegation (e)* could itself be regarded as a characteristic of variable *management style (h)*.

The three variables in factor 2K appeared to have a common underlying objective. They were all in some way associated with "conforming". That is to say, the underlying objective of each would be to enable the organisation to incorporate and control a certain level of "conformance" of its internal operations.

Two of the variables in factor 3K related to the "arrangement of internal operations" of the company - *integration of functions (b)* and *cross-functional coordination (d)*. The other two variables *planning processes (a)*, and *procedures for identifying major improvement projects (o)* were both associated with the "determination of intentions". Thus, factor 3K appeared to contain two sub-factors.

Factor 4K was perhaps the least clear of the four factors and provided no meaningful insight. Two of factor 4K's variables, (j) and (k) received mean scores indicating that the participants regarded them with "neutral" importance as important sub-elements of TQM. Factor 4K was thus disregarded in this analysis.

Because at stage 1 three of the four factors had distinct themes, it was deemed appropriate to develop suggested new explanatory variables where possible. However, it was possible only to suggest a precise and meaningful new explanatory variable for factor 2K. This was: **standards or processes for establishing, verifying and assuring quality performance**.

By excluding those variables that the participant group did not believe were important *management process* TQM sub-elements (variables with mean <3.5), the number of variables included in the stage 2 factor analysis was reduced from fifteen to twelve. The number of factors extracted remained at four. The results are shown in table 8.4.1b. Absence of the "non-important" variables added clarity to the stage 1 factor analysis findings. The inconclusive factor from stage 1 analysis, factor 4K, which contained two "neutral" scoring variables was absent from the stage 2 analysis, thus endorsing the previous decision to ignore it. One factor, factor 2L, retained exactly the same variables as factor 2K in the stage 1 analysis. These variables related to "conformity" and the suggested new explanatory variable **standards or processes for establishing, verifying and assuring quality performance** was therefore embraced.

Factor 1L also remained virtually the same as stage 1 factor 1K, with the addition of variable *trust (n)*. This variable added a descriptive dimension to the other three variables. It may be argued that

trust is an important attribute of each of the three other variables. Its presence in factor 1L enabled the previous difficulty of expressing the factor 1K variables in a meaningful new explanatory variable to be overcome, and the new explanatory variable **management style and behaviour underpinned by trust** was suggested.

Table 8.4.1b. Factor loadings on (stage 2) twelve variable set of 'important' management process TQM sub-elements

Variable		Factor 1L	Factor 2L	Factor 3L	Factor 4L
<i>planning process</i>	a	-0.183	0.251	0.092	0.738
<i>integration of functions</i>	b	0.208	-0.026	0.095	0.836
<i>cross-functional coordination</i>	d	0.223	-0.069	0.570*	0.570*
<i>decision making - level of delegation</i>	e	0.742	-0.043	0.229	0.006
<i>standards of performance</i>	f	0.139	0.864	0.218	-0.027
<i>quality assurance processes</i>	g	0.156	0.637	-0.388	0.340
<i>management style</i>	h	0.731	0.226	0.227	0.011
<i>management tools</i>	i	0.258	0.150	0.793	0.012
<i>role of senior management</i>	l	0.567	0.171	0.294	-0.030
<i>role of quality support</i>	m	0.074	0.854	0.217	0.071
<i>trust</i>	n	0.758	0.048	-0.146	0.179
<i>procedures for identifying major improvement projects</i>	o	0.115	0.171	0.738	0.238
Eigenvalue		2.237	2.087	1.972	1.778
Pct of Var		18.64%	17.39%	16.43%	14.82%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)=0.675; Bartlett's Test of Sphericity =156.727 with Significance =0.00.
 *variable excluded from analysis due to similar factor loadings >0.5 on factors 3L and 4L.

The two remaining stage 2 factors, 3L and 4L, contained three of the four variables of stage 1 factor 3K. Here however, the variables were not split according to the associative relationships (i.e. sub-factors) suggested previously. Variables *planning process* (a) and *integration of functions* (b) comprised factor 4L. Variable *cross-functional coordination* (d) did not feature in the factor output. Instead, variable *management tools* (i) was introduced to the factor output, pairing with factor *procedures for identifying major improvement projects* (o) as factor 3L.

The variables in the latter, factor 3L, clearly had a common grounding. That was, the "means for determination of intentions". However, whilst variable (o) clearly stated '*major improvement projects*', the scope of variable *management tools* (i) is much broader. If the former variable was taken as a sub-set of the latter variable, a new explanatory variable for factor 3L could easily have been evolved. However, to ensure that the importance of the former variable was not overlooked at later stages in the research, factor 3L was left in its original state.

The two remaining variables in factor 4L had a high degree of association in the fact that the latter, *integration of functions (b)*, should measurably simplify and more effectively facilitate the former, *planning processes (a)*. Therefore the new explanatory variable **integrated operational arrangement** was proposed.

Table 8.4.1c summarises the new explanatory variables that were formed and their component variables.

Table 8.4.1c. Summary of new explanatory variables associated with *management process*

variable	new explanatory variable / observation
factor 1L: <i>decision making - level of delegation (e)</i> <i>management style (h)</i> <i>role of senior management (l)</i> <i>trust (n)</i>	management style and behaviour underpinned by trust
factor 2L: <i>standards of performance (f)</i> <i>quality assurance processes (g)</i> <i>role of quality support (m)</i>	standards or processes for establishing, verifying and assuring quality performance
factor 4L: <i>planning processes (a)</i> <i>integration of functions (b)</i>	integrated operational management

8.4.2 Stage 1 and stage 2 factor analysis findings: sub-elements concerned with market focus

Table 8.4.2a summarises the results of the stage 1 factor analysis applied to the *market focus* TQM sub-elements. Principal component analysis extracted two factors and Varimax rotation converged in three iterations.

Table 8.4.2a. Factor loadings on (stage 1) ten variable set of market focus TQM sub-elements

Variable		Factor 1M	Factor 2M
<i>market mentality cascaded throughout organisation</i>	a	0.005	0.652
<i>knowing your markets</i>	b	0.654	0.130
<i>knowing your customers</i>	c	0.872	0.009
<i>knowing your vendors</i>	d	0.662*	0.598*
<i>establishing customer needs, wants and expectations</i>	e	0.913	0.122
<i>sales/promotional tools</i>	f	-0.018	0.434
<i>product development process</i>	g	0.549	0.481
<i>vendor selection and quality assurance</i>	h	0.354	0.713
<i>competitive benchmarking</i>	i	0.194	0.751
<i>generic benchmarking</i>	j	0.460	0.752
Eigenvalue		3.137	2.872
Pct of Var		31.37%	28.72%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.738; Bartlett's Test of Sphericity =200.292 with Significance =0.00.
*variable excluded from analysis due to similar factor loadings >0.5 on factors 1M and 2M.

The first three variables in factor 1M each had the common underlying theme of "knowledge" and all pertained to the organisation's ultimate "sources of income", markets and customers. Variable *product development process (g)* related to the three other variables in the sense that they should be an integrated part of this process. That is to say the product development process, especially the early stages, should be founded on information about the wants, needs and expectations of the organisation's markets and customers. This variable nevertheless seemed slightly out of place in factor 1M.

As might be expected, the two variables referring to benchmarking, (i) and (j), were present together in the other stage 1 factor, factor 2M. There did not appear to be any obvious or strong causal or associative connection between these two variables and the other two variables, *market mentality - restricted to or cascaded throughout the organisation (a)* and *vendor selection and quality assurance (h)*, other than the fact that all four have in common a bearing on "capability".

The stage 2 analysis condition (only variables with mean value $\Rightarrow 3.5$) reduced the number of variables included in the factor analysis by one, from ten to nine. The number of factors extracted remained the same at two, and both factors contained exactly the same variables as in the stage 1 analysis. The results are shown in table 8.4.2b.

Table 8.4.2b. Factor loadings on (stage 2) nine variable set of 'important' market focus TQM sub-elements

Variable		Factor 1N	Factor 2N
<i>market mentality cascaded throughout organisation</i>	a	0.638	-0.024
<i>knowing your markets</i>	b	0.129	0.674
<i>knowing your customers</i>	c	0.058	0.872
<i>knowing your vendors</i>	d	0.651*	0.614*
<i>establishing customer wants, needs and expectations</i>	e	0.205	0.885
<i>product development process</i>	g	0.477	0.547
<i>vendor selection and quality assurance</i>	h	0.696	0.337
<i>competitive benchmarking</i>	i	0.830	0.095
<i>generic benchmarking</i>	j	0.825	0.380
Eigenvalue		2.976	2.94
Pct of Var		33.07%	32.66%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.744; Bartlett's Test of Sphericity = 191.743 with Significance = 0.00.
 *variable excluded from analysis due to similar factor loadings >0.5 on factors 1N and 2N.

As at stage 1, variable *knowing your vendors* was excluded from both factors due to similar factor loadings. The observations and suggestions made after stage 1 were re-examined and it was decided to try and breakdown the variance further using the pre-defined number of factors solution

facility in the factor analysis software²²⁹. Input variables were selected as per stage 2, (i.e. those with mean \Rightarrow 3.5). Tables 8.4.2c and 8.4.2d show the three factor and four factor solution respectively.

Table 8.4.2c - Main element: market focus (fixed 3 factor solution)

factor 1P:	<i>knowing your vendors (d)</i> <i>product development process (g)</i> <i>vendor selection and quality assurance (h)</i>
factor 2P:	<i>knowing your markets (b)</i> <i>knowing your customers (c)</i> <i>establishing customer needs, wants and expectations - market research (e)</i>
factor 3P:	<i>market mentality - cascaded throughout the organisation (a)</i> <i>competitive benchmarking (benchmarking against competition) (i)</i> <i>generic benchmarking (benchmarking against best practice outside of your organisations industry sector) (j)</i>

Table 8.4.2d - Main element: market focus (fixed 4 factor solution)

factor 1c:	<i>knowing your markets (b)</i> <i>knowing your customers (c)</i> <i>establishing customer needs, wants and expectations - market research (e)</i>
factor 2c:	<i>competitive benchmarking (benchmarking against competition) (i)</i> <i>generic benchmarking (benchmarking against best practice outside of your organisations industry sector) (j)</i>
factor 3c:	<i>product development process (g)</i> <i>vendor selection and quality assurance (h)</i>
factor 4c:	<i>market mentality - cascaded throughout the organisation (a)</i>

The three factor solution immediately added clarity to the market focus sub-elements analysis²³⁰. Variable *vendor selection and quality assurance (h)* was split out of factor 1N and was joined by variable *knowing your vendors (d)* (which had previously not featured in the rotated factor matrix) in factor 1P. Variable *product development process (g)* which had been deemed somewhat out of place in factor 2N previously, was removed and also joined factor 1P. Here, it appeared to be even more disjointed. However, overall the three new factors each contained variables which were strongly related. The four factor solution only served to re-exclude variable *knowing your vendors (d)* from the rotated factor matrix, and make variable *market mentality - cascaded throughout the organisation (a)* a factor in its own right (factor 4c).

²²⁹ incrementally requesting a larger number of factors than resulted from the default 'open' number of factors method provides a way of using the versatility of factor analysis to break down the variance further, even when the total variance that factor analysis has to work with is low.

²³⁰ N.B. KMO and Bartlett values for both the 3 and 4 factor solutions indicated that the solutions were valid representations of the input variables.

Taking all of the *market focus* factor analysis findings into consideration it was considered appropriate to extensively define new explanatory variables based on the three factor solution. These are detailed in table 8.4.2e below.

Table 8.4.2e. Summary of new explanatory variables associated with *market focus*

	variable	new explanatory variable / observation
factor 1P (subfactor):	<i>knowing your vendors (d)</i> <i>vendor selection and quality assurance (h)</i>	knowledge of vendors driving astute selection and assured quality
factor 2P:	<i>knowing your markets (b)</i> <i>knowing your customers (c)</i> <i>establishing customer needs, wants and expectations - market research (e)</i>	establishing client (market and customer) demographics, needs, wants and expectations
factor 3P (subfactor):	<i>competitive benchmarking (benchmarking against competition) (i)</i> <i>generic benchmarking (benchmarking against best practice outside of your organisations industry sector) (j)</i>	external benchmarking (competitive and generic)

8.4.3 Stage 2 factor analysis findings: sub-elements concerned with process focus

Table 8.4.3a summarises the results of stage 2 factor analysis applied to the *process focus* TQM sub-elements. Principal component analysis extracted three factors and Varimax rotation converged in five iterations. To re-cap, all *Process Focus* variables had mean scores =>3.5 and as such only stage 2 analysis took place (stage 1 conditions would produce exactly the same results). Despite being limited to one analysis run, the variables grouped reasonably meaningfully into factors / sub-factors, enabling three new explanatory variables to be defined.

Table 8.4.3a. Factor loadings on 'important' process focus sub-elements of TQM

Variable		Factor 1Q	Factor 2Q	Factor 3Q
<i>complaint management</i>	a	-0.140	0.763	0.063
<i>ownership of the process</i>	b	0.375	0.800	0.213
<i>definition of the process</i>	c	0.421	0.792	0.139
<i>process improvement teams</i>	d	0.839	0.260	0.031
<i>team member selection</i>	e	0.659	0.044	0.311
<i>process benchmarking</i>	f	0.747	0.249	-0.279
<i>technical support</i>	g	0.108	0.263	0.848
<i>technology</i>	h	0.139	0.066	0.928
<i>control measures for the process</i>	i	0.675	0.396	0.329
<i>tools for identification of problems and solutions</i>	j	0.710	-0.111	0.223
Eigenvalue		3.024	2.223	1.983
Pct of Var		30.24%	22.23%	19.83%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.726; Bartlett's Test of Sphericity =221.703 with Significance =0.00.

Factor 1Q appeared to contain two sub-factors, the first relating to "organisation for process improvement" and comprising the variables *process improvement teams (d)* and *team member selection (e)*, and the second associated with "means of governing/regulating processes" comprising variables *process benchmarking (f)* and *control measures for the process (i)*. Using these themes as the differentiator between the two sub-factors, the fifth variable in factor 1Q *tools for identification of problems and solutions (j)* could equally belong to either sub-factor. However, as the most importantly rated sub-factor under *process focus* it was deemed more important to preserve its significance in its own right. The new explanatory variable **effective (competent) process improvement teams** was suggested for the first sub-factor.

Factor 2Q contained three variables, of which two were very strongly related, *ownership of the process (b)* and *definition of the process (c)*. The third variable *complaint management (a)* was indirectly related to the others in that it should provide input to process definition exercises, and as a result it should itself be a more effective process due to clearer process definition and the conviction of process ownership. However, it was considered more important to preserve its significance in its own right. Therefore, the new explanatory variable **process definition and ownership** was proposed.

Factor 3Q, comprising variables *technical support (g)* and *technology (h)* was the clearest factor, inferring a new explanatory variable **process technology**. Table 8.4.3b summarises the new explanatory variables that were formed and their component variables.

Table 8.4.3b. Summary of new explanatory variables associated with *process focus*

	variable	new explanatory variable / observation
factor 1Q	<i>process improvement teams (d)</i>	effective (competent) process improvement teams
(subfactor):	<i>team member selection (e)</i>	
factor 2Q	<i>ownership of the process (b)</i>	process definition and ownership
(subfactor):	<i>definition of the process (c)</i>	
factor 3Q	<i>technical support (g)</i>	process technology
(subfactor):	<i>technology (h)</i>	

8.4.4 Stage 1 and stage 2 factor analysis findings: sub-elements concerned with people focus

Table 8.4.4a summarises the results of the stage 1 factor analysis applied to the *people focus* TQM sub-elements. Principal component analysis extracted four factors and Varimax rotation converged in seven iterations. Three variables were excluded from the analysis because they featured in more

than one factor with similar factor loadings. Nevertheless, stage 1 analysis of *people focus* sub-elements produced the clearest and most meaningful results of all the stage 1 TQM sub-element analyses. All four factors had clearly distinct themes, no single variable was in any way misplaced and two suggested new explanatory variables were developed.

Table 8.4.4a. Factor loadings on (stage 1) seventeen variable set of people focus TQM sub-elements

Variable		Factor 1R	Factor 2R	Factor 3R	Factor 4R
<i>job description</i>	a	0.112	0.445	-0.629	0.404
<i>motivation</i>	b	0.723	0.122	0.247	0.335
<i>remuneration system</i>	c	-0.021	-0.096	-0.098	0.857
<i>recognition</i>	d	0.34	0.184	0.584*	0.510*
<i>rewards and incentives</i>	e	-0.126	0.215	0.147	0.843
<i>hiring policy and profile</i>	f	-0.028	0.664	0.078	0.420
<i>empowerment and education</i>	g	0.535**	0.608**	0.163	0.047
<i>training</i>	h	0.202	0.656	0.305	-0.050
<i>career path</i>	i	0.480	0.656	-0.044	0.237
<i>skills levels</i>	j	0.161	0.775	0.190	0.094
<i>job flexibility</i>	k	0.094	0.498	0.474	-0.099
<i>team working</i>	l	0.195	0.336	0.755	0.085
<i>eliminating employees fear</i>	m	0.873	0.194	0.181	-0.192
<i>eliminating employees and managements fears</i>	n	0.923	0.123	0.126	-0.124
<i>eliminating managements fears</i>	o	0.879	0.163	0.030	-0.062
<i>employee involvement</i>	p	0.221	0.273	0.778	0.107
<i>people development</i>	q	0.568	0.565	0.174	0.152
Eigenvalue		4.055	3.400	2.471	2.352
Pct of Var		23.85%	20.00%	14.54%	13.84%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)=0.691; Bartlett's Test of Sphericity =482.896 with Significance =0.00.
 *variable excluded from analysis due to similar factor loadings >0.5 on factors 3R and 4R.
 **variable excluded from analysis due to similar factor loadings >0.5 on factors 1R and 2R.

The underlying theme of factor 1R related to "impetus" or "stimulus". The variables in factor 1R could be described as the 'softer elements' of *people focus*. Three of the variables referred to the "elimination of fear", and it is reasonable to suggest that the fourth variable, *motivation (b)* is a consequence of achieving the former. Thus, for factor 1R the new explanatory variable **drive to stimulate motivation and the elimination of fear across the organisation** was suggested.

Factor 2R comprised the variables *hiring policy and profile (f)*, *training (h)*, *career path (i)* and *skills levels (j)*. Variables (f) and (i) were concerned with "recruiting and retaining" employees. Variables (h) and (j) related to "equipping" the recruited employees. Thus, the underlying theme in factor 2R was "the development of employees". This would essentially be one way of breaking down the variable *people development (q)* that qualified for inclusion in the rotated factor matrix

(factor loading \Rightarrow 5.000) but had to be excluded because it featured in more than one factor with similar factor loadings. This indeed may explain why variable *people development (q)* was excluded. Consequently, the modified new explanatory variable **people selection and development** was suggested.

The factor loadings in factor 3R indicated an interesting relationship between the three variables. The negative factor loading for variable *job description (a)* is interpreted to mean that it has an inverse relationship to the variables *team-working (l)* and *employee involvement (p)*. This finding would imply that in a TQM environment the "definition" of an individual job is not important. Rather, what is important is the "freedom and autonomy" associated with participating in teams. As both of the variables *team-working (l)* and *employee involvement (p)* were considered by the participants to be "very important" sub-elements of TQM it was considered critical to retain their individuality rather than combine them in a new explanatory variable.

Factor 4R comprised the two variables *remuneration system (c)* and *rewards and incentives (e)*. Both were associated with the process of "crediting / imparting appreciation". However, at this stage a new explanatory variable was not suggested because variable *remuneration system (c)* was considered by the participants to be a "neutrally" important sub-element of TQM.

By omitting those variables that the participants did not agree were important *people focus* sub-elements of TQM from the analysis (variables with mean $<$ 3.5), the number of variables included in the stage 2 analysis reduced from fifteen to thirteen. The number of factors extracted was reduced from four to two. The result are summarised in table 8.4.4b.

Factor 2S retained exactly the same four variables as stage 1 factor 1R, and therefore substantiated the previously suggested new explanatory variable **drive to stimulate motivation and the elimination of fear across the organisation.**

The other factor in stage 2, factor 1S was essentially the combining of stage 1 factors 2R, 3R and 4R. Consequently this combination served to add no further clarity to the *people focus* sub-element analysis. However, when factor 1S was broken down into sub-factors along the same lines as the stage 1 factors, there were two changes of variables that further substantiated the previously suggested new explanatory variables.

Table 8.4.4b. Factor loadings on (stage 2) thirteen variable set of 'important' people focus TQM sub-elements

Variable		Factor 1S	Factor 2S
<i>motivation</i>	b	0.395	0.619
<i>recognition</i>	d	0.687	0.246
<i>rewards and incentives</i>	e	0.657	-0.308
<i>hiring policy and profile</i>	f	0.730	-0.050
<i>empowerment and education</i>	g	0.541*	0.589*
<i>training</i>	h	0.581	0.325
<i>career path</i>	i	0.562	0.482
<i>skills levels</i>	j	0.679	0.255
<i>job flexibility</i>	k	0.507	0.244
<i>team working</i>	l	0.656	0.262
<i>eliminating employees fear</i>	m	0.123	0.929
<i>eliminating employees and managements fears</i>	n	0.088	0.937
<i>eliminating managements fears</i>	o	0.098	0.880
<i>employee involvement</i>	p	0.644	0.264
<i>people development</i>	q	0.565*	0.588*
Eigenvalue		4.455	4.350
Pct of Var		29.70%	29.00%
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.742; Bartlett's Test of Sphericity =425.188 with Significance =0.00.			
*variable excluded from analysis due to similar factor loadings >0.5 on factors 1S and 2S.			

Factor 1S subfactor 1 retained the same four variables as stage 1 factor 2R. It was deemed appropriate to retain the suggested new explanatory variable **people selection and development**. Variable *job description* (a) did not feature in stage 2 analysis, and thus in the sub-factor relating to stage 1 factor 3R. This substantiated firstly the argument previously put forward, and secondly the important independence of variables *team-working* (l) and *employee involvement* (p).

Variable *remuneration system* (c) that was omitted from the stage 2 input variables, was in effect replaced by variable *recognition* (d). This slightly altered the theme of stage 1 factor 4R from "credit / appreciation" to "acknowledgement and appreciation", and enabled the new explanatory variable **acknowledgement and appreciation through recognition, rewards and incentives** to be suggested.

Variable *job flexibility* (k) was introduced to factor 1S having previously not been a feature of the rotated factor matrix. This variable could potentially be combined with either of two of the factor 1S sub-factors. Firstly it may be argued that it is a desirable attribute of the variables *hiring policy and profile* (f), *training* (h), and *skills levels* (j), and hence of **people selection and development**. Secondly, it may be argued that it is a condition that has a bi-directional association ('enables' and

'is enabled by') with variables *team-working (l)* and *employee involvement (p)*. For the reasons stated previously it was not combined with the latter. The author considered modifying new explanatory variable **people selection and development** to **people selection and versatile development**. This however was not deemed entirely appropriate or necessary, providing that variable *job flexibility (k)* was not overlooked in the subsequent investigation.

In the same way that *people development (q)* had to be excluded from the rotated factor matrix at both stage 1 and stage 2 due to similar high factor loadings, so too did variable *empowerment and education (g)*. This suggests that *empowerment and education* was too broad ranging a variable to be a meaningful constituent of a factor.

Table 8.4.4c summarises the new explanatory variables that were formed and their component variables.

Table 8.4.4c. Summary of new explanatory variables associated with *people focus*

	variable	new explanatory variable / observation
factor 1S	<i>recognition (d)</i>	acknowledgement and appreciation through recognition, rewards and incentives
(subfactor):	<i>rewards and incentives (e)</i>	
factor 1S	<i>hiring policy and profile (f)</i>	people selection and development
(subfactor):	<i>training (h)</i>	
	<i>career path (i)</i> <i>skills levels (j)</i>	
factor 2S:	<i>motivation (b)</i>	drive to stimulate motivation and the elimination of fear across the organisation
	<i>eliminating employees fears (m)</i>	
	<i>eliminating employees and management fears (n)</i>	
	<i>eliminating managements fears (o)</i>	

8.4.5 Stage 1 and stage 2 factor analysis findings: sub-elements concerned with communication and measurement

Table 8.4.5a summarises the results of the stage 1 factor analysis applied to the *communication and measurement* TQM sub-elements. Principal component analysis extracted six factors and Varimax rotation converged in seven iterations. Overall, this analysis provided the least clear findings of all of the TQM sub-element factor analyses. Three of the six factors were ambiguous, and only one new explanatory variable was suggested.

Table 8.4.5a. Factor loadings on (stage 1) twenty seven variable set of communication and measurement TQM sub-elements

Variable		Factor 1T	Factor 2T	Factor 3T	Factor 4T	Factor 5T	Factor 6T
<i>philosophy of the business</i>	a	0.713	-0.047	-0.100	0.231	0.051	0.25
<i>describing roles and responsibilities of each key individual (for variable (z))</i>	aa	0.21	0.847	0.052	0.089	0.177	0.147
<i>policies</i>	b	0.064	0.039	0.097	0.251	0.042	0.875
<i>procedures</i>	c	0.096	0.206	0.284	0.072	0.081	0.801
<i>information reporting structure</i>	d	0.395	0.585	0.169	0.284	0.195	0.033
<i>feedback within the organisation</i>	e	0.674	0.242	-0.256	0.180	0.086	0.133
<i>communication training</i>	f	0.747	0.436	0.273	0.122	0.051	0.046
<i>listening training</i>	g	0.810	0.272	0.154	0.186	-0.010	0.114
<i>periodic assessments of effectiveness of training</i>	h	0.742	-0.050	0.221	0.208	0.225	-0.088
<i>top level performance information pushed down and communicated</i>	i	0.275	0.234	0.288	0.251	0.406	0.289
<i>understanding measurement links to the market</i>	j	0.25	0.569	0.089	0.459	-0.345	0.068
<i>consumer education</i>	k	0.071	0.580	0.464	0.238	0.474	0.018
<i>creation of expectations</i>	l	0.089	0.345	0.655	0.166	0.381	0.16
<i>advertising</i>	m	-0.025	0.094	0.841	0.115	0.239	0.098
<i>image</i>	n	0.114	0.063	0.713	-0.051	-0.080	0.092
<i>solicitation/awareness</i>	o	0.191	0.396	0.566	0.347	-0.097	0.122
<i>business links with the community</i>	p	0.325	0.347	0.372	0.281	0.344	0.275
<i>agreement of service levels</i>	q	0.186	0.332	-0.329	0.442	0.368	0.455
<i>employee performance evaluation</i>	r	0.198	0.070	0.058	-0.039	0.873	-0.017
<i>process performance evaluation</i>	s	0.219	0.148	0.083	0.701	-0.050	0.151
<i>service performance evaluation</i>	t	0.314	0.241	0.148	0.746	0.115	-0.129
<i>complaint tracking</i>	u	0.027	0.032	0.258	0.210	0.713	0.068
<i>customer satisfaction tracking</i>	v	0.090	-0.168	0.067	0.818	0.090	0.23
<i>how to compare service levels</i>	w	0.201	0.269	0.166	0.532	0.172	0.309
<i>data audit (checking data validity and accuracy)</i>	x	0.140	0.449	-0.014	-0.150	0.593	0.309
<i>quality costing</i>	y	0.624	0.314	0.341	-0.017	0.378	-0.111
<i>defining activities to be pursued during planning, implementing, reviewing</i>	z	0.095	0.837	0.280	0.068	0.115	0.134
Eigenvalue		3.957	3.854	3.183	3.168	2.937	2.281
Pct of Var		14.66%	14.27%	11.79%	11.73%	10.88%	8.45%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.715; Bartlett's Test of Sphericity =861.344 with Significance = 0.00.

The variables comprising factor 3T were all in some way associated with 'external communications'. More specifically, with "promoting/championing" the organisation. This was by far the clearest factor in the stage 1 analysis. The new explanatory variable **championing and promoting the organisation** was suggested.

Three of the variables in factor 4T (*process performance evaluation (s)*, *service performance evaluation (t)* and *customer satisfaction tracking (v)*) were considered by the participants to be the three most important *communication and measurement* sub-elements. For this reason, that is to say their individual importance, no attempt was made at this stage to identify a suggested new explanatory variable for factor 4T.

Factor 6T comprised the variables *policies (b)* and *procedures (c)*. It may be argued that these two variables have three things in common: they both tend to be determined systematically; they both tend to be explicitly defined; and their primary purpose is to act as a guide. Quite simply, the new explanatory variable **guiding policies and procedures** was suggested.

Factor 1T and factor 2T both contained five variables each. This was considered (by the author) the maximum number of variables that a factor could contain and still be meaningfully and comprehensively expressed as a new explanatory variable. Any more than five variables and sub-factorisation would be considered mandatory. However, for factors 1T and 2T even meaningful sub-factors were largely not apparent. Despite the fact that factor 1T comprised variables which were all concerned with 'internal communications', and that three of the variables in factor 1T related to "training", no meaningful underlying grounding could be found. Due to their associative interdependency, two of the variables in factor 2T, variables *defining activities to be pursued during planning, implementing, and reviewing (z)* and *describing roles and responsibilities of each key individual (for each variable (z) activity) (aa)* were expected to feature in the same factor. Otherwise, no meaningful underlying grounding was found to explain factor 2T. Similarly, aside from the fact that all factor 5T variables were concerned with 'measurement', and that variable *data audit (checking data validity and accuracy) (x)* could be considered a necessary part of *complaint tracking (u)*, no meaningful underlying grounding was apparent for factor 5T.

The stage 2 analysis condition (only variables with mean value $\Rightarrow 3.5$) reduced the number of variables included in the analysis from twenty seven at stage 1 to twenty two. Principal components reduced the number of factors extracted from six to five. The results are shown in

table 8.4.5b. Although there were changes to the constitution of some of the stage 1 factors, generally the stage 2 factors showed the same patterns of variables.

Factor 5U comprised exactly the same two variables as stage 1 factor 6T, substantiating the validity of the suggested new explanatory variable **guiding policies and procedures**. Variable *advertising (m)* did not feature in the rotated factor matrix, but otherwise factor 2U contained the same variables as stage 1 factor 3T. The absence of variable *advertising (m)* did not alter the factor's underlying theme, or lead to the need to modify the suggested new explanatory variable **championing and promoting the organisation**.

The reduction from six factors to five factors was primarily caused by the variables that previously constituted stage 1 factor 4T (with the absence of variable *how to compare service levels (w)*), combining in a single factor (factor 1U) with the variables that previously constituted stage 1 factor 1T (with the absence of variables *communication training (f)* and *listening training (g)*). A further addition to factor 1U was the introduction of variable *agreement of service levels (q)*. Examination of this large (seven variable) factor led the author to conclude that splitting the factor into two sub-factors, the first containing variables relating to 'measurement' and the second containing variables relating to 'internal communications', provided the most meaningful analysis. However, for the reasons cited previously, that is to say retaining variables' individual importance, no new explanatory variable was developed for the second sub-factor. Further, insufficient grounding was found for a meaningful new explanatory variable for the first sub-factor to be suggested.

Factor 3U was concerned with the two variables relating to data quality activities (variables (z) and (aa)) and variable *information reporting structure (d)*. These were combined into the new explanatory variable **defining activities, key roles, key responsibilities and information reporting structure to be pursued during planning, implementing and reviewing**.²³¹

²³¹In an attempt to obtain more meaningful factors, the *communication and measurement* TQM sub-elements were grouped into the three sub-categories: 'external communications', 'internal communications' and 'measurements'. Stage 1 and stage 2 factor analysis was independently applied to these three sub-categories. The analyses provided for no further new explanatory variables. They did however re-confirm many of the previous stage 1 and stage 2 findings. Firstly, stage 1 and stage 2 analysis for variables grouped under 'internal communications' both produced a two factor rotated component matrix. Both matrices re-confirmed the validity of the new explanatory variable **guiding policies and procedures**. Secondly, stage 1 analysis for variables grouped under 'external communications' produced a two factor rotated component matrix. Stage 2 analysis produced a single factor and therefore was redundant. Stage 1 factor 1 re-confirmed the validity of new explanatory variable **championing and promoting the organisation**. Thirdly, stage 1 and stage 2 analysis for variables grouped under 'measurements' both produced a two factor rotated component matrix. Both matrices re-confirmed the validity of retaining the individual importance and identity of variables: *process performance evaluation (s)*, *service performance evaluation (t)* and *customer satisfaction tracking (v)*.

Table 8.4.5b. Factor loadings on (stage 2) twenty two variable set of 'important' communication and measurement TQM sub-elements

Variable		Factor 1U	Factor 2U	Factor 3U	Factor 4U	Factor 5U
<i>philosophy of the business</i>	a	0.714	0.096	-0.064	0.153	0.030
<i>describing roles and responsibilities of each key individual (for variable (z) activities)</i>	aa	0.152	0.863	0.130	0.130	0.133
<i>policies</i>	b	0.155	0.073	0.051	0.090	0.869
<i>procedures</i>	c	-0.005	0.255	0.179	0.143	0.811
<i>information reporting structure</i>	d	0.469	0.529	0.340	0.175	0.027
<i>feedback within the organisation</i>	e	0.645	0.327	-0.198	0.127	0.012
<i>periodic assessments of effectiveness of training</i>	h	0.628	0.026	0.204	0.325	-0.165
<i>top level performance information pushed down and communicated</i>	i	0.361	0.246	0.328	0.433	0.226
<i>understanding measurement links to the market</i>	j	0.464	0.475	0.295	-0.404	0.139
<i>creation of expectations</i>	l	0.086	0.265	0.671	0.369	0.244
<i>image</i>	n	-0.029	0.053	0.723	0.097	-0.036
<i>solicitation/awareness</i>	o	0.290	0.297	0.685	-0.029	0.191
<i>business links with the community</i>	p	0.381	0.329	0.475	0.378	0.234
<i>agreement of service levels</i>	q	0.526	0.355	-0.230	0.270	0.464
<i>employee performance evaluation</i>	r	0.137	0.118	0.049	0.862	-0.042
<i>process performance evaluation</i>	s	0.605	0.069	0.208	-0.155	0.349
<i>service performance evaluation</i>	t	0.693	0.098	0.339	-0.009	0.125
<i>complaint tracking</i>	u	0.094	-0.043	0.301	0.675	0.228
<i>customer satisfaction tracking</i>	v	0.632	-0.308	0.136	-0.041	0.467
<i>how to compare service levels</i>	w	0.483	0.219	0.283	0.107	0.396
<i>data audit (checking data validity and accuracy)</i>	x	0.005	0.504*	-0.003	0.608*	0.206
<i>defining activities to be pursued during planning, implementing, reviewing</i>	z	0.079	0.807	0.370	0.073	0.160
Eigenvalue		3.960	3.003	2.655	2.546	2.531
Pct of Var		18.00%	13.65%	12.07%	11.57%	11.50%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.671; Bartlett's Test of Sphericity =578.031 with Significance =0.00.

*variable excluded from analysis due to similar factor loadings >0.5 on factors 2U and 4U.

Table 8.4.5c summarises the new explanatory variables that were formed and their component variables.

Table 8.4.5c. Summary of new explanatory variables associated with *communication and measurement*

	variable	new explanatory variable / observation
factor 2U:	<i>defining activities to be pursued during planning, implementing, and reviewing (z)</i> <i>information reporting structure (d)</i> <i>describing roles and responsibilities of each key individual for variable (z) activities (aa)</i>	defining activities, key roles, key responsibilities and information reporting structure to be pursued during planning, implementing and reviewing
factor 3U:	<i>creation of expectations (l)</i> <i>image (n)</i> <i>solicitation/awareness (o)</i>	championing and promoting the organisation
factor 5U:	<i>policies (b)</i> <i>procedures (c)</i>	guiding policies and procedures

CHAPTER 9: CONDITIONS FOR TOTAL QUALITY

9.1 Introduction

The aim of this chapter is to: *"identify the conditions that must exist for a 'quality ethos' to permeate an organisation in its entirety"*.

The investigation described in this chapter relates to organisational culture. Reference in the literature to the significance and importance of organisation culture was found to be wide-spread (section 2.10.2.3). An investigation of the culture of the best practice organisations' was considered essential for this study. Unlike systems and processes however, culture in its most definitive sense would appear to be difficult for organisations to grasp and to affect. One reason for this is because culture is difficult to measure and cannot be deployed. These traits also affect its ability to be examined. It was necessary to devise an approach for investigating the cultural requirements of successful TQM that was aligned with the study's core research design.

These arguments are discussed in more detail in the following sections. In section 9.1.1 a definition of culture is proposed. Sections 9.1.2 and 9.1.3 briefly examine the importance of culture and the problems associated with researching culture respectively. The method of investigation used in this study is described in section 9.1.4.

9.1.1 A definition of "culture"

Wilkins (1983) noted that some authors suggest that culture concerns social structure (reward systems, career paths, communication networks and hierarchy). Schwartz and Davis (1981)²³², Bright and Cooper (1993) and Hayes (1997) on the other hand, argue that culture is concerned with "beliefs" and "values". The author shares the view of the latter, in the sense that in basic terms, organisational culture can be defined as *"shared norms, values and informal beliefs held by people in the organisation"* (Ghobadian and Galleary, 1996). As expressed by Huczynski (1987) and Schein (1984)²³³ organisational culture represents the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with the twin problems of external

²³²cited in Wilkins (1983).

²³³cited in Rodrigues (1994).

adaptation and internal integration. Furthermore, that these basic assumptions work well enough to be considered valid and, therefore, to be passed on to new members as the correct way to perceive, think and feel in relation to those problems.

9.1.2 The importance of culture

It has been argued that no strategic move by an organisation can take place successfully without a corresponding change in its culture [Huczynski and Buchanan (1991)]. Wilkins (1983) has suggested that examples of organisation failures make it painfully clear that although culture may be taken for granted when it is in harmony with a company's business, changes that do not take the culture into account are fraught with peril.

Moreover, the literature supports the proposition that culture is an aspect of organisations that companies in many industries can no longer take for granted [Ouchi (1981) and Sinclair and Collins (1994)]. That is to say it should not be ignored by any organisation at any time. Boaden and Dale (1994) pointed out that the increased emphasis on customers and their needs make some form of culture change a must for most organisations. The impact of organisational culture however, is easily and frequently overlooked by organisations (van Donk and Sanders, 1993). As was pointed out by Sathe (1983), beliefs and values that have been held for a long time without being violated or challenged may become taken so much for granted that people are no longer aware of them. Sathe (1983) suggested that this was one notable reason why organisational members frequently fail to realise what a profound influence culture has on them.

It is clear from the above arguments that culture is regarded as an important aspect of a change intervention. The above arguments also suggest that organisations should not pay attention to culture only when they are amidst of a change process. Rather, culture is something that an organisation should invest in and seek to use in a positive way (Wilkins, 1983). The underlying basis of this latter proposition is quite simple. Culture manifests itself in the behaviour of organisation members, but is primarily dependent on and influenced by the members' attitude. It is arguable that behavioural change in the absence of attitudinal change is less likely to be permanent. The author is not alone in this view. Sathe (1983) offered a similar proposition, that behaviour change without attitudinal change requires constant monitoring of behaviour to ensure compliance and, the continued use of rewards and punishments to sustain it. Without such constant "payoff" Sathe argued, the new behaviour dies out. This is not the case however when behaviour

change is accompanied by attitudinal change. Although it may be more difficult to accomplish, such change is more enduring because it tends to be self-sustaining.

As the culture of an organisation can influence and impact the way business processes are organised, the way resources are managed, how an organisation interfaces with its suppliers and customers and the overall effectiveness of these processes and interactions, an investigation of the best practice organisations' culture was considered imperative in developing a theoretical grounding for TQM.

9.1.3 The need for an appropriate method of investigation

Culture remains a 'fuzzy' area nevertheless, and can mean different things to different people. According to Sathe (1983) reading a culture is an interpretive, subjective activity - there are no exact answers, and it is possible that two observers of the same culture may come up with somewhat different descriptions. This problem is compounded when we consider that the influence of culture tends to be subtle, and therefore people are not typically aware of their basic beliefs and values until those beliefs and values are violated or challenged (Sathe, 1983). These arguments are supported by Kilmann et al's (1985)²³⁴ description of the "flavour" of organisational culture:

"The organisation itself has an invisible quality - a certain style, a character, a way of doing things - that may be more powerful than the dictates of any one person or any formal system. To understand the soul of the organisation requires that we travel below the charts, rule books, machines and buildings in to the underground world of corporate cultures. Culture is to the organisation what personality is to the individual."

Given such potential sources of ambiguity and inconsistency of interpretation, it was important to investigate culture in a way that would enable its influence to make a meaningful and valuable contribution to the proposed theory, and therefore to carefully select an appropriate method for establishing the best practice organisations' cultural orientation.

9.1.4 Method of investigation

A literature review of methods of examining organisational culture confirmed that due to its "intricate" nature, culture is very difficult to ascertain by direct questioning, and in the majority of

²³⁴cited in Bright and Cooper (1993).

cases suggested that some kind of sophisticated (psychological) assessment instrument [Cooke and Szumal (1993) and Lewis (1996a)]²³⁵ was required. Rather than attempting to assess culture directly through psychological means, it was deemed more meaningful (and indeed feasible) to understand where, and how, in the organisation culture is most likely to reveal and assert itself, and in so doing, to understand which of these manifestations or channels are most relevant to the functioning of an organisation's total quality operation. The approach used was to enquire about what the author termed the *necessary conditions* for TQM success. They are important conditions that influence, mould and sustain the desirable cultural orientation required to be a best practice TQM organisation.

Given the potential for inconsistency of interpretation from an open-ended questioning strategy, the pre-defined investigative approach was preferred. Starting with some basic notions about the conditions that must exist in an organisation for a quality ethos to permeate, the author generated a list of *necessary conditions* in the form of short statements. The appropriate literature was used to refine the list. Firstly, examination of literature dealing with culture and TQM (section 2.10.2.3). Secondly, examination of literature dealing with difficulties encountered in implementing and sustaining TQM (section 2.8). This resulted in a list comprising of fifteen statements. The statements were independently scrutinised and qualified for content validity by the committee of five known and experienced TQM practitioners from industry. Recommendations were considered and the final version of the survey instrument was drafted and incorporated into the Delphi round 2 questionnaire. Participants were asked to indicate how important their organisation viewed each *necessary condition* on a five point Likert scale²³⁶. Participants were also invited to add to the list any other *necessary conditions* which their organisation would view were essential for the attainment of an organisation-wide quality ethos.

At this juncture, it is important to clarify the distinction between important *necessary conditions* and important *sub-elements* of TQM (chapter 8). While both are important to the successful introduction and sustaining of a best practice TQM approach, the effectiveness of the *sub-elements* may be dependent on the *necessary conditions*. The proposition is that because the *necessary conditions* relate to the culture of the organisation, they are ever present - permanent. *Sub-elements* may be of limited value if the culture is not prepared/equipped for total quality and if the

²³⁵Further, the author would assert that an assessment of the culture of an organisation would require the involvement of a large quantity of the organisation members, and hence require the use of extensive test instruments. Given limited study resources this scale of assessment was outside the scope of the study.

²³⁶(5=very important; 4=important; 3=neutral; 2=not very important and 1=not important at all).

commitment to total quality is not in place.

The remainder of the chapter comprises three sections. In section 9.2 the primary data is presented then, drawing on examination of appropriate literature, the additional documentation supplied by the participants and internal logic of the author, the logic underlying the primary data is proposed and explained²³⁷. In section 9.3 the influence of *size* and *class* of organisation on the *necessary conditions* is discussed. In section 9.4 the results of the factor analysis procedures applied to the *necessary conditions* are discussed.

9.2 Findings - 'Necessary Conditions' Underpinning A TQM Culture

Figure 9.2 shows the calculated mean value for each of the fifteen proposed *necessary conditions*. Six of the statements were perceived to be "very important" and eight were perceived to be "important". The participants expressed a "neutral" view for one proposed *necessary condition*. Cut-off points for each of the categories was described in section 4.4.4.

Three of the six *necessary conditions* rated as "very important" concerned the top management of the organisation. These were:

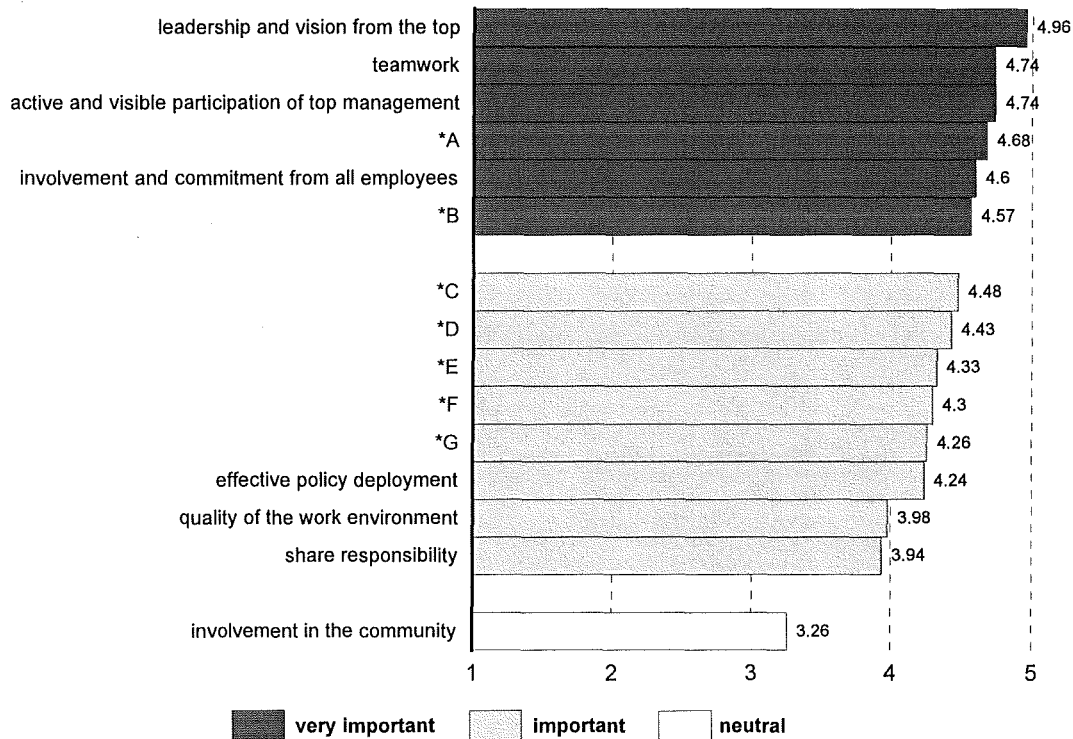
- *leadership and vision from the top,*
- *active and visible participation of top management and*
- *commitment to and promotion of the TQM concept by the Chief Executive to all levels of the organisation*²³⁸.

These findings indicate that the provision of the appropriate cultural values and beliefs that underpin an organisation-wide quality ethos, or at the very least the responsibility for nurturing these attitudinal values and beliefs, is the obligation of the organisation's top management. Although it is their immediate supervisors and peers that employees interact with on the more regular basis, top management perspectives can have a potentially greater influence on the organisation as a whole.

²³⁷The sequence in which the *necessary conditions* are discussed broadly follows their ascending perceived importance. Where appropriate this sequence is altered so that necessary conditions which draw on the same underlying logic can be discussed accordingly.

²³⁸In section 8.2.1 importance of the sub-element *role of senior management* was briefly discussed. The discussion that follows makes this *role* more explicit.

Figure 9.2 - Mean scores for proposed *necessary conditions* that must exist for a quality ethos to permeate an organisation in its entirety



KEY :

A - commitment to and promotion of the TQM concept by the Chief Executive to all levels and activities of the organization

B - all employees dedicated to continuous (process/working practice) improvement

C - building and maintaining a human environment that allows all members of the organization to improve quality, continually based on mutual trust and collaboration

D - continuous investment in training, and development of all employees skills

E - appropriate partnerships between your organisation and your customers

F - an internal customer/supplier relationship philosophy the objectives of which are understood and committed to by all employees

G - appropriate partnerships between your organization and your suppliers

'Vision' is considered to be important because it gives an organisation a sense of purpose. Furthermore, it enables an organisation to be pulled forward by its future rather than pushed by its past. However, experience would suggest that if the 'vision' is to truly help unite and focus employees on where the organisation is heading, its communication has to reach everyone in the organisation (Zairi, 1994). At the apex of the organisation, top management are the most visible single entity to the rest of its members. It is reasonable to assert that they must be expected to lead

the development and communication of the vision. Zairi (1994) suggested that this is very critical since TQM's working are more or less from a bottom-up approach and, unless there is corporate ownership, performance is unlikely to ensue. Furthermore, an organisation needs a means of providing continuity in order for it to hold the gains (Dale and Cooper, 1994b). Again, at the apex of the organisation, top management have the greatest range of visibility across the organisation, and hence hold the pivotal position for providing that continuity.

Top management can assert assumptions or perspectives that will shape attitudes and behaviour of employees in two ways: (a) through their own personal behaviour: what they say, where they spend time, what they reward and what questions they ask and (b) through the formal systems they create, for instance rewards, reporting mechanisms and evaluation programmes (Wilkins, 1983).

Sathe (1983) pointed out that consistent with conventional wisdom, values and beliefs influence behaviour, however the opposite is also true. A considerable body of social science literature indicates that under certain conditions one of the most effective ways of changing peoples' beliefs and values is to first change their behaviour (Sathe, 1983). The importance attached to the necessary condition *active and visible participation of top management*, indicates that the influence of their own behaviour is not lost on the senior management of the best practice organisations. Employees tend to behave as they perceive they are expected to behave, and the perceptions they form are usually based on observation - that is, people tend to watch what people do, rather than listen to what they say (Wilkins (1983) and Sathe (1983)).

The importance of top management commitment to TQM, their promotion of TQM and their participation cannot be stressed highly enough. Research has shown that failures to either successfully introduce TQM into organisations, or failure to sustain the TQM momentum (and thus establish a permanent quality ethos), more so than any other influencing factors can be traced back to lack of commitment on the part of senior management as a primary source or catalyst for the breakdown (section 2.8.2). Such a lack of commitment typically manifests itself when one or more of the following happens:

- senior managers do not commit enough of their time to learn about and understand TQM - in some cases, they are actually not prepared to devote the time;
- senior management commits the organisation to a TQM process, but neglect to include themselves in the process;
- senior managers isolate themselves in their corporate headquarters and thus fail to see first

hand, and appreciate, the efforts that are being made at the coal face and

- while senior managers may come to appreciate the theory of empowering employees and delegating decision making to subordinates, many remain apprehensive about relinquishing this type of control for too long, and consequently the opportunity to secure employee commitment is often lost.

The leaders of an organisation will never convince their followers of their philosophies if they do not believe in them themselves, or if they are saying one thing yet doing another (Palmer and Wilson, 1995). As Strebel (1996) suggested, alignment between a company's statements and management's behaviour is the key to creating a context that evokes employee commitment - management's credibility, once lost, is most difficult to recover. That is, that senior managers as the perceived custodians of corporate well being, can and must influence the views of all employees by aligning their behaviour to the requirements of TQM and their visible commitment to its principles.²³⁹

The concept of '*commitment*' featured three times within the necessary conditions that were rated as "very important". The first instance related to senior management. The second and third instances of '*commitment*' related to the whole of an organisation's employees. These were:

- *involvement of, and commitment from all employees* and
- *all employees dedicated to continuous (process / working practice) improvement.*

Hayes et al (1988) stated that whilst the right management principles, systems and procedures play

²³⁹The author would suggest that these three necessary conditions are particularly important during the TQM introduction process. That is to say, that the commitment and impetus must be generated at senior levels within the organisation. Lascelles and Dale (1990a) suggested that strong forces must be present to precipitate the process of change, and that top management is the prime internal change agent. Palmer and Wilson (1995) asserted that until senior management have brought into the process wholeheartedly, it will be impossible to generate commitment further down the hierarchy - indeed it will be almost impossible to generate the time and resources for implementation. Further, change is often accompanied by scepticism and fear among employees. Experience has suggested that middle managers feel particularly threatened by the introduction of TQM (Newall and Dale (1991) and Roufaiel and Meissner (1995)). The growth of scepticism and/or fear, whether in the TQM introduction phase or post-introduction, can have a significant detrimental effect on the longevity of a quality ethos within an organisation, and experience would suggest that a considerable amount of effort is required to overcome this natural scepticism and fear (section 2.8). It is reasonable to suggest that it must be the senior managers of the organisation who take the lead role in providing the education that is necessary to limit the growth and/or remove scepticism and fear. Whiteley (1991), stressed this point, having observed that: "*there is a dogged persistence about quality leaders. What is important is when discouragement starts to set in, as it tends to do, the leader must keep things moving in a positive direction. In the absence of results this means sticking to the process, keeping the organisation interested, keeping quality improvement high on the agenda, and sparing no energy to hammer it through. Complementing persistence is patience. Leaders are able to create an environment where people can try and fail: attempts as well as failures are celebrated because both represent a tremendous opportunity to improve*".

an essential role in achieving superior performance, the capabilities that create a competitive advantage come from people - their skill, discipline, motivation, ability to solve problems and capacity for learning. Findings presented in sections 6.3.2 and 8.2.4 would appear to strongly support this proposition. The author would suggest that *involvement of, and commitment from all employees* is the important underlying mechanism that releases and harnesses these capabilities.

In simplest terms, *involvement* means allowing employees to have a strong input into operational decisions directly affecting their's and the organisation's work, and delegating responsibility for aspects of that work to them (Lawler (1986), Cole et al (1993) and Van Aken et al (1994)). Examination of widespread literature contributions that have dealt with *involvement* indicated that the following are amongst the core positive influences and outcomes of widespread employee involvement. Firstly, the enactment of *involvement* leads to self-realisation and human dignity, thereby positively influencing employee motivation. As Cole et al (1993) explained, the impact of *involvement* on motivation is based on the sound behavioural principle that those involved in work processes will more enthusiastically implement changes that they themselves have designed. Secondly, *involvement* provides the opportunity for goal agreement (Cole et al, 1993). It provides a mechanism through which individual and organisational goals and objectives can be aligned. Sathe (1983) pointed out that employees feel a sense of commitment to an organisation when they can identify with goals and objectives and experience some emotional attachment to them. Thirdly, with an emphasis on interpersonal process, *involvement* emphasises human process skills such as communications, teamwork and conflict resolution. These are skills that improve the quality of decision making and enhance employee "buy-in" (Cole et al, 1993). Fourthly, as Cole et al (1993) further pointed out, by making lower level employees responsible for maintaining and improving their work processes, *involvement* releases managerial and technical personnel from the commonplace fire-fighting activities for more purposeful activities. Conversely, comprehensive and grass-roots involvement in problem solving would allow organisations to move the "distribution of intelligence" downward in the organisation, bringing increased information and capability in local problem solving without involving costly middle-managers who may contribute to information distortion. Finally, when people feel a sense of commitment and are involved, they tend, in making decisions and taking action, to evaluate the alternatives in terms of their impact for the organisation, rather than for themselves (Sathe, 1983). These influences and outcomes would appear to support Cole et al's (1993) assertion that by allowing all employees to make substantial contributions to improving work performance, *involvement* has the potential to unleash

a great competitive force²⁴⁰. The necessary condition also called for *commitment*. It may be argued that because involvement increases the interdependency of employees and hence their responsibility to others, for widespread *involvement* to take root effectively widespread commitment is required.

The necessary condition *all employees dedicated to continuous (process / working practice) improvement* represents a proactive orientation where processes and working practices are in a state of continuous development (Hayes, 1997) and, everyone in the organisation is involved in contributing to this development. This is in contrast to the "steady-state" model of organisational life (Hayes, 1997), which as was indicated by the pre-TQM management style and quality practice investigations (section 5.4), would appear to have been implicit in the traditional management concept. In the "steady-state" model, any improvements to processes or working practices tended only to be undertaken as a consequence of reactions to problems encountered.

It may be argued that the "continuous" improvement orientation also helps to effect another important shift in mindset. Improvement efforts are often perceived to be simply about reducing defects in the organisation's systems/processes by finding their causes and suppressing or eliminating them. Whilst such a focus may result in valuable improvements, it can suffer from a false assumption that if something wrong is removed, something that is right will result²⁴¹. Ackoff (1993) suggested that this false assumption is possibly a consequence of the natural evolution of TQM from the application of statistics to detect and reduce defects - statistical quality control (SQC). Focus on "continuous" improvement on the other hand directs attention towards value-adding improvement efforts, rather than simply on reducing defects. That is to say, on continuously enhancing capability.

The importance attached to the necessary condition *building and maintaining a human environment that allows the members of the organisation to improve quality, continually based on mutual trust and collaboration* emphasises the fact that in a best practice TQM environment, the essence of the permanent underlying contract between the organisation and its members is mutual trust²⁴².

²⁴⁰An Australian/New Zealand study (see Corbett and Harrison (1992)) to examine the relationship between manufacturing performance and employee involvement (part of Manufacturing Futures Project) found strong evidence to support the proposition that superior performance in manufacturing in Australia and New Zealand follows from management investing resources in the people in the organisation.

²⁴¹In this mode of improvement however, there remains the possibility that something that is equally or even less desirable will result.

²⁴²The importance of *trust* in an organisational setting was explicated in section 8.2.1.

Individuals understand that in exchange for their effort and commitment to quality improvement, the company will help them develop their potential (de Geus, 1997). Creation of such an environment would enable all employees to do their job as well as they know how (Ackoff, 1993).

The six *necessary conditions* discussed above have largely expressed desired "attitudes" and "behaviours". Three other *necessary conditions* regarded as important represented tangible operational enabling mechanisms within the organisation. It may be argued that these mechanisms provide the members of the organisation with the means to assert the desired attitudes and behaviours, and hence enable them to justify their involvement and commitment. These were:

- *teamwork;*
- *effective policy deployment and*
- *an internal customer/supplier relationship philosophy the objectives of which are understood and committed to by all employees.*

Teamwork was considered to be a "very important" necessary condition. In the literature also, teamwork is central in nearly everybody's definition of TQM (Schonberger (1994) and Coyle-Shapiro (1995)). The logic underlying this high relative importance has its roots deep in human psychology. In particular, the effective adoption of the two psychological mechanisms: social identification and social representation. Briefly, put in their simplest forms, *social identification* is human tendency to see the world in terms of 'them-and-us' - for humans to see themselves as located in various social groups, which are different from 'the others'; and *social representations* are the shared beliefs or assumptions which humans pick up from others and adjust until they fit into their own personal beliefs and opinions and, reflect issues of power and social relations within their social context (Hayes, 1997). Used in a positive way²⁴³, teamwork breaks down the 'them-and-us' barriers. However, as implied in section 9.1.3, an examination of the psychological aspects of *teamwork* was not the purpose of this investigation. Rather, it was important to understand how teamwork would benefit the operation of the organisation.

²⁴³As Hayes (1997) explained: 'When psychologists were first researching social identity processes, it was assumed that 'them-and-us' groups would automatically be in conflict with one another. Early studies seemed to imply that the minute a distinctive group was formed, it would see itself as in competition with other groups of its kind. More recently, psychologists have found that such conflict isn't inevitable. Different groups and teams can work side-by-side, without seeing the others as the opposition. It [simply] depends on how the teams are managed. . . . Rivalry with other groups, in other words, is all about competition for resources. If two groups don't see themselves as being in competition for resources, it is easy for them to work together and co-operate.'

Teamwork is a work arrangement that can enable cooperation and effective individual involvement. Team activity provides a strategy for integrating work involving highly interdependent tasks (Cole et al, 1993). The outcome is that the organisation functions better internally (Hayes, 1997). An important distinction should be made. As Hayes (1997) explained: most organisations organise their employees into groups who work together, but each have their own jobs to do. However, this arrangement does not constitute teamwork. *Teamwork* is about passing responsibility over to working teams, so that they can accomplish their work without continually having to refer to higher levels in the organisation. Employees working in teams cultivate and negotiate positive assumptions, which help them individually and collectively to operate effectively. Working together, the team is more effective than those same people would be if they were working as individuals. Furthermore, placing overall responsibility with teams alleviates the potential for individual blame (Wilkinson, 1992). According to Hayes (1997), *teamwork* encourages people to be more professional in their approach and to take their responsibilities seriously.

Teamwork is also an important condition for continuous improvement (Coyle-Shapiro, 1995). By enabling greater sharing of information (Oakland, 1989), and thus facilitating greater cooperation to improve continuously the functioning of the work group (Coyle-Shapiro, 1995), teamwork allows an organisation to draw on the ideas and potential of their people so that it can build firmly on its strengths (Hayes, 1997). Furthermore, irrespective of the exact formation, a team of individuals working together autonomously to achieve a common goal promotes congruency and consistency of purpose.

Examination of the organisational role of TQM (chapter 6) and strategic role of TQM (chapter 7) repeatedly identified the importance of organisation-wide congruity of goals and objectives in the TQM approach. To this end, *policy deployment* represents a disciplined organisational goal-setting methodology (Sink (1991) and King (1989)). *Policy deployment* helps the management of the organisation to ensure that the basic day-to-day processes that support the business are healthy and, at the same time, that the fundamental changes that are necessary for the long-term health of the organisation are occurring (Bechtell, 1996). Regardless of the specific approach, it is a cyclical process whose governing principles are focus, alignment and frequent review (Bechtell, 1996). Each principle and its important contribution are briefly discussed in turn.

Firstly, the *policy deployment* process creates focus by separating those issues in the organisation that require dramatic improvement from the many incremental improvements that can be achieved

at the local level. This helps to clarify employees' understanding of which practical performance gaps must be closed, and of which system capabilities and core competencies they may need to improve. Secondly, to reduce ambiguity and mis-interpretation during the organisation's planning processes, policy deployment makes use of an explicit inter level fact-based negotiation system. As Bechtell (1996) explained, this system, in which employees at all levels of the organisation participate, uses iterative planning sessions to field questions, clarify priorities, build consensus and ensure that the resultant strategies, objectives and measures are well-understood and based on the true capabilities of the organisation. By making explicit the cause-effect relationships among tactical plans, everyone in the organisation is in a better position to understand how local plans must work together to support rather than undermine each other. Thirdly, periodic reviews provide top management with an efficient method of staying in touch with the realistic capabilities of the organisation and, provide employees with the opportunity to verify the validity or otherwise of the chosen objectives (Bechtell, 1996). Furthermore, when periodic reviews are an explicit component of the organisation's activities, the elapsed time between generation/acquisition of new knowledge and the appropriate action can be significantly reduced, improving the organisation's ability to quickly respond to any changes in direction. The outcome of the application of these principles is that all members of the organisation are significantly more likely to have a consistent set of objectives, and which also have been translated into a language that they can understand and act upon at their own particular stations.

As previous discussions have alluded to, the TQM approach calls for continuous improvement in the eyes of the customer. Since the customer is in the next work-centre, department, site or company, organisational and physical boundaries must be breached (Schonberger, 1994). The *internal customer/supplier relationship* concept reflects a notion that all employees in the organisation provide a service, not only to the external customer but also to their colleagues, and therefore, the customer is anyone for whom a service is rendered - both inside and outside the organisational boundaries (Rodrigues, 1994). If an internal customer can accurately specify their incoming requirements, the internal supplier can fine-tune their efforts, building quality into the organisation's business processes. Furthermore, adoption of the concept can help to re-shape or re-enforce employees ideas about the purpose and importance of their tasks (Spencer, 1994). When the objectives of the internal customer/supplier relationship are understood and committed to by all employees, individual and team efforts can be directly tied into internal and external customer satisfaction. It is reasonable to suggest that improvement opportunities are also much more readily identifiable and implementable when complex business processes are analysed and executed in this

manner.

It was argued previously in this section that "involvement" can help employees to identify with the objectives of the organisation and, therefore can facilitate some emotional attachment and commitment to these objectives. It is reasonable to suggest that *effective policy deployment*, in conjunction with the *internal customer/supplier relationship philosophy*, can help an organisation to ensure that such identification and commitment can be sustained²⁴⁴.

Two of the "important" *necessary conditions* concerned collaborative arrangements with external stakeholders. These were:

- *appropriate partnerships between your organisation and your customers* and
- *appropriate partnerships between your organisation and your suppliers*.

It may be argued that traditionally, the focus of the customer-supplier relationship in the eyes of the supplier organisation has been to articulate 'value' to a customer up to the point of their purchase decision. Subsequent purchases, or indeed resolution of dissatisfaction were treated as separate/disconnected transactions. However, "customer focus", or understanding customer needs, wants and expectations, in order to align the resources of the organisation to meet these priorities is dependent on viewing the product/service through the eyes of the customer (MacDonald (1995) and Hartley et al (1997)). The importance attached to the necessary condition *appropriate partnerships between your organisation and your customers* would indicate that in recognition of this idea, the best practice organisations prefer to operate a different transactional approach which seeks to move customer relationships, where appropriate, from a series of dis-connected customer-led transactions, into partnerships that involve direct collaboration. This modification to the relationship would appear to be important for a number of reasons.

Firstly, customers often do not know themselves 'exactly' what they want from a product/service package, and therefore cannot readily provide the organisation with accurate information about

²⁴⁴The author would propose that there is a further, more subtle benefit of *policy deployment* which is related to enabling effective change in more general terms. A sub-element of TQM considered to be important was the *elimination of fear at the management level*. In this respect, Holder and Walker (1993) suggested that managers have to be made to see that their contribution to TQM will not only benefit the larger organisational objectives, but also the long-term success and security of their group and their careers, and that one way to achieve this is for managers to participate in a planning process that clarifies the goals and measurable standards of performance of each level of the organisation.

their requirements through conventional methods²⁴⁵. Instead, to maintain credibility they may provide the supplying organisation with the information that they think the supplying organisation wants (Ackoff, 1993). That is to say, conventional methods of discerning requirements may not be effective in generating reliable information²⁴⁶. The proximity of a partnership enables the customer to be an active participant in the design of the product/service package. As Ackoff (1993) suggested, customers often discover exactly what they want by designing what they want. Involving customers in design represents a much more systematic, productive and cost-effective way of helping to ensure that customers requirements can and will be satisfied.

Secondly, the competitive business conditions nowadays have led to the realisation that it is equally important to pay serious attention to customers perceptions of the organisation's product/service package, as to the tangible transactions. According to Williams (1993b) a bad experience sticks in the mind of the customer even if a one-off occurrence, and correcting customers' negative impressions is not easy²⁴⁷. Since perception is reality to customers, it is the perceptions that customers hold that organisations have to address if good performance is to be recognised and reasons for recommendation generated. The easier the organisation makes the communication process between itself and its customers, the more likely it is to receive perceptual feedback that is accurate and timely. Furthermore, once communication channels are open it may be possible to heal existing negative perceptions customers may hold about the organisation and, to involve them in the improvement process (Williams, 1993b).

Thirdly, customers now tend to seek continual improvement in their transactions with their suppliers (Lamming (1993) and MacBeth (1994)). According to Whitehall (1992) however, research has suggested that customers' notions of improvement tend to significantly lag behind the actual improvement. That is, while from an internal perspective an organisation can improve its performance significantly, it is much more difficult for the organisation to change the customer's perception of the performance. Thus, getting close to the customer and taking every opportunity to communicate and share information is tremendously important. Furthermore, opportunity to

²⁴⁵Furthermore, even when customers do know what they want, the exact details of the design of the product/service package may still take several iterative modifications to finalise.

²⁴⁶According to Ackoff (1993) there is a huge literature that shows that questionnaires addressed to customers often do not yield reliable information about what the customers want.

²⁴⁷Word of mouth research conducted in the US by TARP has found that bad product or service experience is relayed to twice as many people as good, and another piece of US research discovered that when asked which sources of information they trusted when considering a purchase, consumers put fellow consumers at the top of the list (Williams, 1993b).

visibly demonstrate competence and/or performance improvement to customers can have a significantly greater impact than through indirect communication. As Whitehall (1992) stressed, too frequently words can be exposed or disproved as false promises or assurances.

Finally, even with the greatest will to satisfy, customer related problems are likely to be inevitable. There are very few customer related problems that an organisation can resolve in isolation. It is reasonable to suggest that partnerships with customers help organisations to break down barriers and establish mutual trust, thus making it easier to understand each others business constraints and turn cause for dissatisfaction into opportunity for mutually beneficial improvement.

Partnerships between an organisation and its suppliers represents a collaborative approach in which the organisation and suppliers work together closely, seeking mutual benefits by sharing the risks and rewards of a cooperative relationship (Ellram and Edis, 1996). In the contemporary business environment, suppliers often lose sight of buyer's expectations, and may not always understand what types of activities and levels of performance are necessary to match or exceed the buyer's expectations (Landeros et al, 1995). Furthermore, purchased goods and services frequently account for a large proportion of the cost of manufacture or service delivery (MacBeth , 1982), and organisations are now well aware of the benefits that can be reaped from reduced inventories (MacBeth (1982) and Davis (1993)). This forces organisations to strive to obtain high quality and reliability of inputs.

Supplier-partnerships represent mutual efforts focused on the clarification of needs and expectations; elimination of problems and concerns; and consistent performance (Landeros et al, 1995). Communication between the organisation and its suppliers is significantly improved through a partnership. Reactive supplier relationships become managed supplier relationships, as the supplier is able to feel where the customers concerns are and, the organisation is better able to evaluate and accept a suppliers problems and contribute to their resolution (Stein, 1993). Landeros et al (1995) argued that a competitive advantage could be enhanced by contributions from suppliers in areas such as quality, cost, delivery, product development, product and process innovations and productivity. Through partnerships, an organisation can induce selected suppliers to become contributors to the organisation's competitive posture. Instead of diversifying risk by spreading purchases over a number of suppliers and switching from one supplier to another to obtain desirable performance, partnerships concentrate efforts with a much reduced supplier base to continuously improve performance in critical areas. Through a partnership therefore, the buyer and

seller can develop trust and assure commitment (Landeros and Monczka, 1989). It has also been suggested that effective customer-supplier partnerships are instrumental in stimulating cross-functional activity within the individual companies, resulting in cross-functional improvements between companies (Plank, 1993)²⁴⁸. The author would suggest that such relationships also encourage suppliers to innovate and perhaps more crucially, enable the organisation to react faster to changes induced by its own customers.

Once developed, a partnership enables the organisation to continuously evaluate the fit between its own and the supplier's management philosophy, commitment to quality and cost improvements (Stuart, 1993). As Landeros et al (1995) suggested, in the competitive environment less tangible factors such as suppliers' basic management philosophy, managerial attitudes towards quality and propensity for collaborative problem solving, can often be more important than specific operational criteria. The alternative to developing partnerships in competitive supplier markets is the "traditional" competitive bidding process. However, the competitive bidding process would appear to have drawbacks. Stuart (1993) argued that the competitive bidding process is not an effective supplier selection process to use in the case of certain types of purchases, noting that some authors have suggested that competitive bidding should not be used when major issues other than price are important [for example Dobler et al (1990), and that others have suggested that the philosophy underlying the competitive bidding approach to supplier selection can lead to a higher total cost in the long run [for example Hahn et al (1986)]²⁴⁹.

The *necessary condition* emphasised the need for "appropriate" partnerships, and it may be argued that this is for two reasons. Firstly, it is reasonable to suggest that it would be very difficult for an organisation to develop a close partnership with all of its suppliers. Close partnering arrangements requires a high level of analytical, problem solving and creative ability, as well as knowledge of the supplier's production processes (Stuart, 1993) and service delivery processes. That is to say, supplier partnerships require considerable joint interaction and information sharing which represents a significant change from conventional practice (Stuart, 1993). Ellram and Edis (1996) suggested that as such the intensity of these relationships limits the number that can be managed effectively, and hence most supplier partnering relationships tend to be oriented around specific,

²⁴⁸cited in Landeros et al (1995).

²⁴⁹Stuart (1993) proposed that careful study of the Japanese success in industrial competitiveness reveals that at least some portion of that success can be attributed to the form of the supplier relationship, not just the supplier choice. His own study indicated that as the degree of a partnership between an organisation and supplier increases, the organisation typically enjoys significantly increased short-term productivity improvements and long term strategic advantages.

relatively important purchased items or services. Secondly, it is reasonable to suggest that it is almost certainly unnecessary for an organisation to develop partnerships with all of its suppliers. A partnership represents an ongoing relationship, and therefore, it would only be for those suppliers with which the organisation has recurring transactions that a partnership approach would be applicable²⁵⁰. Landeros et al (1995) suggested that precise expectations should define the type of working relationships an organisation desires from its suppliers and as such the expectations should determine the degree of partnering commitment required to achieve the desired results. As Stuart (1993) proposed, it would be entirely reasonable to think of a continuum, or degree of supplier partnership, based on the extent to which the traditional approach has been discarded in favour of the partnering approach.

The author would propose that two of the *necessary conditions* rated as "important" can be considered to be "supporting" *necessary conditions*. That is, they underpin the organisation's ability to put in place and sustain the attitudes, behaviours, mechanisms and processes of a TQM approach. These are:

- *continuous investment in training, and development of all employees skills and*
- *quality of the work environment.*

The logic underlying the importance of the former necessary condition is quite straightforward. It is reasonable to suggest that if the employees of an organisation are to contribute effectively to the development of the organisation, it is crucially important that they too are provided with the means to develop and acquire necessary skills. Since the business environment is in a constant state of flux, and organisations must pro-actively respond to the changes that occur, continuous investment in training and development of skills to produce a work force that is versatile in normal business operations and able to contribute to both problem solving and continuous improvement would appear to be imperative. Furthermore, investment in training is a primary mechanism through which organisations can socialize employees to the desired organisational values (Walton, 1989)²⁵¹ - it is important in signalling the organisation's desire for greater employee involvement, the value the organisation attaches to employee involvement and commitment, and the organisation's reciprocal commitment to increasing the well-being of its employees. As Palmer

²⁵⁰Stuart (1993) pointed out that in this respect, competitive bidding remains an important component of the supplier selection process for certain types of products, particularly for commodity type purchases.

²⁵¹cited in Rodrigues (1994).

and Wilson (1995) suggested, without training and the development of employees skills, the choices as to how employees are going to alter their cognitive, affective and behavioural factors are very limited.

As has been argued previously, involvement, empowerment and increased responsibility are important in a TQM approach, especially for harnessing the competence and expertise of employees. The author would suggest that continuous training and development of skills provides an important control mechanism in this context. That is, training and skills development is an important intervention that helps to ensure that competence and expertise is released and articulated in a controlled fashion.

A consultation of the literature revealed that training was consistently cited as a crucial component of a TQM approach (sections 2.6.2 and 2.6.4). Examination of the same literature however, also revealed that training was often treated as a "step" on the road to a TQM approach. Further, that training drains resources was a commonly cited criticism of TQM (section 2.8.4). The *necessary condition* here, with its emphasis on "continuous investment", clearly suggests that organisations must overcome these mindsets and come to a clear understanding of the importance of widespread training and development of skills²⁵².

The author would suggest that the importance assigned to the necessary condition *quality of the work environment*, follows the logic that if employees perceive the quality of the work environment they are expected to perform in to be poor, a permanent psychological barrier exists, to the detriment of the quality related orientations that are desired of them. Under such conditions, they may find it difficult to justify their commitment and contribute whole-heartedly to the production of quality products and services, or to the improvement of the business operations. Following this logic, if employees on the other hand are provided with a high quality work environment they would be significantly more likely to accept, welcome and embrace challenge and responsibility. Under these conditions, as Ackoff (1993) suggested, the management of the organisation need have less concern about the quality of the organisation's products and services, because the employees will.

²⁵²Literature also suggested that many organisations that attempt to introduce TQM place far too much reliance on training as the route to establishing and securing a quality-oriented culture (section 2.8.4). However, as illustrated in figure 9.2, the relative perceived importance of this necessary condition (rated "important", but less so than six other necessary conditions that were rated as "very important") clearly suggests that the provision of training and skills development should not be considered to be a guarantor of effecting a sustainable quality culture.

The concept of *shared responsibility*, considered to be an "important" necessary condition, has indirectly been explicated throughout the preceding discussion. In fact, it may be argued that shared responsibility is a characteristic of, or is consequential on the other necessary conditions. That is to say, when the other necessary conditions are in place, shared responsibility is a desirable outcome. Arguments underlying importance of *shared responsibility* will not be repeated here. However, it is important to point out that the fundamental significance of *shared responsibility* is that it represents the removal of the 'them-and-us' attitudinal and behavioural barriers that can plague organisational effectiveness.

One necessary condition was considered to be of "neutral" importance for the attainment of organisation wide quality. This was *involvement in the community*. The author would suggest that whilst this may re-enforce employees' perception of a caring organisation thus helping to secure their commitment, in addition to creating a positive perception in the eyes of external stakeholders, as a business practice it is not a significantly necessary contributor for enabling a quality ethos to permeate the organisation.

9.3 Influence of *Size* and *Class* of Organisation on Necessary Conditions

χ^2 test of significance was carried out on all statements describing the *necessary conditions* for the attainment of an organisation wide quality ethos. χ^2 test of significance at 95 percent confidence indicated that statistically a difference was perceived for two of the statements. The data pertaining to these statistical findings was consulted in order to (a) identify and formulate explanations for the observed differences, and (b) assess whether or not the statistical findings reflected a difference meaningful enough to be included in the development of the conceptual map.

The first statistical finding concerned the necessary condition *building and maintaining a human environment that allows the members of the organisation to improve quality, continually based on mutual trust and collaboration*²⁵³. The data showed that all manufacturing organisations in the sample either "agreed" or "strongly agreed" with this necessary condition. However, 25 percent of service organisations expressed a "neutral" view, and 8 percent of M/S organisations "disagreed". The reason for this was not immediately clear. The author would suggest that it may be a result of difference in the nature of the task dispersion of employees. In manufacturing organisations the vast majority of employees (if not all employees) are required to work in what

²⁵³ $\chi^2=11.6$, with $\alpha=0.05$.

is often termed the 'back-office'. In other words, physically within the organisation. As previous discussions have suggested, with the emphasis on teamwork and integration, a human environment that promotes mutual trust and collaboration is essential. In service organisations however, a higher proportion of employees are likely to be in front-line delivery positions where their "human environment" is largely determined by the specific nature of the service and where the service transaction takes place. The inference is that in service organisations, the human environment may not always need such close attention.

The second statistical difference concerned the necessary condition *continuous investment in training and development of all employees skills*²⁵⁴. The data showed that none of the organisations disagreed with this necessary condition. However, whilst 95 percent of manufacturing organisations and 92 percent of M/S organisations "agreed" or "strongly agreed" with the necessary condition, the corresponding figure for service organisations was much lower at 67 percent. Again, the author would suggest that this is a consequence of proportionally more employees in service organisations being located in front-line delivery positions. These employees are likely to require and receive very specific training when they enter into the organisation as part of their induction. That is to say, for these employees, more emphasis needs to be placed on specialised skills that are governed by the specific nature of the "hands-on" element of service delivery, rather than on the more general and less task specific skills.

Neither of these statistically suggested differences represented dramatic divergence in opinion, and therefore were not deemed meaningful enough to be represented in the development of the preliminary conceptual map.

9.4 Factor Analysis Applied to the Necessary Conditions

The two stage exploratory factor analysis was applied (for detailed description see section 4.4.2) to investigate the empirical factor structure of the participants response to the statements describing the necessary conditions for the attainment of an organisation-wide quality ethos. The results of the factor analysis and the "new explanatory variables" subsequently formed are presented in this section.

Tables 9.4.1 and 9.4.2 summarise the results of stage 1 and stage 2 analysis respectively. The

²⁵⁴ $\chi^2=6.19$, with $\alpha=0.05$.

tables show the factor component variables, their factor loadings, factor eigenvalues and percent of variance. Factor loadings greater than 0.5 are indicated in bold type face. The case to variable ratios of 47:15 and 47:14 respectively were valid ratios for factor analysis. This was confirmed by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy values and Bartlett Test of Sphericity / Significance values associated with each analysis. These values are shown in the respective tables and indicated that the factor analysis output could be considered as a valid representation of the input variables.

As tables 9.4.1 and 9.4.2 show, the factor components for stage 1 and stage 2 analyses were virtually identical. This was partly expected with the exclusion of just one *necessary condition* variable from stage 2. Indeed, the only difference between the two factor analysis results was the inclusion of variable *involvement in the community (o)* in factor 1V of stage 1. As such the remainder of the discussion utilises stage 2 (table 9.4.2) results.

Table 9.4.1. Factor loadings on (stage 1) fifteen variable set of necessary conditions for the attainment of an organisation-wide quality ethos

Variable		Factor 1V	Factor 2V	Factor 3V	Factor 4V
<i>involvement of, and commitment from all employees</i>	a	0.688	0.078	0.178	0.100
<i>leadership and vision from the top</i>	b	-0.050	0.119	0.121	0.853
<i>commitment to and promotion of TQM concept by CEO</i>	c	0.387	-0.240	0.424	0.444
<i>active and visible participation of top management</i>	d	0.354	-0.189	0.780	0.123
<i>(see below)</i>	e	-0.052	0.174	0.846	0.104
<i>effective policy deployment</i>	f	0.035	0.735	-0.037	0.116
<i>appropriate partnerships - organisation and customers</i>	g	0.388	0.690	-0.034	0.310
<i>appropriate partnerships - organisation and suppliers</i>	h	0.397	0.789	0.070	0.028
<i>teamwork</i>	i	0.766	0.071	0.015	-0.292
<i>continuous investment in training / skills development</i>	j	0.720	0.180	0.375	0.062
<i>quality of the work environment and working life</i>	k	0.689	0.292	0.472	0.083
<i>an internal customer/supplier relationship philosophy</i>	l	0.190	0.730	0.344	-0.204
<i>all employees dedicated to continuous improvement</i>	m	-0.160	0.575	0.285	-0.371
<i>shared responsibility</i>	n	0.159	0.194	0.601	-0.047
<i>involvement in the community</i>	o	0.613	0.377	-0.181	0.256
Eigenvalue		3.107	2.950	2.515	1.415
Pct of Var		20.71%	19.66%	16.77%	9.43%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)=0.634; Bartlett's Test of Sphericity =307.268 with Significance =0.00.
variable (e) = *building and maintaining a human environment that allows all employees to improve quality, continually based on mutual trust and collaboration.*

Table 9.4.2. Factor loadings on (stage 2) fourteen variable set of 'important' necessary conditions for the attainment of an organisation-wide quality ethos

Variable		Factor 1W	Factor 2W	Factor 3W	Factor 4W
<i>involvement of, and commitment from all employees</i>	a	0.099	0.735	0.120	0.173
<i>leadership and vision from the top</i>	b	0.111	-0.028	0.087	0.902
<i>commitment to and promotion of TQM concept by CEO</i>	c	-0.241	0.341	0.484	0.403
<i>active and visible participation of top management (see below)</i>	d	-0.163	0.348	0.795	0.098
<i>effective policy deployment</i>	e	0.200	-0.027	0.803	0.118
<i>appropriate partnerships - organisation and customers</i>	f	0.731	0.011	-0.032	0.120
<i>appropriate partnerships - organisation and suppliers</i>	g	0.684	0.355	-0.022	0.321
<i>teamwork</i>	h	0.797	0.399	0.033	0.074
<i>continuous investment in training / skills development</i>	i	0.099	0.821	-0.045	-0.222
<i>quality of the work environment and working life</i>	j	0.200	0.722	0.365	0.085
<i>an internal customer/supplier relationship philosophy</i>	k	0.306	0.658	0.493	0.077
<i>all employees dedicated to continuous improvement</i>	l	0.750	0.197	0.306	-0.180
<i>shared responsibility</i>	m	0.593	-0.134	0.226	-0.342
	n	0.203	0.100	0.660	-0.116
Eigenvalue		2.883	2.761	2.495	1.377
Pct of Var		20.60%	19.72%	17.82%	9.83%

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) =0.618; Bartlett's Test of Sphericity =277.410 with Significance =0.00.
variable (e) = *building and maintaining a human environment that allows all employees to improve quality, continually based on mutual trust and collaboration.*

Six of the variables in the factor analysis were rated by the participants as "very important" necessary conditions. It was imperative that new explanatory variables were developed bearing in mind the potential need to preserve the merits of variables individually. In this respect, only two new explanatory variables were suggested. Perhaps the most significant finding was that the variable rated most important by the participants, *leadership and vision from the top (b)*, was the sole component of factor 4W. This suggested that *leadership and vision from the top* is a core TQM principle.

It was deemed appropriate to combine just one of the "very important" rated necessary conditions into a new explanatory variable. This was for variable *active and visible participation of top management (d)* in factor 3W, and was combined with variable *shared responsibility (n)*. As the latter explicates, both variables concern "responsibility" for the quality ethos. The new explanatory variable **shared responsibility championed by the active and visible participation of top management** was suggested.

Factor 1W appeared to contain two sub-factors. The first comprised variables *effective policy deployment (f)* and *an internal customer/supplier relationship philosophy the objectives of which*

are understood by all employees (l). It may be argued that these both relate to the "internal linkages" within the organisation that enable all parts/employees to pull in the same direction(s), and they have a bi-directional relationship in terms of impact. That is to say, effective policy deployment will facilitate the operation of internal customer/supplier relationships and vice versa. The new explanatory variable **effective policy deployment underpinned by an internal customer/supplier relationship philosophy the objectives of which are understood and committed to by all employees** was suggested.

The second sub-factor contained two variables both referring to "appropriate partnerships" for the organisation, firstly with "customers" and secondly with "suppliers". After deliberation it was decided that despite the exact same grounding, they should not be combined into a new explanatory variable, as the implications and operational requirements for each are in most cases likely to be significantly different.

Factor 2W also appeared to contain two sub-factors, however no new explanatory variables were developed. In the first case (variables *teamworking (i)* and *involvement of, and commitment from all employees (a)*) this was for the reason cited earlier that it was deemed more important to retain individual merit. The two variables have "involvement" as their primary association, with the latter providing the means of nurturing the former. In other words, team-working is an effective working arrangement for nurturing the involvement and commitment. In the second case, the relationship between the two variables *continuous investment in training and development of all employee's skills (j)* and *quality of the work environment and working life (k)* was not considered to be decisive enough to permit their combination as a new explanatory variable. The former is clearly a significant contributory influence to the latter, but it is certainly not an exclusive influence.

Table 9.4.3 summarises the new explanatory variables that were formed and their component variables.

Table 9.4.3. Summary of new explanatory variables - Necessary conditions for the attainment of an organisation-wide quality ethos

	variable	new explanatory variable / observation
factor 1V (subfactor):	<i>effective policy deployment (f)</i> <i>an internal customer/supplier relationship the objectives of which are understood and committed to by all employees (l)</i>	effective policy deployment underpinned by an internal customer/supplier relationship the objectives of which are understood and committed to by all employees
factor 3V (subfactor):	<i>active and visible participation of top management (d)</i> <i>shared responsibility (n)</i>	shared responsibility championed by the active and visible participation of top management

CHAPTER 10: A PRELIMINARY PROPOSED THEORY OF TQM

10.1 Introduction

The organising framework for guiding the collection of data and information for the development of the TQM theory was presented in the section 4.3.2. The results of the analysis of the organisational role, strategic role, main elements and sub-elements of the best practice sample's TQM approaches, and the necessary conditions for the attainment of an organisation-wide quality ethos were presented in chapters 6, 7, 8 and 9 respectively. Through the consideration of the sample's agreement with certain roles, the importance they attached to various sub-elements and necessary conditions, and analysis of statistically suggested relationships, a set of more concise explanatory variables was extracted. This chapter describes the process of bringing these findings together in order to derive a proposed preliminary theory of best practice TQM.

Development of a preliminary conceptual map represented the first stage in synthesising the findings into a coherent representation of an exemplary TQM approach. The term preliminary is used because the resultant conceptual map would be open to modification and refinement after an evaluation process (chapter 11)²⁵⁵. The subsequent derivation of *relationships* amongst the *concepts* developed represented the translation of the preliminary conceptual map into a proposed theory. This process involved juxtaposing all possible relationships between the identified concepts against the underlying logic articulated in chapters 6 to 9 in order to identify the salient relationships.

This chapter is sub-divided into five further sections. Section 10.2 summarises the inputs to the preliminary conceptual map. Section 10.3 describes the development of the structure of a TQM concept and the concept formation procedure. It also describes the development and application of an importance index applied to the resultant preliminary conceptual map. Section 10.4 presents the conceptual map in its preliminary format. Section 10.5 describes the process used to derive the *relationships* of the TQM theory. In the final section (10.6) the salient relationships are presented, the theory's propositions are articulated, and the logic underlying them is summarised.

²⁵⁵The reader is referred back to section 3.2.4 for an explanation of the structure of theory adopted for this investigation.

10.2 Inputs to the Preliminary Conceptual Map

Inputs to the preliminary conceptual map were four-fold: *new explanatory variables* derived subsequent to the application of factor analysis; *remaining important variables* not affected by the application of factor analysis; *further explanatory variables* derived from the desirable transitions in structure and management style and *strong/prevalent themes* (the origins of these *themes* is explicated at the end of this section).

The development of the preliminary conceptual map commenced with the development of a number of survey instruments incorporated into the Delphi round 1 and Delphi round 2 questionnaires. These survey instruments comprised a total of 156 TQM related variables to be tested. Participants were asked their views about how these variables related to their organisations' understanding and experience of TQM approach. The logic underlying their perceptions was proposed and debated, thus enabling those that are salient²⁵⁶ to a best practice TQM approach to be isolated from those that are not.

Participants' responses indicated that thirty eight (38) TQM related variables were not considered to be salient. Individual consideration of the meaning of each of these variables and why each should not be considered salient confirmed that at least twenty six (26) of these thirty eight variables should be eliminated from further investigation and, be excluded from the conceptual map building process. The remaining 130 TQM related variables were considered to be too large a group of variables to deal with efficiently and without potentially causing confusion. They were therefore deemed to qualify for experimental formation into new explanatory variables, through a series of factor analyses. To this end, the outcome of the stage 2 factor analyses was the formation of thirty four (34) new explanatory variables accounting for seventy five (75) of the original 118 salient TQM related variables and, ten²⁵⁷ of the thirty eight TQM related variables that were not considered to be salient. Thus, forty three (43) salient TQM related variables were left unaltered.

Table 10.2a provides a summary of the *new explanatory variables (NEVs)*. The *role of TQM*

²⁵⁶Here, "salient" refers to variables that: (a) participants' agreed describe TQM or (b) were perceived to be important to TQM efforts.

²⁵⁷These were *general characteristics of TQM* investigated under 'Role of TQM' (chapter 6) that were included in the factor analysis procedure despite attaining mean values <3.5 for the reasons discussed previously in section 6.5.

(purpose, methodological foundations and general characteristics) generated twelve NEVs, the strategic role of TQM generated five NEVs, the sub-elements of TQM generated fifteen NEVs and the necessary conditions generated two NEVs.

Table 10.2a - Summary of new explanatory variables (NEVs)

SOURCE	NEW EXPLANATORY VARIABLE (NEV)	IMPORTANCE INDEX ²⁵⁸
<i>Purpose of TQM :</i>	TQM is a process for fostering an organisational culture that can deliver sustainable competitive advantage	2
	TQM is a vehicle for differentiating the organisation's offering	1
	TQM is a way of working that ensures constancy of purpose, underpinned by a set of core values	2
<i>Methodological foundations of TQM:</i>	TQM is a means of channelling company effort for controlled continuous change	1
	TQM is an enabling process focused on outcome and integration	1
	TQM is a technically supported framework for company-wide improvement efforts	1
	TQM is a means of encouraging and harnessing the competence, expertise and creativity of people	1
	TQM is a management model/paradigm	1
<i>General characteristics of TQM:</i>	TQM is a broad and permanent approach	2
	TQM is an active and systematic approach	2
	TQM is independent of organisation or internal/external environment influence	1
	TQM is a challenging approach	0
<i>Strategic (conceptual) role of TQM:</i>	TQM helps to achieve strategic fit because it provides a link between strategy and tactic	1
	TQM helps to coordinate strategy because it provides a focus for strategy and facilitates better and clearer strategic analysis and choice	1
<i>Strategic (operational) role of TQM:</i>	TQM strategically addresses effective internal resource and process capability	1
	TQM strategically addresses the process of effective strategy deployment	1
	TQM addresses the strategic issue of people effectiveness	2
<i>TQM sub-elements:</i>	management style and behaviour underpinned by trust	1

²⁵⁸IMPORTANCE INDEX is discussed in section 10.3.3.

standards or processes for establishing, verifying and assuring quality performance	1
integrated operational arrangement	1
knowledge of vendors driving astute selection and assured quality	1
establishing client (market and customer) demographics, needs, wants and expectations	2
external benchmarking (competitive and generic)	1
effective (competent) process improvement teams	1
process definition and ownership	1
process technology	1
drive to stimulate motivation and the elimination of fear across the organisation	1
people acknowledgement and appreciation through recognition, rewards and incentives	1
people selection and development	1
championing and promoting the organisation	1
defining activities, key roles, key responsibilities and information reporting structure to be pursued during planning, implementing and reviewing	1
guiding policies and procedures	1
<i>Necessary conditions:</i> effective policy deployment underpinned by an internal customer/supplier relationship the objectives of which are understood and committed to by all employees	1
shared responsibility championed by the active and visible participation of top management	2

Table 10.2b provides a summary of the *remaining important variables (RIVs)*. These are the salient TQM related variables that were not grouped into new explanatory variables through the factor analysis procedures.

From table 10.2b it is evident that the majority of these RIVs were originally TQM sub-elements. A closer examination of these TQM sub-elements shows that almost half related to the TQM main element *communication and measurement*. This was partly a consequence of the author's deliberate choice during the factor analysis interpretation to retain the individual importance of certain TQM sub-elements. However, the author would suggest that there is an additional reason for this high proportion of RIVs concerned with *communication and measurement*. Whereas the

other four TQM main elements relate to quite distinct areas of TQM intervention, *communication and measurement* is less distinct, because to a large extent it underpins the other four.

From table 10.2b it is also evident that a high proportion of the RIVs were originally *necessary conditions* (chapter 9). The author would suggest that the reasons for this outcome are similar to those just described. Firstly, the deliberate retention of the individual importance of certain *necessary conditions*. Secondly, as inferred by the organising framework, the *necessary conditions* underpin an organisation's ability to effectively realise all other TQM interventions. They apply throughout the entire organisation, and as such it may be argued that they are less likely to become more meaningful if factored together.

Table 10.2b - Summary of *remaining important variables (RIVs)*

SOURCE	REMAINING IMPORTANT VARIABLE (RIV)	IMPORTANCE INDEX
<i>Purpose of TQM :</i>	TQM is about ensuring customer satisfaction	3
<i>Methodological foundations of TQM:</i>	TQM is a guide for achieving organisational objectives	1
<i>General characteristics of TQM:</i>	TQM is a proven method of improving business results	1
<i>Strategic (conceptual) role of TQM:</i>	is a strategic tool*	1
	helps avoid uncontrolled drift from business objectives	1
<i>Strategic (operational) role of TQM:</i>	(none)	
<i>TQM sub-elements:</i>	cross-functional coordination	1
	procedures for identifying major improvement projects*	1
	management tools*	1
	product development process	1
	market mentality	1
	tools for the identification of problems and solutions*	1
	complaint management	1
	control measures for the process	1
	process benchmarking	1
	teamworking*	3
	employee involvement*	3
empowerment and education**	1	

	people development	1
	job flexibility	1
	customer satisfaction tracking*	3
	process performance evaluation*	1
	service performance evaluation*	1
	philosophy of the business	1
	complaint tracking	1
	agreement of service levels	1
	feedback within the organisation	1
	top level management information cascaded down	1
	employee performance evaluation	1
	periodic assessments of effectiveness of training	1
	how to compare service levels	1
	business links with the community	1
	understanding measurement links to the market	1
	data auditing (checking validity and accuracy)	1
<i>Necessary conditions:</i>	leadership and vision from the top***	3
	teamwork*	3
	commitment to and promotion of the TQM concept by the Chief Executive to all levels and activities of the organisation	3
	involvement and commitment from all employees*	3
	all employees dedicated to continuous (process/working practice) improvement	3
	building and maintaining a human environment that allows all members of the organisation to improve quality, continually based on mutual trust and collaboration	1
	continuous investment in training, and development of all employees skills	1
	appropriate partnerships between your organisation and your customers*	1
	appropriate partnerships between your organisation and your suppliers*	1
	quality of the work environment and working life	1

* variable deliberately withheld from inclusion in a NEV in order to preserve its individual importance and significance.

** variable featured strongly in more than one factor.

*** variable suggested by factor analysis as a factor in its own right.

In chapter 5 section 5.3 the changes in organisation structure and management style accompanying the introduction of TQM were profiled. The findings provided the third group of inputs to the preliminary conceptual map. The findings suggested ten *further explanatory variables (FEVs)*. These are summarised in table 10.2c. They represent the desired influence that the introduction of TQM has on organisation structure, management style and quality practices. Five related to organisation structure, two related to management style and three related to quality practices.

Table 10.2c - Summary of further explanatory variables (FEVs)

SOURCE	FURTHER EXPLANATORY VARIABLE (FEV)	IMPORTANCE INDEX
<i>TQM's influence on organisation structure:</i>	formation of team-oriented cross-functional structure	1
	flattened management structure	1
	re-alignment of functional activities around key business processes / customer focused operations	1
	removal of non-adding value functions	1
	decentralisation and integration of essential support functions	1
<i>TQM's influence on management style:</i>	devolved and participative management style	1
	pro-active management style	1
<i>TQM's influence on quality practices:</i>	focus on prevention rather than detection	1
	quality the responsibility of every member of the organisation	1
	quality integral to every job/task within the organisation	1

The fourth input to the preliminary conceptual map was *strong and/or prevalent themes*. That is to say *themes* that surfaced time and again when considering and debating the logic underlying the sample's agreement with, or the importance they attached to, the various TQM variables investigated in chapters 5 to 9. These were either (a) a strong theme in one particular area investigated (i.e. through a certain specific survey instrument) or (b) a prevalent theme that recurred across more than one area investigated. These *themes* contributed to the development of the conceptual map indirectly as considerations, rather than directly as constituents like the NEVs, RIVs and FEVs. These *strong/prevalent themes* could be articulated as follows:

- the strong emphasis on customer satisfaction as a driver of organisational effort

- the strong emphasis placed on "process focus"
- the strong emphasis placed on "participation and involvement"
- the prevalent emphasis placed on TQM's attention to strategy as much as operations and
- the prevalent emphasis placed on senior management leading and managing by example.

10.3 Description of Concept Structure and Concept Formation Procedure

In chapter 3 section 3.2.4, concepts were identified as the "building blocks" of theory. The discussion presented in section 3.2.4 emphasised that the clarity of concepts is critical to the value of a theoretical contribution. To this end, the objective in defining concepts is to organise parsimoniously and communicate clearly. The implication was that as such, concepts should be developed around an appropriate concept structure.

10.3.1 Development of concept structure

In this section the development of an appropriate concept structure is discussed. The author employed two simple guiding objectives when designing the concept structure: *understandable concepts*, and *meaningful concepts*.

There are few rules that govern the structure of concepts. Concepts are created by classifying and categorising objects or events that have common characteristics beyond the single observation (Emory and Cooper, 1991). Here, the "objects or events" were the thirty four NEVs, the forty three RIVS, and the ten FEVs. There can however be certain problems caused by the use of concepts in research. Emory and Cooper (1991) suggested that the use of concepts could present two main difficulties that are accentuated in a research setting: first, people differ in the meanings they include under the particular label, and second and still more challenging are concepts that are familiar but not well understood (they cited *leadership* as an example). Emory and Cooper went so far as to suggest that confusion about the meaning of a concept could destroy a research study's value without the researcher [or client] even knowing it.

This presented the author with the first guideline (and challenge) for development of the concept structure: *the concept structure should be such that others can clearly understand the resultant concepts*. To this end, the use of definitions in the concept structure are very useful and reduce the dangers described above. The second guideline used by the author in developing the concept

structure was the theoretical requirement, and this was simply that: *the resultant concepts must be meaningful so that they can be applied (and tested) in practice.*

These guiding objectives implied that the final concept structure should: (a) ensure each eventual concept's interpretability and (b) ensure each eventual concept's useability and transferability. These issues were taken into consideration and the concept structure shown in figure 10.3.1 was developed. As can be seen, the structure of an individual concept has three levels: *name*, *nominal definition* and *operational definition*. Also as the figure shows, each concept could include multiple nominal definitions and multiple operational definitions. This was not merely a consequence of there being a large number of variables to organise, but an intentional feature. As Bryman (1989) explained, many concepts with which researchers deal are broad and it is unlikely in many cases that a single indicator [definition] will adequately reflect the full range of every concept. The presence of more than one indicator [definition] would allow much finer distinctions to be drawn.

Figure 10.3.1 - Structure of concepts underlying the TQM approach

CONCEPT 'n'	
name:	characterisation / conviction
nominal definition(s):	underlying value 1 underlying value 2 underlying value . . . n objective / desired outcome 1 objective / desired outcome 2 objective / desired outcome . . . n
operational definition(s):	means 1 means 2 means . . . n organisation orientation 1 organisation orientation 2 organisation orientation . . . n tool / technique 1 tool / technique 2 tool / technique . . . n

The concept *name*, unsurprisingly, describes the 'essence' of the concept. It is as brief as possible but constructed and worded so that it is instantly identifiable.

The *nominal definition* caters primarily for the "interpretability" dimension referred to above. The *nominal definition* expresses the 'rationale' (or 'purpose') of the concept. The author strongly believed that a concept in any business management setting could not be meaningful unless it contains 'rationale'. After much deliberation it was decided that this 'rationale' could take any of three forms: an objective; a desired outcome; or an underlying value. Thus, the nominal definition does not express something that "is done", but expresses a purposeful intention that is shared throughout the organisation.

The *operational definition* caters primarily for the "useability" and "transferability" dimension of the concept. This is because an operational definition puts communicable meaning into a concept (Deming, 1986). Findings from review of the literature (chapter 2) suggested that such 'communicable meaning' was often mistakenly overlooked by contributors to the literature and by TQM practitioners. This view is endorsed by Sink (1991) who observed that an early pre-condition for efforts such as TQM would be to develop operational definitions for the concepts that would be used - a common vocabulary, a common agreement of what the organisation would be trying to manage and to improve would be absolutely essential²⁵⁹. Again, after much deliberation it was decided that the operational definition could take any of three forms: a means; an organisation orientation; or a tool / technique. The *operational definition* refers to what happens, or what is put in place, in support of the underlying values, objectives and desired outcomes expressed in the *nominal definition*.

The author believed that this hierarchy of *name*, *nominal definition* and *operational definition* comprehensively catered for the 'understandable' requirement and the 'meaningful' requirement, and hence organising parsimoniously and communicating clearly.

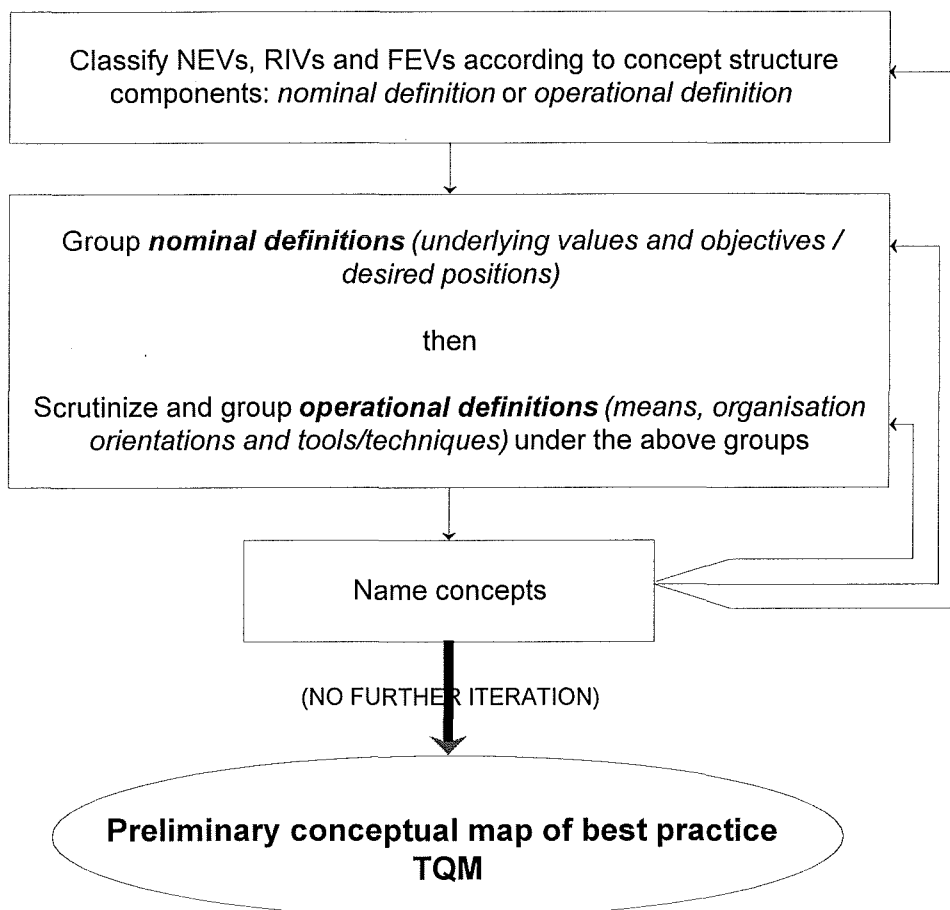
10.3.2 Concept formation procedure

Formation of the concepts was an iterative procedure designed around, and hence guided largely by, the levels and hierarchy of the concept structure. The procedure is diagrammatically illustrated in figure 10.3.2.

²⁵⁹Operationalisation is also an important consideration with regard to the practical evaluation of concepts. Through operational definitions, a concept becomes defined in such a way that guidelines are laid down for making observations to determine when an instance of the concept has empirically occurred (Gill and Johnson, 1991).

Essentially, the procedure comprised of two processes: (i) classifying the input variables and (ii) grouping them according to their underlying theme. In the opening step of the procedure the input variables were classified according to whether they were part of a *nominal definition* or part of an *operational definition*.

Figure 10.3.2 - Illustration of iterative procedure for developing preliminary conceptual map



The next step, that initiated the iterative procedure, was grouping the variables. This step was intentionally led by assessing and grouping the *nominal definition* variables: 'objective / desired outcome' and 'underlying value'. This involved heuristically examining the *nominal definitions* in order to identify groupings of *nominal definitions*. Each grouping would signify a higher level of abstraction. Then, the *operational definition* variables were associatively attributed to the groups of *nominal definitions*. Again, this was a heuristic process. It is important to note that the input variables only contributed to these two levels in the concept hierarchy, that is *nominal definition* or *operational definition*. The first level, concept name, was determined and defined largely as a

consequence of the constituent parts of each concept group. Essentially therefore, the concept *name* was applied after the concepts had been derived. After grouping the nominal definitions and the operational definitions an assessment was made of whether or not the **strong/prevalent themes** were represented by the resulting groups of nominal and operational definitions. On completion of the first grouping and concept naming procedure, the resulting initial conceptual map was reassessed, scrutinised and changes made to the classification or allocation of variables as required.

To further ensure the "interpretability" dimension of good concept development, where necessary the wording of NEVs, RIVs and FEVs was altered, but care was exercised to ensure that their meaning was not altered.

An important consideration during the procedure was how many concepts there should be. As with the structure of concepts, there are few (if not fewer) rules that govern the number of concepts. As such, the author concluded that the chief determinant of the number of concepts should be the number that were clearly identifiable and distinguishable from each other, bearing in mind that (a) too small a number of concepts may not have provided the depth of understanding required and (b) too many concepts would contradict the purpose of the conceptual map development by providing the opportunity for misunderstandings over the division between concepts.

10.3.3 Importance index

The third column in tables 10.2a, 10.2b and 10.2c showed an "importance index" for each NEV, each salient RIV and each FEV. Before the 156 original TQM related variables were developed into the preliminary conceptual map, each had received a rating by the best practice sample. This was either (a) a rating on a scale of importance to the TQM approach or (b) a rating reflecting the sample's level of agreement that it described TQM. It was necessary to preserve these importance/agreement ratings for the following simple reason. The TQM variables had been shown not to be of exactly equal importance and it was considered imperative that this (i.e. "relative importance") should be reflected in any subsequent application of the resultant TQM theory, or in any subsequent testing of the resultant TQM theory. However, because a large proportion of the original TQM related variables had been grouped into new explanatory variables (NEVs) following the factor analyses, the original ratings were no longer appropriate. That is to say, combining more than one variable into a new single variable lost the importance rating attached to each individual variable. Based on the original rating scales a new rating scale was

developed that could be consistently applied to the NEVs, RIVs and FEVs. To re-iterate, the preliminary map could only contain NEVs, RIVs or FEVs considered to be important. Therefore, the following index was developed and applied to the NEVs:

If NEV comprised TQM related variables with original ratings:		then new importance index =	
SA only	or	VI only	3
SA + A	or	VI + I	2
A only	or	I only	1
includes an N*			0*
D only*			1*
SD + D*			2*
SD only*			3*

where:

SA= strong agreement; A=agreement; D=disagreement; SD=strong disagreement; VI=very important; I=important; and N=a neutral view.

*these were required for NEVs derived from variables describing *general characteristics of TQM* (see section 6.5).

RIVs that were originally rated as "strong agreement" or "very important" were re-rated with a '3', and RIVs that were originally rated as "agreement" or "important" were re-rated with a '1'. This was consistent with the new ratings applied to NEVs. FEVs were originally not rated at all, however, they were identified as "important" changes resulting from the introduction of TQM. Therefore for consistency, they were also given a rating of '1'. The '2' rating in the importance index did not apply to RIVs or FEVs since neither type of variable was a composite variable.

10.4 Prevalent Concepts - Preliminary Conceptual Map of TQM

Classifying the NEVs, RIVs and FEVs according to the concept components described in section 10.3.1 resulted in the following:

- eighteen (18) of the input variables were classified as '*nominal definitions*' (five (5) were classified as "objectives / desired outcomes" and thirteen (13) were classified as "underlying values") and
- sixty one (61) of the input variables were classified as '*operational definitions*' (fifteen (15) were classified as "means", twenty seven (27) were classified as "organisation orientations" and

nineteen (19) were classified as "tools / techniques").

Following the concept formation procedure described in section 10.3.2, it took three iterations before no further refinement of the preliminary conceptual map took place. Nine concepts were developed. During the procedure, the concept structure itself was open to revision, had it been found not to have been 'user-friendly' in practice. As such, the first test of the appropriateness of the concept structure developed, was the definition of the concepts themselves. It proved unnecessary for the concept structure to be revised. The concept structure developed worked extremely well, to the extent that only a small number of input variables could not easily be incorporated into concepts (these are discussed at the end of this section). The preliminary conceptual map of TQM that resulted was as follows (numbers in brackets are the variable's importance index):-

C1 - name: ***Customer Focus***

nominal definition: ensuring customer satisfaction (3)

operational definitions: customer satisfaction tracking (3)
establishing client (market and customer) demographics, needs, wants and expectations (2)
appropriate partnerships between organisation and customers (1)
service performance evaluation (1)

C2 - name: ***External Focus***

nominal definitions: differentiating the organisation's offering (1)
market mentality - cascaded throughout the organisation (1)
championing and promoting the organisation (1)

operational definitions: understanding measurement links to the market (1)
external benchmarking (competitive and generic) (1)
knowledge of vendors driving astute selection and assured quality (1) [*particularly in manufacturing organisations]
appropriate partnerships between organisation and suppliers (1)
product development process (1)
business links with the community (1)

C3 - name: ***Internal Collaboration (Cooperation and Effective Communication)***

nominal definitions: shared responsibility championed by the active and visible participation of top management (2)
involvement and commitment from all employees (3)
feedback within the organisation (1)

operational definitions: building and maintaining a human environment that allows all members of the organisation to improve quality, continually based on mutual trust and collaboration (1)
employee involvement (3)
formation of team-oriented cross-functional structure (1)
cross-functional coordination (1)
teamwork (3)
flattened management structure (1)
decentralisation and integration of essential support functions (1)

C4 - name: ***Participative Management***

nominal definition: management style and behaviour underpinned by trust (1)

operational definitions: devolved and participative management style (1)
pro-active management style (1)
top level management information pushed down and communicated throughout the organisation (1)
empowerment and education (1)
management tools (1)

C5 - name: ***Dynamic/Energetic Leadership***

nominal definition: leadership and vision from the top (3)

operational definitions: commitment to and promotion of the TQM concept by the Chief Executive to all levels and activities of the organisation (3)
fostering an organisational culture that can deliver sustainable competitive advantage (2)
philosophy of the business (1)

C6 - name: ***Strategic Framework (Strategic Management Process)***

nominal definitions: way of working that ensures constancy of purpose, underpinned by a set of core values (2)
achieve strategic fit by providing a link between strategy and tactic (1)
an enabling process focused on outcome and integration (1)

operational definitions: coordinate strategy by providing a focus for strategy and facilitating better and clearer strategic analysis and choice (1)
strategically addressing the process of effective strategy deployment (1)
effective policy deployment underpinned by an internal customer/supplier relationship the objectives of which are understood and committed to by all employees (1)
guiding policies and procedures (1)
avoid uncontrolled drift from business objectives (1)

C7 - name: ***Process Architecture and Management***

nominal definition: all employees dedicated to continuous (process/working practice) improvement (3)
channelling company effort for controlled continuous change (1)
integrated operational arrangement (1)
effective internal resource and process capability (1)
focus on prevention rather than detection (1)

operational definitions: re-alignment of functional activities around key business processes / customer focused operations (1)
process definition and ownership (1)
effective (competent) process improvement teams (1)
process technology (1) [*particularly in SMEs and manufacturing organisations]
process benchmarking (1)
process performance evaluation (1)
standards and processes for establishing, verifying and assuring performance (1)
removal of non-adding value functions (1)
complaint management (1)

C8 - name: ***People Realisation***

nominal definitions: drive to stimulate motivation and the elimination of fear across the organisation (1)
encouraging and harnessing the competence, expertise and creativity of people (1)
people selection and development (1)

operational definitions: addressing the strategic issue of people effectiveness (2)
people acknowledgement and appreciation through recognition, rewards and incentives (1)
continuous investment in training, and development of all employees skills (1)
periodic assessments of effectiveness of training (1)
employee performance evaluation (1)
job flexibility (1)
quality of the work environment and working life (1)

C9 - name: ***Explicit Measurement***

nominal definition: defining activities, key roles, key responsibilities and information reporting structure to be pursued during planning, implementing and reviewing (1)
technically supported framework for company-wide improvement efforts (1)

operational definitions: procedures for identifying major improvement projects (1)
tools for the identification of problems and solutions (1)
control measures for the process (1)
how to compare service levels (1)
data auditing (checking validity and accuracy) (1)

agreement of service levels (1)
complaint tracking (1)

Five NEVs, three RIVs and two FEVs were found to be too abstract to be classified, and hence could not be incorporated into the preliminary conceptual map. These were:

TQM is a management model/paradigm (1)
TQM is a broad and permanent approach (2)
TQM is an active and systematic approach (2)
TQM is independent of organisation or internal/external environment influence (1)
TQM is a challenging approach to working knowledge and practice (0)
TQM is a proven method of improving business results (1)
TQM is a strategic tool (1)
TQM is a guide for achieving organisational objectives (1) and
quality is an organisation-wide responsibility (1)²⁶⁰.

Their value however was not lost. A closer examination shows that they describe the broad contextual conditions of a best practice TQM approach. That is to say, the preliminary conceptual map should be used by practitioners with these conditions in mind. Put another way, the success of the preliminary conceptual map may be dependent on the organisation's ability and assent to view TQM as the above descriptors imply.

There are two prominent attributes of the map that command special mention and explanation. Firstly, the conceptual map contains a concept relating to "leadership" - *Dynamic / Energetic Leadership* and a concept relating to "management" - *Participative Management*. The author strongly believed that there was a need to distinguish between them. Though they overlap to a considerable degree, this can lead them to be confused with each other. The danger that can result is that in practice, attention might be concentrated on either leadership or management, but at the other's expense. Secondly, the map contains a concept relating to the "customer" - *Customer Focus* and a concept relating to the "external" environment - *External Focus*. They were maintained as

²⁶⁰In chapter 5, the following two FEVs were articulated: '*quality the responsibility of every member of the organisation*', and '*quality integral to every job/task within the organisation*'. During the concept formation process, these two FEVs were deemed essentially to mean one and the same thing as the NEV '*shared responsibility championed by the active and visible participation of top management*' (proposed above as a 'nominal definition' of the proposed concept *Internal Collaboration*). For parsimony these two FEVs were not therefore included as distinct 'definitions' of the proposed concept *Internal Collaboration*. However, for comprehensiveness, the single variable '*quality is an organisation-wide responsibility*' was added here.

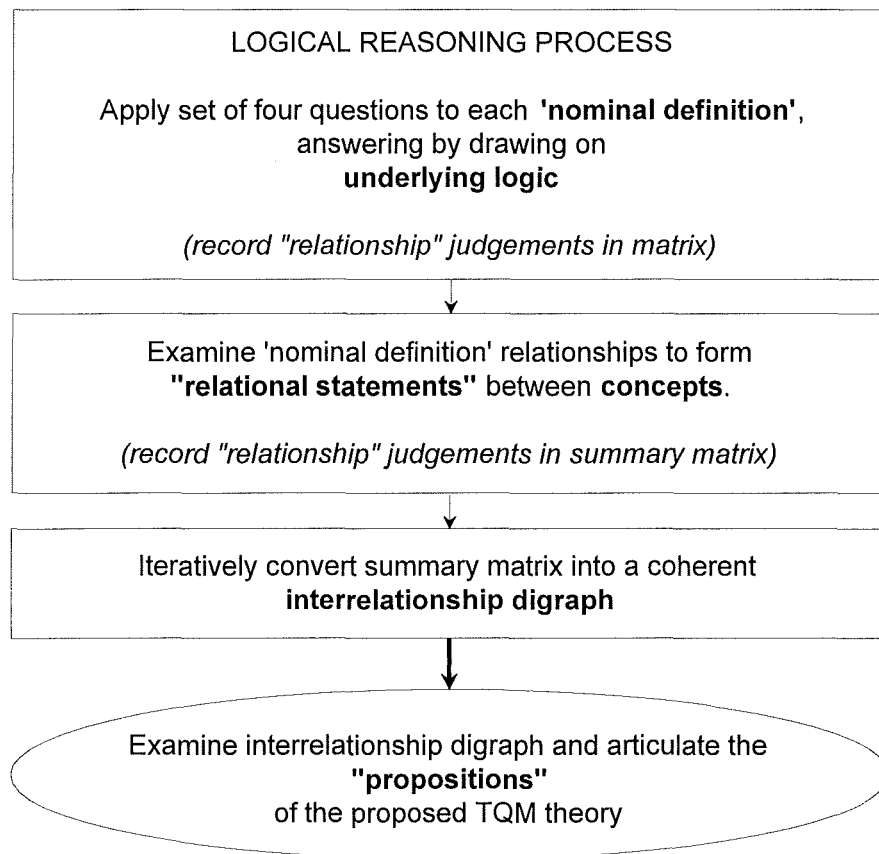
two separate concepts for similar reasons. Often, they are not explicitly defined in their own right, but included together. The customer is generally considered a component of the external environment. The danger here, is that due to the great importance placed on customers in any form of TQM effort, a focus on the external environment can often and unintentionally be reduced to solely a focus on customer issues. That is to say, the wider implications of the external environment become neglected.

10.5 Development of the Conceptual Relationships

In chapter 3 section 3.2.4, relationships (association or causality) were identified as the second important component part of theory. According to Chafetz (1978) these relational linkages must be articulated to provide the "raison d'etre for . . ." a theory. Considering and addressing the links between concepts adds order to the conceptualisation. In theory building terminology, relational linkages between concepts are termed propositions: propositions state the "proposed" relations among concepts (Bacharach, 1989).

Having identified nine concepts of TQM the next and final stage was to identify the relationships between the concepts and articulate a series of propositions. Whetten (1989) suggested that operationally, specifying relationships involves using "arrows" to connect the "boxes". Whetten (1989) further suggested that the more complex the set of relationships under consideration, the more useful it is to graphically depict them. These two suggestions by Whetten (1989) highlighted two important considerations that the theory builder should consider when embarking on this stage of the theory building process. These considerations were: (a) how to identify the relationships (i.e. the process of identification) and (b) how to present/illustrate the relationships (i.e. the form of illustration). Examination of the literature suggested that the interrelationship digraph was an appropriate tool in both these respects [Mizuno (1988), Brassard (1989) and Oakland (1993)]. The interrelationship digraph provided a means of identifying and visually mapping out the causal and/or associative relationships in the development of the TQM theory. The procedure that was used is diagrammatically illustrated in figure 10.5 and is explained below. This approach to identifying and mapping out links amongst interrelated factors has been used by other researchers for specifying the proposed relational linkages between concepts [Davy et al (1992) and Anderson et al (1994)].

Figure 10.5 - Illustration of procedure for identifying the *relationships* of the TQM theory



Using the interrelationship digraph technique, relationships were derived through a logical thought process. Each TQM concept may potentially have been: a cause; an effect; or both a cause and an effect. Therefore, the logical thought process consisted of asking - for each concept - a set of questions that together would consider all of the possible relationships. This logical thought process was applied at the 'nominal definition' level of the concepts. It was applied at this level primarily because the nine concepts had been formed by assessing and grouping the 'nominal definition' variables (section 10.3.2). In this way, a high level of consistency was maintained between concept formation and relationship derivation. Hence, the set of questions were:

Does the nominal definition appear to be a cause ?

If the nominal definition appears to be a cause, is there a preceding cause ?

Does the nominal definition appear to be an effect ?

If the nominal definition appears to be an effect, does it affect other nominal definitions ?

By applying this set of four questions to each of the nominal definitions of each of the nine

concepts in turn, each possible relationship between each pair of nominal definitions was examined. In essence, this process was generating a series of "relational statements" between nominal definitions.

The questions were answered through their juxtaposition onto the underlying logic previously put forward in chapters 5 to 9. That is to say the underlying logic put forward to explain the perceived importance that the participants' attached to the TQM variables from which the nine concepts were derived. It is important to stress this point - that answering these questions was far more than simply an "intuitively" logical judgement by the author. In section 3.2.3 it was suggested that it is the absence of consideration of the theoretical constituent *underlying logic* that may have contributed heavily to much of the confusion surrounding TQM. Only by grounding both the derivation of the concepts AND the derivation of the relationships between the concepts, in *underlying logic*, would a "theory" of TQM have resulted²⁶¹.

Given that there were twenty two nominal definitions contained within the nine concepts, a simple matrix was developed for the practical purpose of systematically recording each resulting relationship during this questioning process²⁶². A simple coding system was developed to record the strength of the cause-effect relationship between each pair of nominal definitions. The resultant matrix and the coding system are presented in appendix 10.5a.

Using the matrix, by looking at each pair of concepts in turn and examining the relationships that had been identified between their respective nominal definitions, a judgement about the relationship(s) between each pair of concepts was made. These respective judgements were recorded in a second (summary) matrix. This is presented in appendix 10.5b.

As figure 10.5 illustrates, the penultimate step in the procedure, prior to articulating the propositions, was to translate the summary matrix into a coherent interrelationship digraph. Essentially, this was an iterative process of finding the least complicated visual representation of the concepts and identified relationships.

²⁶¹(as a theory was defined in section 3.2.4.)

²⁶²This represented a slight departure from conventional use of the interrelationship digraph. Conventionally, any relationships identified would be recorded by drawing a line with an arrow (pointing in the direction of the cause-effect relationship) between the concepts involved when the concepts are displayed on a chart. In no way however, did this minor departure affect the final outcome of the interrelationship digraph procedure.

10.6 Prevalent Relationships Between the Nine TQM Concepts

Figure 10.6 shows the resultant interrelationship diagram. As illustrated in the figure, the process described resulted in the derivation of seven major propositions that were grounded in the underlying logic. These propositions are articulated below. The underlying logic pertaining to each proposition will not be repeated in its complete form here because they were fully discussed in chapters 5 to 9. To do so would simply be to repeat many of the arguments already presented. Instead, for each proposition, the associated "relational statements" between nominal definitions (referred to above) are presented as a concise summary of the underlying logic. (*Italicisation* in these "relational statements" simply highlights the nominal definitions that represent the causes. Underlining in these "relational statements" simply highlights the nominal definitions that represent the effects.)

The interrelationship digraph shows concepts in a circle or a rounded outline. This indicates when the concept is a "cause". The interrelationship digraph also shows concepts in a square or a straight-edged outline. This indicates when the concept is an "effect".

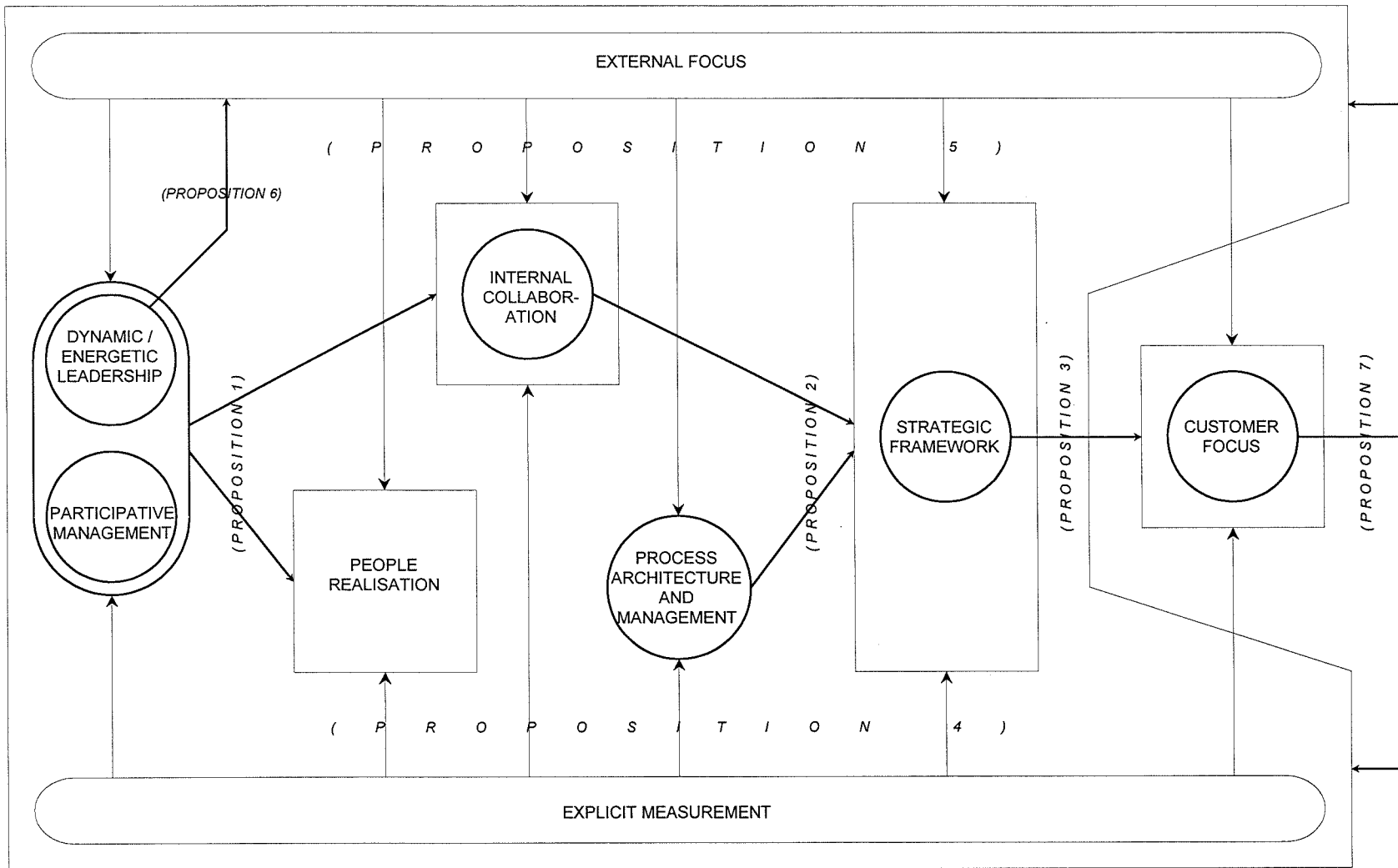
Proposition 1:

Dynamic/energetic leadership and a participative style of management enables the creation of a collaborative organisation and results in the realisation of the potential of its people.

The associated "relational statements" between nominal definitions are:

- *Leadership and vision from the top and management style and behaviour underpinned by trust enables the creation of an organisation in which there is shared responsibility championed by the active and visible participation of top management, involvement and commitment from all employees and feedback.*
- *Leadership and vision from the top and management style and behaviour underpinned by trust stimulates motivation and the elimination of fear across the organisation, facilitates people selection and development and serves to encourage and harness the competence, expertise and creativity of people.*

Figure 10.6 - Interrelationship digraph of the *concepts* and of the *relationships* of the proposed theory of Total Quality Management



Proposition 2:

An organisation's simultaneous efforts to foster **internal collaboration** (through cooperation and effective communication) and to create a **process architecture** with **process management** practices, facilitates the creation of a **strategic management process**.

The associated "relational statements" between nominal definitions are:

- *Shared responsibility championed by the active and visible participation of top management, involvement and commitment from all employees and feedback within the organisation, contributes influentially to a way of working that ensures constancy of purpose underpinned by a set of core values, and the provision of a link between strategy and tactic.*
- *An integrated operational arrangement and effective internal resource and process capability, with all employees dedicated to continuous (process/working practice) improvement, company effort channelled for controlled continuous change and a focus on prevention rather than detection, contributes influentially to a way of working that ensures constancy of purpose underpinned by a set of core values, and the provision of a link between strategy and tactic.*
- *Shared responsibility championed by the active and visible participation of top management, involvement and commitment from all employees and feedback within the organisation, coupled with an integrated operational arrangement and effective internal resource and process capability, with all employees dedicated to continuous (process/working practice) improvement, company effort channelled for controlled continuous change and a focus on prevention rather than detection, signifies the creation of an organisation configured as an enabling process focused on outcome and integration.*

Proposition 3:

Existence/creation of a **strategic management process** leads to the creation of a **customer focused** organisation.

The associated "relational statement" between nominal definition is:

- An organisation that creates *a way of working that ensures constancy of purpose underpinned*

by a set of core values, achieves strategic fit by providing a link between strategy and tactic and that is configured as an enabling process focused on outcome and integration, is geared for ensuring customer satisfaction.

Proposition 4:

The realisation of a **customer focused organisation** requires that the organisation takes an **explicit approach to its measurement practices**.

The associated "relational statements" between nominal definitions can be summarised by the following single statement:

- An organisation's efforts²⁶³ to ensure customer satisfaction will only be achievable if they are simultaneously underpinned, by the existence of a *technically supported framework for company-wide improvement efforts* and through the practice of *defining activities, key roles, key responsibilities and information reporting structure to be pursued during planning, implementing and review processes*.

Proposition 5:

The achievement of a **customer focused organisation** is augmented by the existence of a pervasive **external focus**.

The associated "relational statements" between nominal definitions can be summarised by the following single statement:

- An organisation's efforts²⁶⁴ to ensure customer satisfaction are positively influenced by the existence of a *market mentality that is cascaded throughout the organisation*, and a pervasive outlook for *differentiating the organisation's offering* and for *championing and promoting the organisation*.

Proposition 6:

Dynamic/energetic leadership positively influences creation of **external focus** within an organisation.

²⁶³as described in propositions 1 to 3.

²⁶⁴as described in propositions 1 to 4.

The associated "relational statement" between nominal definitions is:

- *Leadership and vision from the top* nurtures a market mentality that is cascaded throughout the organisation, and a pervasive outlook for differentiating the organisation's offering and for championing and promoting the organisation.

Proposition 7:

Customer focus is a driver of organisational effort in a TQM approach.

The associated "relational statements" between nominal definitions can be summarised by the following single statement:

- As an underlying value of an organisation, *ensuring customer satisfaction* is a driver and enabler in the TQM approach, not simply an objective/desired outcome.

CHAPTER 11 - PARTIAL TESTING OF PROPOSED THEORY OF TQM

11.1 Introduction

The review of the literature presented in section 3.3 suggested that when making a theoretical contribution it is not necessary for the researcher to test the resultant theory. However, it was also suggested that having made a theoretical contribution, if research ultimately shows the concepts to be valid, and if the propositions that specify the connections can be supported, the theory can be considered to be significantly strengthened (Bacharach, 1989). The intention from the outset of the research was to undertake the former, by evaluating the preliminary conceptual map through its correlation against the study sample's TQM efforts in practice.

In section 4.3.2 the information gathering plan for this investigation was outlined. Consistent with this plan the third round Delphi questionnaire investigated the TQM implementation processes employed by participants' organisations. The planned reasons for this third round investigation were twofold. Firstly, through the analysis of the implementation processes of the best practice sample²⁶⁵, the intention was to derive a non-prescriptive model of TQM implementation process. This first intention was fulfilled. Based on examination of summarised implementation plans and associated implementation planning processes of the benchmark sample, a three-stage *Non-prescriptive Model of TQM Implementation* was developed. However, for reasons of size and scope, this part of the research investigation is not presented within this thesis.

Secondly, it was intended that the findings regarding the elements and aspects of TQM that were implemented in the benchmark organisations, would be combined with the findings concerning the "actual" total quality practices that exist in the benchmark organisations after the introduction of TQM (chapter 5 section 5.4.9) in order to derive an outline of "actual" best practice TQM. This outline would be used, through a simple direct comparison, in a first stage of evaluation of the preliminary conceptual map of the proposed theory of TQM. It was planned that the fourth round Delphi questionnaire would then be used to interrogate the sample organisations about aspects of TQM in the preliminary conceptual map for which there appeared to be gaps in the correlative analysis following the first evaluation stage. These processes would have served two crucial and inter-related purposes: (a) to assess the degree of correlation between the benchmark sample's

²⁶⁵In the remainder of this chapter, for clarity, the author refers to the "best practice" sample/organisations as the "benchmark" sample/organisations.

perception of TQM and what they practice, and hence (b) to evaluate and refine the preliminary conceptual map.

It was found however, that both the "actual" present-day quality practices investigation and the "actual" TQM implementation process investigation could not be used in this sense. In the case of the former, this was a consequence of the highly organisation-specific nature of TQM quality practices at the actual activity level investigated. In the case of the latter, this was a consequence of two factors: (a) the widely differing "implementation activity" strategies found in the organisations' planned TQM implementation processes and (b) the differing extent to which the organisations' TQM implementation processes appeared to comprise a "well-planned" component and/or an "evolutionary (loosely planned)" component²⁶⁶.

These findings subsequently changed the remit of the Delphi fourth round questionnaire. The remit changed from a "gap-filling" investigative instrument, to an instrument that would be the main source of gathering the factual information with which to evaluate the preliminary conceptual map.

Approaching the participants with a view to extending their participation to a further fifth questionnaire was considered to be unrealistic. It was therefore acknowledged that extensive testing of the proposed concepts would not be possible. Instead, extensive testing could provide the basis for future research. Nevertheless, it was deemed important to seize the opportunity to initiate a process of testing the proposed theory of TQM. The reduced scope of the testing subsequently undertaken, the approach adopted for the testing, and findings from the testing are described and presented in the remainder of this chapter.

11.2 Scope of the Testing

It was clear to the author that it would not be possible to test the preliminary conceptual map in its entirety within the bounds of the single fourth round Delphi questionnaire. Instead it was deemed to be of more value for the testing to concentrate on a (smaller) segment of the preliminary conceptual map.

In section 10.3.3 the issue of 'relative importance' between the constituents of the preliminary

²⁶⁶Only implementation information primarily pertaining to the former ("well-planned") component of TQM implementation processes was provided in many of the participants' third round questionnaire response, or was available in the additional documentation they supplied.

conceptual map was addressed, and a new "importance index" was subsequently developed and applied to the preliminary conceptual map. Examination of the preliminary conceptual map with the importance index applied (section 10.4) clearly showed that three of the nine concepts had a greater 'relative importance' than the other six. These were:

- *Customer Focus*
- *Internal Collaboration* and
- *Dynamic/Energetic Leadership*

In the first instance it was decided therefore to target the testing on these three concepts.

The decision was taken to exclude two concepts completely from the testing. These were *External Focus* and *Explicit Measurement*. The rationale for this decision is described below.

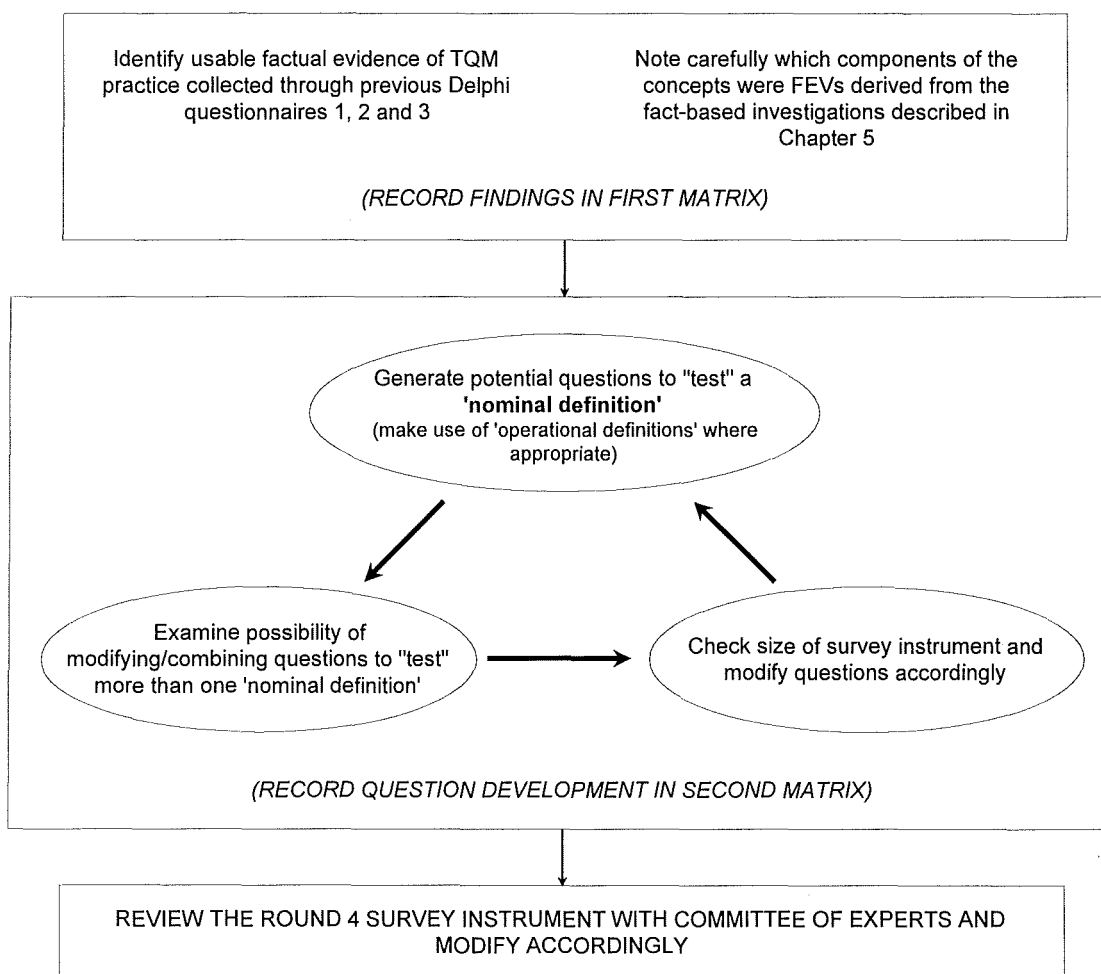
Firstly, examination of the preliminary conceptual map with the importance index applied (section 10.4) indicated that the concepts *External Focus* and *Explicit Measurement* did not contain any nominal or any operational definition with an importance index greater than 1. That is to say these two concepts were of low 'relative importance'. Secondly, derivation of the relationships between the proposed TQM concepts (section 10.6) had suggested that the concept *External Focus* augments the creation of a customer focused organisation because it essentially comprises a set of underlying values. In other words, *External Focus* is largely intangible, and more a state of mind for the members of a TQM organisation. Derivation of the relationships between the proposed TQM concepts had also suggested that the concept *Explicit Measurement* underpinned all of an organisation's other efforts to ensure customer satisfaction. That is to say, in practice, *Explicit Measurement* should be evidenced throughout the entire operations of the organisation. Given these respective "relational" characteristics of these two concepts, it was felt that testing them would prove to be difficult within the bounds available.

It was also decided that it would not be possible to test each and every one of the 'operational definitions' of the seven remaining concepts within the bounds available. Instead, it was deemed to be more useful to use 'operational definitions' in the design of questions to test and evaluate the 'nominal definitions' of the seven remaining concepts.

11.3 Testing Approach and Procedure

The revised design brief of the fourth round questionnaire was to construct questions that would represent "tests" of the 'nominal definitions' within seven concepts, with special emphasis on the three concepts with the higher relative importance. Design of the fourth round questionnaire followed the procedure described below and illustrated diagrammatically in figure 11.3.

Figure 11.3 - Illustration of the procedure used in designing the fourth round Delphi questionnaire



Consistent with the original information gathering plan of the research and hence the original planned themes of the Delphi questionnaires (described in section 4.3.2), the third round Delphi questionnaire had also been used to gather information regarding the application of some salient facets of TQM in the benchmark sample organisations.

Given the restricted scope of the testing it was considered imperative to first examine what usable factual evidence of TQM practice had already been collected through the previous three questionnaires. A matrix was developed and used for recording the findings²⁶⁷ of this examination. This matrix is provided in appendix 11.3. Further, some of the concept's components had themselves been derived from factual evidence. These components were the *further explanatory variables* (FEVs) that were derived from examination of "actual" effects of the introduction of TQM on various facets of organisational behaviour (chapter 5, sections 5.4 to 5.5). Obviously there was no need to gather evidence in support of these components - this would simply be duplication of effort.

Having identified any such existing evidence, the remainder of the fourth round questionnaire design consisted of essentially an iterative process comprising the following three actions: (i) brainstorming/generating potential questions that would "test"²⁶⁸ a particular 'nominal definition' of a concept (making use of related 'operational definitions' where useful); (ii) examining the possibility of modifying questions in order that they may represent a "test" of 'nominal definitions' of more than one concept and (iii) reviewing the size of the survey instrument being generated, further modifying (or removing) questions in order to keep it to a reasonable upper limit of size.

In order to keep a record of which questions had been constructed for the purpose of "testing" parts of more than one concept a second matrix was developed. The matrix would then act as a guide when analysing and interpreting the sample's response. For practical purposes questions were represented in the matrix as statements written in the positive-context of the question²⁶⁹.

As in the theory building stage of the research, the survey instrument was examined and qualified by the committee of experts prior to its distribution to the participant sample. The objective of the questionnaire was explained to these experts and their feedback was used to improve the design of the questionnaire to meet its objectives. In the final version of the survey instrument the concept "testing" questions were organised under the following five headings: *Business planning and quality integration; Customer relations; Supplier Relations; Employee relations, development and satisfaction* and *Communication and awareness*.

²⁶⁷Where such evidence was located, and the nature of the evidence.

²⁶⁸(generate responses in order to evaluate).

²⁶⁹For example, the question 'Does your organisation relate to the concept of the *internal customer*?', was recorded in the matrix as the statement 'organisation relates to the concept of the *internal customer*'.

Having distributed the survey instrument to the participant sample, the opportunity was taken to make a post-hoc examination of the matrix. This examination was undertaken to see if any of the developed questions actually represented a "test" of part of a concept even though it may not have specifically been designed to do so. Any such findings were also recorded in the second matrix²⁷⁰.

11.4 Findings

The findings of the partial testing of the proposed theory of TQM are presented in this section. Twenty two usable responses to the fourth round Delphi questionnaire were received from the sample. This represented a theory testing sample of just under half of the size of the sample that contributed to the theory building stage of the research - fifty one and forty seven responses were received to the round one and round two Delphi questionnaires respectively. This reduction in the sample size was in no way a limitation. The two fundamental reasons were as follows. Firstly, the theory building and the theory testing were two related but nevertheless distinct and separate parts of the research. Secondly, significance testing during the theory building stage of the research had shown that the proposed theory of TQM could be considered to be universally applicable. Therefore, the constitution of a valid theory testing sample in terms of *size* and *class* of organisation was not dependent on the constitution of the original theory building sample²⁷¹. The magnitude of the reduction in sample size and its resultant constitution would only have been an issue if the theory building stage and the theory testing stage were both to contribute variables which would subsequently be combined in a further stage of research.

The twenty two usable responses were analysed. The questionnaire analysis was augmented by examination of any additional documentation supplied by the participants. Having analysed these responses, a column was added to the second matrix allowing the findings of the analysis to be recorded against the respective statements. It was then possible, by sorting and segmenting the matrix²⁷² concept by concept, to generate a concise profile of the fourth round evidence for each

²⁷⁰During this process the following recording scheme was adopted. In the matrix, a "1" identified where a statement had been designed to be or was subsequently deemed to be a strong source of evidence for the concept component represented on the horizontal axis. A "2" identified where it was considered that a statement did provide evidence for a concept component, but much more indirectly.

²⁷¹Incidentally, an examination of the sample of the twenty two organisations indicated that the reduction in sample size did not significantly alter the constitution of the sample in terms of *size* and *class* of organisation from that during the theory building stage. (Valid significance testing to examine the influence of *size* and *class* of organisation on TQM practice would have been possible.)

²⁷²(using standard spreadsheet operations).

concept. These seven profiles are presented in full in appendix 11.4.

This evidence and the evidence gathered through previous questionnaires is presented in the remainder of this section. The section is divided into four further sections. Findings for the three concepts that were the focus of the testing - *Customer Focus*, *Internal Collaboration* and *Dynamic/Energetic Leadership* - are presented in the first three sections (11.4.1 to 11.4.3). In these sections, figures 11.4.1 to 11.4.3 respectively, concisely summarise and illustrate the fourth round evidence profile for these three concepts. In the fourth section (11.4.4), evidence that supports the remaining four concepts is presented. It should be noted that within the discussion presented in sections 11.4.1 to 11.4.4 some points are repeated. As was explained in section 11.3, this was because some of the evidence gathered was not mutually exclusive to only one concept. That is to say, some evidence would validate the components of more than one of the proposed TQM concepts. Where deemed useful, anecdotal examples from the sample are used to explicate evidence. A summary of the partial theory testing findings is presented in the ensuing section 11.5.

11.4.1 Customer Focus

The proposed concept *Customer Focus* both declares that a desired outcome of an organisation's business efforts should be the satisfaction of its customers, and expresses the need for an organisation to be driven by the needs and expectations of customers.

Evidence collected through the fourth round questionnaire suggested that there was a high degree of correlation between this proposed TQM concept and the TQM efforts of the benchmark sample in practice. As figure 11.4.1 illustrates, there was found to be very positive evidence in support of this concept's 'nominal definition' and indeed its 'operational definitions'²⁷³. This evidence is reviewed below.

Over ninety percent of the respondents indicated that their organisations measured customer satisfaction, and over eighty percent indicated that attempts were made to quantify customer satisfaction relative to that achieved by the organisations' competitors.

²⁷³For clarity, only those statements which had been designed to be, or were subsequently deemed to be a strong source of evidence are depicted in figures 11.4.1 to 11.4.3.

Figure 11.4.1 - Summary profile of Delphi fourth round evidence in support of the proposed TQM concept *Customer Focus*

<p style="text-align: center;">Concept: CUSTOMER SATISFACTION (nominal definition(s)) (operational definition(s))</p> <p>Statements describing evidence of TQM in practice:</p>	ensuring customer satisfaction	customer satisfaction tracking	*A	appropriate partnerships between organisation and customers	service performance evaluation	SUMMARY OF RESPONSE
Organisation attempts to measure the perceptions and needs of unserved customers (i.e. customers they would like to have).	2	1				70%
Competitor analysis is conducted to see how the organisation performs relative to it's competitors in determining customer's future requirements and expectations.	1			2		48%
Competitor analysis is conducted to see how the organisation performs relative to it's competitors in determining customer's current requirements and expectations.	1			2		77%
Organisation measures customer satisfaction.	1	1				91%
Organisation has mechanisms in place for evaluating and improving the effectiveness of the processes to collect and disseminate customer requirements.	1		2	2		57%
Organisation follows up with customers on products, services, and recent transactions to seek feedback / improve relationships.	1		1	1	1	91%
Organisation has a routine methodology for determining customer's current requirements and expectations.	1		1	1		100%
Organisation maintains a customer compliment database.	1		1			47%
Organisation actively takes steps to ascertain customer's perceptions of the organisation.	1		1			100%
Organisation has a routine methodology for determining customer's future requirements and expectations.	1		1			77%
Organisation actively attempts to determine the relative importance of these features to customers.	1			2	2	91%
Organisation actively attempts to determine specific product and service features.	1			2	2	95%
Organisation's policy is to review the performance of the customer service it delivers.	1			2	1	96%
Organisation takes steps to ensure that customers have easy access to the appropriate person(s) in the organisation for matters of assistance.	1		1			yes (most)
Organisation sets priorities for improvement projects based upon analysis of customer complaints.	1					76%
Organisation attempts to quantify customer satisfaction relative to that for competitors.	1					81%
Organisation sets standards for responding to customer complaints.	1					76%
Organisation has a defined process or methodology for disseminating customer's requirements and expectations.	1					81%
Organisation's policy is to attempt to exceed it's customer's requirements.	1					77%
Organisation maintains a customer complaint database.		1		1		100%
Organisation encourages customers to visit the organisation.				1		50%
Organisation has a defined process for handling customer complaints.				1		100%
<p>Key: *A = establishing client (market and customer) demographics, wants, needs and expectations yes (most) = analysis of this question was qualitative and indicated that there was evidence in most cases.</p>						

All respondents also indicated that their organisation actively took steps to ascertain customers' perceptions of the organisation. Further, seventy percent indicated that their organisation

attempted to measure the perceptions and needs of unserved customers. That is to say, the perceptions and needs of customers they would like to have. It was indicated by over seventy percent of the respondents that it was a policy of their organisation to attempt to exceed its customer's requirements.

There was a very positive response in terms of *ensuring customer satisfaction* through efforts to establish customer needs, wants and expectations. All respondents indicated that their organisation had a routine methodology for determining customers' current requirements and expectations. Over ninety percent indicated that their organisation actively attempted to determine the relative importance of specific features of their products and services to their customers. Over seventy percent of respondents indicated that their organisation also had a routine methodology for determining customers future requirements and expectations. Over eighty percent of respondents indicated that having established customers' requirements and expectations, within their organisation there was a defined process or methodology for disseminating these requirements and expectations. It was also indicated by over half of the respondents, that their organisation has mechanisms in place for evaluating and improving the effectiveness of the processes used to collect and disseminate customer requirements. For example, at one organisation process development engineers were assigned to each defined process of the business, and their remit was to collect the relevant data in order to understand internal / external customer requirements, and use the information to improve the customer requirement collection and dissemination processes.

It was reported by over seventy percent of respondents that competitor analysis was conducted by their organisation in order to discern how the organisation performed relative to its competitors in terms of determining customers current requirements and expectations. Almost half of the respondents indicated that this form of competitor analysis was also conducted with regard to future requirement and expectations determination.

There was an equally positive response with regard to organisations' efforts to *ensure customer satisfaction* through customer service practices. All respondents indicated that their organisations maintained a customer complaint database, and that their organisations had a defined process for dealing with customer complaints. Over three-quarters indicated that it was a practice at their organisations to set standards for responding to customer complaints. Efforts to use customer complaint information pro-actively, was evidenced by over three-quarters of the respondents indicating that analysis of customer complaints was used by their organisation as a basis for setting

priorities for improvement projects.

It was also found that regardless of the specific nature of their organisations' customer service practices, over ninety five percent of respondents indicated that it was organisation policy to review the performance of its efforts to deliver good customer service. Over ninety percent of respondents indicated that it was practice at their organisations to follow up with customers about products, services and recent transactions, in order to seek feedback and in order to improve relationships. Further, the majority of respondents indicated that their organisation took steps to ensure that for matters which required the organisation's assistance, customers had easy access to the appropriate personnel. For example, at one organisation each client had a nominated employee as initial contact point, and all customer history could be immediately accessed by this employee from a central database. In an other organisation employees were trained and empowered to handle a wide variety of enquiries, or were educated with the knowledge to be able to transfer customers immediately to the correct person. In addition, special circumstances could be routed to an executive response centre for special consideration. Half of the respondents indicated that customers were encouraged to visit their organisation.

Efforts to *ensure customer satisfaction* were also evidenced through enquiry in previous questionnaires. Through investigation in the second round questionnaire it was found that the majority of responding organisations conducted regular business environmental analysis. That is, analysis to establish market and customer trends and demographics. Through investigation in the third round questionnaire, virtually all respondents indicated that their organisation's performance measurement system encompassed measures of quality, measures of customer satisfaction and measures of timeliness, and over seventy percent indicated that their organisation's performance measurement system encompassed measures of flexibility. Further, over eighty percent of the respondents indicated that their organisation's performance measurement system was periodically reviewed and modified to focus on value drivers.

11.4.2 Internal Collaboration

The proposed concept *Internal Collaboration* expresses the desire for members of an organisation to take shared responsibility for its outcomes and fortune, and expounds the need for the involvement and commitment of employees and for cooperation and effective communication. In

particular it conveys the need for teamwork within an organisation²⁷⁴. Evidence collected through the second, the third and the fourth round questionnaires collectively suggested that there was a high degree of correlation between the proposed concept *Internal Collaboration* and the TQM efforts of the benchmark sample in practice. This evidence is reviewed below.

A good indication of "shared responsibility" would be how responsibility for quality was distributed throughout the members of the organisation. This was investigated through the second round Delphi questionnaire and the results were reported in section 5.4.9. It was found that since the introduction of TQM, within the benchmark organisations the responsibility for quality resided with every member of the organisation and, that quality was integral to every job/task within the organisation. In the fourth round questionnaire response, over ninety percent of participants indicated that at their organisations' conformance to quality was a required part of an individual's tasks. This finding would appear to substantiate the former findings. The other evidence collected through the fourth round questionnaire is reviewed next. As figure 11.4.2 illustrates, very positive evidence for this concept was observed.

With reference in particular to this concept's 'nominal definition' *feedback within the organisation* and 'operational definition' *cross-functional coordination*, the response to the fourth round questionnaire indicated that at the majority of organisations there were established channels for both horizontal and vertical communication²⁷⁵. The majority of respondents indicated that at their organisation mechanisms/processes were established to enable management to communicate with employees. Further, the majority of respondents indicated that at their organisation: (a) processes were in place to enable employees to communicate with management; (b) processes were in place to enable management to communicate with each other and (c) processes were in place to enable employees to communicate with each other.

The majority of respondents further indicated that mechanisms were in place which would make employees at all levels in their organisation aware of organisational performance. For example, in one organisation *quarterly all-employee business meetings* chaired by the CEO were held, in addition to a weekly meeting between executives and smaller groups of employees. In another organisation, daily measurements and business results were shared with all employees on-line.

²⁷⁴The 'operational definition' *teamwork* has the highest relative importance index of "3".

²⁷⁵(though these channels did vary in their form from one organisation to another.)

Figure 11.4.2 - Summary profile of Delphi fourth round evidence in support of the proposed concept *Internal Collaboration*

<p>Concept: INTERNAL COLLABORATION</p> <p>(nominal definition(s))</p> <p>(operational definition(s))</p> <p>Statements describing evidence of TQM in practice:</p>	<p>shared responsibility (*A)</p> <p>involvement and commitment from all employees</p> <p>feedback within the organisation</p> <p>*B</p> <p>employee involvement</p> <p>formation of team-oriented cross-functional structure</p> <p>cross-functional co-ordination</p> <p>teamwork</p> <p>deified management structure</p> <p>decentralisation and integration of essential support functions</p>	<p>SUMMARY OF RESPONSE</p>																																																																																																																																																																		
<p>Organisation encourages employee involvement in the design of recognition/reward approaches.</p> <p>Organisation has mechanisms in place to make employees at all levels aware of organisational performance.</p> <p>Organisation has a defined process or methodology for disseminating customer's requirements and expectations.</p> <p>Quality measures form a part of regular management information at the junior management level.</p> <p>Quality measures form a part of regular management information at the middle management level.</p> <p>Quality measures form a part of regular management information at the senior management level.</p> <p>Organisation has specific ways in which employees are empowered to act, take initiative and accept responsibility.</p> <p>Organisation (has) mechanisms to promote ongoing employee contribution to quality improvement.</p> <p>Organisation encourages employees to take 'good sound risks'.</p> <p>Employees take an active part in identifying their education needs.</p> <p>Employees take an active part in identifying their training needs.</p> <p>Conformance to quality is a required part of an individual's tasks.</p> <p>Organisation actively measures the level of employee satisfaction.</p> <p>Organisation has indicators that it uses to evaluate the extent and effectiveness of employee involvement.</p> <p>Organisation evaluates the effectiveness of the communication processes.</p> <p>Organisation relates to the concept of the "internal customer".</p> <p>Organisation has processes in place to enable management to communicate with each other.</p> <p>Organisation has processes in place to enable employees to communicate with each other.</p> <p>Organisation has mechanisms / processes in place to enable management to communicate with employees.</p> <p>Organisation has processes in place to enable employees to communicate with management.</p> <p>Goals are set for achievement of employee satisfaction.</p> <p>Career path planning is an integral part of an individual employee's review process.</p>	<table border="1"> <tr> <td>2</td> <td>2</td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>2</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td>1</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td>1</td> <td>1</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>2</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>1</td> <td></td> <td></td> <td>1</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>1</td> <td></td> <td></td> <td>1</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td></td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td></td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>1</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	2	2	1	1						2		1	1	1		1	2		2		1	1						2		1							2		1							1	1		1	1					1			1	2					1			1	1					1						2				2	1	1	2						2		1								2	1			1					2	1			1					1	1	1		1	1				1	1	1		1	1				1	1	1		1	1					1	2								1						<p>60%</p> <p>yes (maj)</p> <p>81%</p> <p>90%</p> <p>91%</p> <p>90%</p> <p>yes (most)</p> <p>yes (most)</p> <p>82%</p> <p>yes (maj)</p> <p>yes (maj)</p> <p>95%</p> <p>95%</p> <p>57%</p> <p>75%</p> <p>91%</p> <p>yes (maj)</p> <p>yes (maj)</p> <p>yes (maj)</p> <p>yes (maj)</p> <p>55%</p> <p>80%</p>
2	2	1	1																																																																																																																																																																	
2		1	1	1		1	2																																																																																																																																																													
2		1	1																																																																																																																																																																	
2		1																																																																																																																																																																		
2		1																																																																																																																																																																		
1	1		1	1																																																																																																																																																																
1			1	2																																																																																																																																																																
1			1	1																																																																																																																																																																
1						2																																																																																																																																																														
	2	1	1	2																																																																																																																																																																
	2		1																																																																																																																																																																	
		2	1			1																																																																																																																																																														
		2	1			1																																																																																																																																																														
		1	1	1		1	1																																																																																																																																																													
		1	1	1		1	1																																																																																																																																																													
		1	1	1		1	1																																																																																																																																																													
			1	2																																																																																																																																																																
			1																																																																																																																																																																	
<p>Key:</p> <p>shared responsibility (*A) = championed by the active and visible participation of top management.</p> <p>*B = building/maintaining human environment that allows all members to improve quality continually based on mutual trust and collaboration.</p> <p>yes (most) = analysis of this question was qualitative and indicated that there was evidence in most cases.</p> <p>yes (maj) = analysis of this question was qualitative and indicated that there was evidence in the majority of cases.</p>																																																																																																																																																																				

Another organisational performance dissemination strategy in use was for detailed performance data (updated on a monthly basis) to be displayed with personalised messages from the CEO on scoreboards in all work areas. Proactive effort to enable co-operation and effective communication was evidenced in three-quarters of the respondents further indicating that their organisation would seek to evaluate the effectiveness of its communication processes.

As figure 11.4.2 illustrates, **Internal Collaboration** was particularly strongly evidenced in practice through actions that contribute to '*building and maintaining a human environment that allows all members of the organisation to improve quality, continually based on mutual trust and collaboration*' (the first listed operational definition). Firstly, almost all respondents indicated that their organisation actively measured the level of employee satisfaction within the organisation, and over half of the respondents indicated that in addition, their organisation set goals for the achievement of employee satisfaction. Over half of the respondents indicated that their organisation had indicators that were used to evaluate the extent and effectiveness of employee involvement. Secondly, eighty percent of respondents indicated that career path planning was an integral part of an individual employees' review process at their organisation, and most respondents indicated that it was routine in their organisations for employees to take an active part in identifying their own education needs and their own training needs. Thirdly, with regard to recognition practices, over eighty percent of respondents indicated that at their organisations recognition was bestowed on a team basis, in addition to recognition being bestowed on an individual basis. Further, almost half of the respondents indicated that recognition was frequently bestowed equally across the whole organisation. It was indicated by sixty percent of the respondents that their organisation encouraged employee involvement in the design of recognition (and reward) approaches.

Other evidence solicited in the fourth round questionnaire that strongly supports the proposed **Internal Collaboration** concept in practice was the following²⁷⁶:

- over eighty percent of organisations have a defined process or methodology for disseminating customers requirements and expectations (*feedback*);
- over eighty percent of organisations encouraged their employees to take 'good sound risks' (*shared responsibility*);
- quality measures formed a part of regular management information at the senior, middle and

²⁷⁶Indicated in brackets are the feature(s) of the concept to which the evidence most significantly applies.

- junior management levels in at least ninety percent of the organisations (*feedback*) and
- over ninety percent of organisations indicated that they related to the concept of the internal customer (*shared responsibility* and *cross-functional coordination*).

The third round Delphi questionnaire investigated "teamworking" within the benchmark organisations. Findings from these investigations provided substantial support for the proposed concept *Internal Collaboration*, and not only because they show that the sample extensively used teamworking, but because of the ways in which it was found the teamworking was organised. Over ninety percent of respondents indicated that their organisations used continuous improvement teams (CITs). In over two-thirds of these organisation it was reported that the CITs were cross-functional in nature as opposed to operating within function, thereby facilitating *cross-functional coordination*. Over eighty percent of the respondents indicated that the members of these CITs were usually a cross-section of personnel from different levels in the organisation. That is to say, senior managers, line managers and shopfloor/service delivery employees worked alongside each other in CITs. It was also indicated by a majority of respondents that participation was not enforced, rather, potential team members were asked to be on a CIT, or volunteered to be on a CIT. Furthermore, investigation of the span of activities that took place in the CITs indicated that in the majority of organisations, in addition to problem identification, problem analysis and making recommendations for the resolution of problems, CITs were also responsible for approving the recommendations. In addition to CITs, three-quarters of the respondents indicated that at their organisations employees organised themselves into work cells / process teams for the achievement of the every day tasks. Furthermore, the cell/team members were encouraged to learn the skills spectrum of all group members. That is to say, they were encouraged to become multi-skilled.

Also in the third round Delphi questionnaire, participants were asked to identify what their organisation did to promote team building. The vast majority clearly indicated that beyond simply providing the opportunity for people to engage in teamworking, various other strategies were employed by their organisations to promote team building. Examination of the responses suggested that these various strategies represented four broad types of strategy: (a) provision of training for effective teamworking; (b) support for teams, for example management support and interest in teams, facilitation support, and in the case of CIT activities, simply ensuring and allowing time; (c) a "recognition" focus on team achievements and (d) building teamworking into the organisation's strategy process. Nurturing shared responsibility and employee involvement was also evidenced by almost all respondents to the third round indicating that at their organisation

employees were encouraged to inspect and/or appraise their own work.

Investigations in the second round Delphi questionnaire also suggested strong support for the proposed concept *Internal Collaboration*. Shared responsibility and feedback within the organisation was evidenced by over eighty percent of the participants indicating that their organisation practised self-assessment. Shared responsibility championed by the active and visible participation of top management was evidenced by three-quarters of the participants indicating their organisation had a permanent steering group to oversee organisation-wide quality initiatives²⁷⁷.

The 'nominal definition' *involvement and commitment from all employees* of the proposed concept *Internal Collaboration* has the highest relative importance index of "3". As is illustrated by figure 11.4.2 however, it was difficult to form questions for the round four questionnaire that directly would solicit evidence of this 'nominal definition' in practice. The author would submit that this was because "*commitment*" is very difficult to judge through the administration of a postal questionnaire. The author would suggest that this finding should command special attention in the design of any future research which would seek to evaluate the theory of TQM proposed here.

11.4.3 *Dynamic/Energetic Leadership*

The proposed concept *Dynamic/Energetic Leadership* expresses the need for the top management of an organisation to take an active and visible exemplary leading role in the stewardship and the development of the organisation. This proposed concept contains three components with a high relative importance index - its 'nominal definition' *leadership and vision from the top*, and two of its three operational definitions. During the fourth round questionnaire design process (described in section 11.3) it was decided that previous inquiry in the second and third round questionnaires had substantially demonstrated *senior management commitment to and promotion of TQM* in practice. Therefore, the fourth round questionnaire concentrated on evidencing '*leadership and vision from the top*' and on evidencing '*fostering an organisational culture that can deliver sustainable competitive advantage*'. As figure 11.4.3 illustrates, there was found to be very positive evidence for these components of the proposed *Dynamic/Energetic Leadership* concept. This evidence from the fourth round questionnaire is reviewed here first.

²⁷⁷This itself is a form of teamwork.

Figure 11.4.3 - Summary profile of Delphi fourth round evidence in support of the proposed concept *Dynamic/Energetic Leadership*

<p>Concept: DYNAMIC/ENERGETIC LEADERSHIP <i>(nominal definition(s))</i> <i>(operational definition(s))</i></p> <p>Statements describing evidence of TQM in practice:</p>	<i>leadership and vision from the top</i>				S U M M A R Y O F R E S P O N S E
	commitment (*A)	culture (*B)	philosophy of the business		
Organisation's view is that education and training is a key element of it's ability to maintain quality.	2	2	1	1	100%
Organisation's policy is to attempt to exceed it's customer's requirements.	2		1	2	77%
Recognition/reward approaches used are consciously designed to ensure that quality is re-inforced for the long-term, rather than for short-term financial gains and considerations.	1	2	1	1	79%
Organisation's policy is to set major quality goals at the corporate level.	1	2			86%
Organisation's policy is to insist that functional/departmental plans include quality improvement programmes / projects.	1	2			76%
Organisation provides employees with the opportunity to gain qualifications.	1	1	2	1	100%
Goals are set for achievement of employee satisfaction.	1	1	1	2	55%
Organisation actively seeks to measure the acceptance of and commitment to it's values.	1	1	1	2	71%
Human resource issues are an item on the corporate planning agenda.	1	1	1	2	91%
Organisation (seeks to) quantify employee awareness of organisational quality values.	1	1	1	2	61%
Organisation (seeks to) quantify the integration of organisational quality values.	1	1	1	2	61%
Key: commitment (*A) = commitment to and promotion of TQM concept by CEO to all levels of the organisation culture (*B) = fostering an organisational culture that can deliver sustainable competitive advantage					

The author would suggest that *leadership and vision from the top* is evidenced in the policies of an organisation. Over eighty percent of respondents indicated that it was their organisation's policy to set major quality goals at the corporate level. Three-quarters of the respondents indicated that it was their organisation's policy to insist that functional/departmental plans included quality improvement programmes or projects. Further, over three-quarters of the respondents indicated that it was the policy of their organisation to attempt to exceed its customer's requirements.

Strong evidence of *fostering an organisational culture that can deliver sustainable competitive*

advantage was evident from the following findings. It was indicated that at over ninety percent of organisations, human resource issues were an item on the corporate planning agenda. All respondents indicated that it was the view of their organisation that education and training was a key element of the organisation's ability to maintain quality. In this respect, all respondents indicated that their organisation provided employees with the opportunity to gain qualifications, and over half indicated that their organisation provided non-work related education opportunities to employees. It was indicated by over three-quarters of the respondents that at their organisations, the recognition/reward approaches used were consciously designed to ensure that quality was re-enforced for the long-term, rather than for short-term financial gains and considerations.

The author would suggest that both '*leadership and vision from the top*' and '*fostering an organisational culture that can deliver sustainable competitive advantage*' are exemplified in the attention an organisation gives to its values. Over sixty percent of the respondents reported that their organisation would seek to assess both employee awareness of organisational quality values and, the degree of integration of these organisational quality values. That is to say, the extent to which these organisational quality values were evident in the organisation's normal (every-day) working practices. Further, over seventy percent of the respondents indicated that their organisation would actively seek to measure the acceptance of and commitment to its values.

As previously mentioned, investigations carried out through the second round Delphi questionnaire provided strong evidence in support of the proposed *Dynamic/Energetic Leadership* concept in practice. This evidence is reviewed below.

Firstly, almost all of the second round participants indicated that their organisation had a mission / values statement. Ninety percent of these participants indicated that the mission / values statement was communicated to all members of the organisation. An examination of the methods and channels cited by these participants for communicating the mission / values suggested, that in benchmark organisations mission / values dissemination was not something that was left to chance. The examination clearly showed that in addition to the more traditional 'indirect' means of communicating mission/values, benchmark organisations aspired to disseminate them through, or during, important organisational activities.

Secondly, three-quarters of the second round respondents indicated that their organisation had a permanent *steering group* (led by top management) to oversee organisation-wide total quality

initiatives until these initiatives became integrated into normal business operations and processes. Participants were asked to describe the function(s) and interface of this *steering group* with the rest of the organisation. Examination of the response suggested that the *steering groups'* major roles were of a 'planning' and of a 'facilitating' nature. That is to say, (a) to identify and monitor and subsequently to organise organisations plans around a focused number of essential indicators and (b) to anticipate employees' development needs and help employees to better control and manage their individual contributions²⁷⁸. The author would suggest that these are functions that clearly epitomise both leadership and vision.

Thirdly, in order to gauge the benchmark sample organisations' senior management commitment to the TQM concept, participants were asked to indicate what on-going quality initiatives the senior managers of their organisation participated in. Examination of the responses clearly indicated that top management extensively involved itself in on-going quality initiatives²⁷⁹. All but two respondents cited multiple examples of top management participation. Examination of the initiatives cited clearly suggested that the basis of top management participation was in line with the nominal and operational definitions of this proposed TQM concept. Examination suggested that broadly the initiatives cited were representative of the following²⁸⁰:

- **strategic leadership**

those 'activities' exemplifying the propensity of top managers in TQM organisations for setting and communicating direction using participative means,

- **business process management activities**

those 'activities' exemplifying the propensity of top managers in TQM organisations to lead by example, and

- **facilitation leadership**

those 'activities' exemplifying the propensity of top managers in TQM organisations to lead in the development of a collaborative and learning organisational culture.

²⁷⁸A summary of the examination of the roles of the quality *steering groups* is provided in appendix 11.4.3a.

²⁷⁹An open-ended questioning format had been used.

²⁸⁰The initiatives cited grouped according to these three categories are provided in appendix 11.4.3b.

The author would suggest that the scope of performance measurement in the organisations in the benchmark sample is pertinent evidence of '*fostering an organisational culture that can deliver sustainable competitive advantage*'. This was investigated in the third round Delphi questionnaire. It was found that in addition to the traditional financial, productivity and efficiency measures, the organisations used many other non-financial measures of performance. Almost all respondents indicated that their organisation's performance measurement system encompassed measures of competitiveness, two-thirds indicated that it encompassed measures of innovation/effectiveness, and almost three-quarters indicated that it encompassed measures of flexibility. Over ninety percent of respondents indicated that their organisations' performance measurement system encompassed measures of employee satisfaction.

11.4.4 Findings for the four other partially tested concepts

As was discussed at the beginning of section 11.3, it was not a primary objective of the fourth round questionnaire to investigate and collect supporting evidence for the proposed TQM concepts *Participative Management, Process Architecture and Management, People Realisation* and *Strategic Framework*. Rather, this was a secondary objective. Nevertheless, the author would suggest that in the case of these four proposed TQM concepts a substantial amount of supporting evidence was collected. This evidence, primarily from the fourth round questionnaire, but also from the second and third round questionnaires is articulated below²⁸¹.

11.4.4.1 Participative Management

The proposed concept *Participative Management* has the underlying value '*management style and behaviour underpinned by trust*' as its sole nominal definition. This underlying value and the operational traits of this proposed concept - devolved, participative, proactive, open and empowering - are evidenced in practice by the following findings of the fourth round questionnaire:

- Ninety percent of respondents indicated that quality measures formed a regular part of management information at the senior, the middle and the junior management levels in their organisations.

²⁸¹As was mentioned previously, the fourth round evidence profiles for these four concepts are provided in appendix 11.4.

- The majority of respondents indicated that at their organisations, processes were established for management to communicate with each other, for management to communicate with employees, and to enable employees to communicate with management.
- Most of the respondents indicated that at their organisation, mechanisms were in place to make employees at all levels aware of organisational performance.
- The majority of organisations clearly indicated that they had specific ways in which employees were empowered to act, take initiative and accept responsibility. For example, at one organisation employees were empowered to serve customers directly without the involvement of managers or supervisors, through building core competencies and by providing mechanisms for rapid access to information. Use of self-directed work teams and encouraging employees to take responsibility for measurement and for generating performance reports themselves, were also frequently cited strategies in this respect. At another organisation, employees had the freedom to form teams and visit either suppliers or customers to set up channels of communication and/or review performance.

The "trust" dimension of this concept was particularly well evidenced by the following:

- Over sixty percent of respondents indicated that at their organisation, mistakes - irrespective of their original cause - were generally perceived to be an opportunity by the employee(s) involved, rather than a threat.
- Over eighty percent of respondents indicated that at their organisation employees were encouraged to take 'good sound risks'. That is to say employees were encouraged to take action when they believed they had a potentially profitable opportunity.
- Over half of the respondents indicated that upward evaluation was used at their organisation.

Further, as indicated in its operational definitions, a feature of this proposed concept is the use of appropriate management tools. Management and problem solving tools and techniques used by the benchmark sample were investigated in the third round questionnaire. The response indicated that all of fourteen management and problem solving tools and techniques proposed by the author were at least used "moderately" by the benchmark sample. None of the fourteen tools and

techniques were found to have only "occasional" use by the sample. Four were found to have "extensive" use²⁸².

11.4.4.2 Process Architecture and Management

The proposed concept *Process Architecture and Management* expresses the need for a focus within the organisation on processes as opposed to functional activities. It also conveys the need for continuous improvement to processes and working practices. Evidence collected suggested that there was a high degree of correlation between this proposed concept and the TQM efforts of the benchmark sample in practice.

Through investigation in the third round questionnaire, three-quarters of respondents indicated that at their organisation employees organised themselves into work cells/process teams for the achievement of the everyday tasks. Almost three-quarters of respondents indicated that their organisation consciously took steps and had mechanisms through which it encouraged employees to take ownership of processes. Also in the third round questionnaire, almost all respondents indicated that their organisation applied preventative techniques to encourage 'right first time' task achievement.

Evidence collected through the fourth round questionnaire also pointed strongly to the existence of *process architecture* in practice. Over ninety percent of respondents indicated that their organisation related to the concept of the internal customer. The majority of respondents indicated that at their organisation linkages existed for (a) communicating and defining requirements to suppliers, (b) communicating supplier performance back to suppliers and (c) for suggesting to suppliers key areas for improvement. The majority of respondents also indicated that their organisation had an extensive defined set of criteria against which it assessed its suppliers²⁸³.

All respondents indicated that their organisation had a defined process for handling customer complaints, and that they maintained a customer complaint database. Three-quarters of respondents indicated that their organisation set standards for responding to customer complaints. Three-quarters of respondents also indicated that their organisation set priorities for improvement

²⁸²A summary of the extent of use of these management and problem solving tools and techniques within the benchmark sample can be found in appendix 11.4.4.1.

²⁸³Further, almost half of the respondents indicated that their organisation had a formal supplier recognition scheme.

projects based on the analysis of customer complaints²⁸⁴. Also in this respect, the majority of respondents indicated that their organisation took steps to ensure that for matters which required the organisation's assistance, customers had easy access to the appropriate personnel.

In addition to these specific instances of *process architecture*, the author would suggest that the evidence collected through the fourth round questionnaire clearly suggested that a *process architecture* appeared to have been adopted by a large proportion of the benchmark organisations with respect to the following:

- education needs identification, planning and delivery;
- training needs identification, planning and delivery;
- determining and disseminating customers' requirements and expectations and
- customer complaint management.

One of the 'nominal definitions' of the proposed concept ***Process Architecture and Management*** had the highest importance index of "3". This was '*all employees dedicated to continuous (process / working practice) improvement*', and it was very positively evidenced in practice by the following responses to the fourth round questionnaire:

- The majority of respondents clearly indicated that their organisation had mechanisms in place to promote on-going employee contribution to quality improvement.
- All respondents indicated that to some extent their organisation assisted its suppliers to improve the quality of their (the suppliers') products and services. Half of the respondents indicated that the scope of the assistance given was extensive.
- All respondents also indicated that their organisation involved its suppliers in the organisation's improvement activities. Approximately one quarter indicated that they moderately involve suppliers, and over one third of the respondents indicated that they extensively involve their suppliers.
- Three-quarters of the respondents indicated that their organisation actively reviewed, evaluated

²⁸⁴Further, almost half of respondents indicated that when resolving customer complaints, their organisation offered customers things over and above the obligatory complaint resolution, for example a goodwill gift.

and improved the effectiveness of its business planning processes.

- Three-quarters of respondents indicated that their organisation evaluated the effectiveness of its communication processes.
- Over half of the respondents indicated that their organisation had mechanisms in place for evaluating and improving the effectiveness of the processes it used to collect and disseminate customer requirements.
- The majority of respondents clearly indicated that their organisation took steps to evaluate and improve its human resource planning processes.

Strong evidence in support of this proposed TQM concept was also provided through the second round questionnaire. Firstly, the author would suggest that the three-quarters of organisations having a permanent *steering group* to oversee organisation wide total quality initiatives was strong evidence of this concept's objective (nominal definition) of '*channelling company effort for controlled continuous change*'. Secondly, over ninety five percent of respondents indicated that their organisation produced documentation or written procedures to guide day-to-day work activities, and eighty five percent indicated that their organisation had a quality assurance certification. Finally, and again in relation to this concept's focus on continuous improvement, over eighty percent of respondents indicated that their organisation practised self-assessment.

11.4.4.3 People Realisation

The proposed concept ***People Realisation*** expounds the need for an organisation to seek and enable the best contribution from all of its employees. The underlying values and desired outcomes of the proposed concept ***People Realisation*** are conveyed through three nominal definitions. Evidence collected through the fourth round questionnaire suggested that there was a high degree of correlation between these nominal definitions and the TQM efforts of the benchmark sample in practice. Most of this evidence relates to some extent to each of the three nominal definitions. For convenience, the evidence is reviewed below according to the nominal definition to which it most significantly applies.

Firstly, a '*drive to stimulate motivation and the elimination of fear across the organisation*' was

evidenced by the following findings.

Virtually all respondents indicated that their organisation actively measured the level of employee satisfaction. Further, over half of the respondents indicated that their organisation set goals for the achievement of employee satisfaction. Over sixty percent of respondents reported that at their organisation, mistakes - irrespective of their original cause - were generally perceived to be an opportunity by the employee(s) involved, rather than a threat.

All of the respondents indicated that the awarding of recognition was practised at their organisation. It was indicated by eighty five percent of respondents that at their organisation recognition was usually bestowed on a team basis, and almost half indicated that recognition was often bestowed equally across the whole organisation. For example, one organisation reported that each quarter the most successful team in each region was presented with a plaque recognising outstanding customer care performance. Another organisation had a multi-dimensional awards programme directed at recognising employees' achievements, inventions, contributions and suggestions that were outside or above the performance expected in their assigned jobs and that supported the organisation's goals or quality values. This operated at individual level, team level and organisation-wide. Annual dinners or company business conventions were other frequently cited mechanisms for bestowing recognition organisation-wide. Forty percent of the respondents indicated that reward also was usually bestowed on a team basis. Sixty percent of the respondents indicated that employee involvement was encouraged in the design of their organisation's recognition and reward approaches. In a similar vein, most of the respondents indicated that at their organisations employees took an active part in identifying their own education and training needs.

With particular reference to this concept's 'operational definition' *'quality of the work environment and working life'*, ninety percent of respondents indicated that their organisation made counselling services available to employees, sixty five percent indicated that their organisation made recreational facilities available to their employees, and fifty three percent indicated that cultural facilities were also made available to employees.

Secondly, realising the potential of its employees through *'encouraging and harnessing the competence, expertise and creativity of people'* was evidenced by the following findings.

All organisations indicated that they provided employees with the opportunity to gain qualifications. In fact, over half of the respondents reported that their organisation provided non-work related education opportunities to employees. Further, it was indicated by eighty percent of respondents that career path planning was an integral part of an individual's review process at their organisation. Also forming part of the review of an individual's performance, as was indicated by eighty percent of respondents, was their contribution to quality improvement efforts. Ninety percent of participants indicated that their organisation would seek to assess the effectiveness of the education and training it delivered. Over half of the respondents indicated that their organisation had indicators that it used to evaluate the extent and effectiveness of employee involvement.

The author would suggest that the *'job-flexibility'* dimension of this proposed concept was strongly evidenced by a third round questionnaire finding. Over eighty percent of the respondents indicated that in the prevalent work cell / process team structure that was adopted for the every-day work, the cell/team leaders were multi-skilled. Furthermore, over eighty percent indicated that the cell/team members also were encouraged to become multi-skilled.

Thirdly, there was an equally positive response with regard to organisations' efforts to realise the potential of employees through *'people selection and development'*.

Over ninety percent of respondents indicated that human resource issues were an item on the corporate planning agenda of their organisation. Further, eighty five percent of respondents indicated that their organisation defined human resource plans and set human resource priorities for the long term, as well as those needed in the short term. All respondents indicated that their organisation monitored staff turnover, almost all indicated that they monitored absenteeism and three-quarters indicated that they monitored grievances. Further, ninety percent of respondents indicated that information on absenteeism, staff turnover and grievances was pro-actively used by their organisation to provide key input for overall organisational planning purposes. It was also indicated by the majority of respondents that at their organisations there were mechanisms through which employee-related data could be evaluated in order to improve the development and hence effectiveness of the entire workforce.

All of the respondents indicated that in the view of their organisation, education and training was a key element of its ability to maintain quality. Further, three-quarters of the respondents indicated

that at their organisations, education and training programmes were "well planned". Approximately half of the respondents clearly indicated that their organisations had processes or mechanisms in place for the purpose of education and training needs identification. More generally with regards to education and training needs identification, over eighty percent of the respondents indicated that for all levels within the organisation, that is to say management, staff and labour, education needs identification addressed knowledge requirements, and approximately three-quarters of the respondents indicated that for all levels within the organisation it also addressed attitudinal requirements. Approximately half of the respondents also clearly indicated that their organisation had specific processes for the planning of employee education and training.

11.4.4.4 Strategic Framework

During the fourth round questionnaire design process as was described in section 11.3, it proved difficult to directly formulate questions that would show evidence of the proposed concept *Strategic Framework*. That is to say, in terms of the formulation of questions that directly would "test" a part of a concept, the least number of questions were developed for this concept. However, this did not necessarily mean that *Strategic Framework* was the least well "tested" concept. The author would suggest that the evidence collected through the fourth round questionnaire nevertheless strongly indicated a good correlation between this proposed concept and the TQM efforts of the benchmark sample in practice.

In particular, the proposed concept *Strategic Framework* expresses the desire for an organisation to aspire to '*a way of working that ensures constancy of purpose, underpinned by a set of core values*'. The author would suggest that aspiration to such a way of working was exemplified by the following groupings of findings:

- Firstly, over eighty five percent of respondents indicated that it was their organisation's policy to set major quality goals at the corporate level, over three-quarters of the respondents indicated that it was their organisation's policy to insist that functional/departmental plans included quality improvement programmes or projects, and almost all respondents indicated that at their organisations', conformance to quality was a required part of an individual's tasks.
- Secondly, over seventy percent of respondents indicated that their organisation would actively seek to measure the acceptance of and commitment to its values. Further, over three-quarters

of the respondents indicated that the recognition/reward approaches used at their organisations were consciously designed to ensure that quality was re-enforced for the long-term, rather than for short-term financial gains and considerations.

- Thirdly, over ninety percent of the respondents indicated that their organisation related to the concept of the internal customer. Ninety percent of respondents indicated that at their organisation quality measures formed a part of regular management information at the senior, middle and junior management levels.
- Fourthly, over seventy percent of respondents indicated that at their organisation, efforts were made (a) to relate overall improvements in product / service quality to changes in financial performance and (b) to relate overall improvements in operational performance to changes in overall financial performance.
- Finally, three-quarters of the respondents indicated that their organisation actively reviewed, evaluated and improved the effectiveness of its business planning processes. Furthermore, it was indicated by over eighty percent of respondents to the third round questionnaire that their organisations' performance measurement system was periodically reviewed to focus on value drivers.

Response to the second round questionnaire also provided salient evidence of this proposed concept in practice. Nearly two-thirds of the respondents indicated that at their organisation, operating strategies were cascaded / deployed through each layer of the organisation using participative or negotiative means - one third of the respondents clearly indicated the use of policy deployment, and approximately another third of respondents clearly indicated the use of participative team briefings or review meetings.

11.5 Summary of Partial Theory Testing Findings

On the basis of the findings of the questions formulated for this partial theory testing exercise, there appears to be strong evidence in support of the three proposed concepts with the higher relative importance - *Customer Focus*, *Internal Collaboration* and *Dynamic/Energetic Leadership*. In addition, though it was not possible to collect evidence that would thoroughly test their validity, the findings presented here would suggest that another four of the proposed TQM concepts are

likely to take root in the practice, as well as in the perception of the benchmark organisations. These were: *Participative Management*, *Strategic Framework*, *Process Architecture and Management* and *People Realisation*.

It was not possible to collect evidence that would facilitate an extensive evaluation of the preliminary conceptual map of the proposed theory of TQM. Nevertheless, the findings of this partial test would suggest that there is likely to be a high degree of correlation between what the benchmark TQM organisations perceive constitutes a best practice TQM approach, and what they do in practice that constitutes their version of a best practice TQM approach.

The fourth round questionnaire used was not ideal for evaluating the preliminary conceptual map. However, the qualification procedure by the committee of experts suggested that as an instrument to initiate testing of the proposed TQM theory it was perfectly valid. The exercise was also very valuable in terms of guiding future research which is discussed more fully in section 12.6.

The final design of the fourth round questionnaire had been affected by the need to sustain the momentum of the information gathering process. That is to say, it was affected by the need to strike a balance between (a) retaining the interest of the participants by distributing the questionnaire within a reasonable time period since the previous questionnaire and (b) analysing the response of the previous questionnaire in sufficient depth to accurately define the "new/current" information requirements. This potential limitation of the modified Delphi approach is addressed more fully in section 12.3.1.

CHAPTER 12: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, key issues that emerge from the main findings of the study are presented. The aim and objectives of the study are reviewed, and a summary description of the proposed theory is presented. Conclusions are reached based on the original research, and the extent to which the study has extended prevailing knowledge is underlined. A number of recommendations concerning the introduction and use of TQM, practical use of the research findings and future use of the research technique are put forward. Finally, a number of possible directions for future research are highlighted.

12.1 The Aim and Objectives and Extent That They Were Met

The primary aim of the study was to develop an inductive theory of Total Quality Management (TQM) based on the expert opinion of leaders in the field. A suitable research *design* was identified and primary data was successfully collected, explicated and rationally converted into a set of concepts and propositions. At the outset of the study two key objectives were defined:

key objective 1: to identify the prevalent *concepts* underpinning TQM and their *inter-relationships* and

key objective 2: to identify the *rationale* underlying these concepts and their inter-relationships.

These key objectives were met. Derivation of the concepts and their inter-relationships was described in chapter 10. The rationale underlying the concepts and their inter-relationships was explicated in sections 6.3, 7.3, 7.4, 8.2 and 9.2.

Meeting these key objectives was dependent on meeting four **supporting objectives**. These were concerned with identifying the relevant TQM *variables*, their inter-relationships and the rationale for their inclusion in the theory development. The study met these supporting objectives which were:

- to establish the changes in important aspects of organisational behaviour brought about by the introduction of TQM (section 5.4 through 5.5);
- to establish the organisational role and span of application of the TQM approach (chapter 6);
- to establish the strategic role of TQM (chapter 7); and

- to establish the elements of TQM (chapter 8) and the channels that facilitate development of a TQM culture (chapter 9).

Two other supporting objectives, which were necessary for identifying the main boundaries to which generalisation can be taken, were also met. These were:

- to establish why organisations subscribe to a TQM philosophy (section 5.2); and
- to examine the influence of *size* and *class* of organisation on the important TQM variables (sections 5.4.3, 5.4.6, 5.4.11, 6.4, 7.5, 8.3 and 9.3).

12.2 Summary of the Key Findings

Examination of the literature indicated that there was more than one view of theory. Nevertheless, it also suggested that there was broad agreement in the literature as to what constitutes a theory. The definitions and explanations of theory proposed in the literature highlighted what were considered to be the important constituents.

The structure of theory chosen and adopted for this study comprised three components: *concepts*, *relationships* and *underlying logic*. This structure was chosen because it makes explicit what differentiates a theory from other forms of output. That is to say, that in addition to presenting the "what" of the subject under question, a theory also seeks to explain the "why". Identification of the relevant variables and concepts of the subject and their inter-relationships, is augmented by explication of the logic underlying the variables' and concepts' relevance. This was fully discussed in section 3.2.

Based on this research the nine concepts of TQM are:

- **Customer Focus;**
- **External Focus;**
- **Internal Collaboration;**
- **Participative Management;**
- **Dynamic/Energetic Leadership;**
- **Strategic Framework;**
- **Process Architecture and Management;**

- **People Realisation;** and
- **Explicit Measurement.**

As it was discussed in section 10.3.1 each concept has a multi-level structure: *name*, *nominal definition(s)* and *operational definition(s)*. This structure was developed and used to ensure that the concepts were "understandable" and "meaningful". Understandable - so that others can clearly understand and interpret the concepts. Meaningful - so that the concepts can be applied (and tested) in practice.

The *nominal definitions* express the 'rationale' of the concepts. That is to say the *nominal definitions* express purposeful intentions that are shared throughout the organisation. These were in the form of underlying values, objectives or desired outcomes. The *operational definitions* put communicable meaning into the concepts. The *operational definitions* refer to what is done, or what is put in place, in support of the underlying values, objectives and desired outcomes expressed in the *nominal definitions*. These were in the form of means, organisation orientations or tools / techniques. The concepts were presented in section 10.4.

The **relationships** between the concepts were demonstrated and discussed in sections 10.5 and 10.6. The relationships were identified and presented using the interrelationship digraph technique. Based on this research there are seven key proposed relationships, or "propositions", between the nine TQM concepts. These propositions were fully discussed in section 10.6.

Key findings, as articulated by these propositions, are:

- that dynamic and energetic leadership and a participative style of management enables the creation of a collaborative organisation and results in the realisation of the potential of its people;
- that simultaneous efforts to foster internal collaboration through cooperation and effective communication and to create a process architecture with process management practices, facilitates the creation of a strategic management process within the organisation; and
- that the creation or existence of a strategic management process leads to the creation of a customer focused organisation.

Moreover, that the key driver of organisational effort in a TQM approach is **customer focus**. As an underlying value of the organisation, ensuring customer satisfaction is a driver and an enabler in the TQM approach, not simply an objective or desired outcome of the effort.

Two further important findings are that an explicit approach to measurement practices underpins all other TQM efforts, and that the achievement of a customer focused organisation is augmented by the existence of a pervasive external focus.

The concepts of the proposed theory were tested and there appeared to be strong evidence in support of the three core concepts *Customer Focus*, *Internal Collaboration* and *Dynamic/Energetic Leadership*. Findings from this initial testing also indicated that another four of the proposed concepts were likely to occur in practice.

12.3 Conclusions

The author would conclude that the primary aim of the study was successfully achieved. Furthermore, that the limitations of the study were inconsequential to the development of the proposed theory. That is to say the limitations of the study discussed in section 1.6 were too insubstantial to undermine the theory development process or its outcome.

An examination of the content of the TQM literature identified five broad areas where it would appear that the literature has remained irreconcilable or under-developed. These were discussed in section 1.1. In the author's view the study has made a valuable contribution towards reconciliation within each of these five areas.

These contributions and the more specific conclusions that can be drawn from this study are presented in the remainder of this section under the following four headings:

- *Critical evaluation of research methodology and use of modified Delphi technique,*
- *Range of applicability of TQM,*
- *The nature of the TQM approach and*
- *Position of TQM in relation to schools of management thought.*

12.3.1 Critical evaluation of research methodology and use of modified Delphi technique

Examination of past use indicated that the Delphi technique has primarily been used for long-range forecasting purposes, especially on the subject of defence technology. In these types of application the technique takes the form of a carefully designed programme of sequential and iterative expert interrogations, normally conducted by a series of questionnaires interspersed with information and feedback from earlier parts of the programme. Forecasting appears to continue to be the normal use of this technique. Through this study the Delphi technique has also been proved useful and robust in developing a theory for a complex subject.

The study has shown that the modified Delphi technique is not immune to unplanned interventions in the research process. However, this in no way discredits the deployment of the Delphi technique in its modified format in achieving the aim of this study. The main limitation of the research methodology was its inability to cope with a very high level of variation and diversity within sets of data that were collected through open-ended questioning. This occurred at the Delphi third round questionnaire stage, albeit unexpected, and subsequently meant that only partial testing of the conceptual map was possible. A full description was presented in section 1.6. Aside from this limitation the research methodology proved to be robust. No other limitations in the research methodology were experienced. Furthermore, no revisions to the identified research *design* were required once the study was underway.

The author would suggest the validity of the modified Delphi approach for this type of application is demonstrated further by the positive rate of response over the course of the study. The response rate to the first round questionnaire was 75 percent, meeting the original target of a starting sample size of fifty respondents. The response rates to the subsequent three questionnaires were all above sixty percent²⁸⁵. This represented the continuance of over forty percent of the starting study sample. It may be argued that had the difficulties at the third round stage of the data collection not been experienced, the overall response rate might have been nearer to fifty percent. Nevertheless, given that the elapsed time between when the participants were solicited to take part in the study and the distribution of the fourth round questionnaire was approaching two years, and taking into consideration that the positions held by the participants make them attractive in the job market, the author would suggest that this overall response rate can be considered to be very successful.

²⁸⁵actual response rates: 2nd round questionnaire - 92 percent; 3rd round questionnaire - 74 percent; 4th round questionnaire - 63 percent.

Furthermore, there was no significant detrimental impact on the study due to loss of participants. For example, reduction in the sample size over the course of the study did not affect the ability to conduct significance testing. The reduction in sample size did not represent the effective elimination of any of the five sub-samples of organisations used to examine the influence of *size* and *class* of organisation, thus statistical significance testing remained wholly valid.

It is reasonable to conclude that the inherent strength of the Delphi technique in terms of the flexible (though limited) time parameter that individuals have in which to respond at their convenience (Brooks, 1979), helped to maintain a strong response rate at each successive stage of the research. A number of other attributes of the Delphi technique that indicated that it would be a very suitable research technique for this study were described in section 3.4.4. The perceived value of each of these attributes proved to be well-founded.

12.3.2 Range of applicability of TQM

In section 1.1 it was argued that there was a lack of consensus in the literature as regards the external range of applicability of TQM and that this had led to the wide-ranging assumption that at the macro level TQM is universally applicable. The present study has reached some important findings concerning the external range of applicability of TQM within the bounds of 'for profit' enterprise. Briefly, these were:

- TQM's applicability is independent of type of organisation and industry sector and
- TQM's applicability is independent of external environment influence.

Likewise, the present study has reached some important findings concerning the range of applicability of TQM within 'for profit' organisations. Briefly, these were:

- TQM's applicability is independent of internal environment influence and
- *class* or *size* of organisation do not have a major influence on the fundamental nature of a best practice TQM approach.

These four findings are discussed in greater detail below.

The evidence presented in section 6.3.3 of the study suggested that TQM's applicability is

independent of type of organisation and is not industry sector specific. That is to say that TQM can be applied to any organisation, of any size and in any industry sector²⁸⁶. The evidence presented in section 6.3.3 also suggested that the applicability of TQM is independent of external environment influence. That is to say TQM's validity as an approach to conducting business is not dependent on external influences such as competitors, economic conditions, trade policy or government policy. Moreover, in section 5.2 it was shown that the strategic posture of an organisation does not limit the applicability of TQM. The evidence from this sample suggests that both organisations that find themselves in difficulty and organisations that are successful but proactively seek to remain ahead of the competition can benefit from the introduction of TQM.

It is reasonable to conclude that at the macro level, TQM is universally applicable to 'for profit' organisations.

The evidence presented in section 6.3.3 suggested that the applicability of TQM is independent of internal environment influence. That is to say the TQM approach is relevant in all areas of an organisation's activities. It is relevant to all functions within an organisation irrespective of whether they are production/service delivery oriented or administration oriented. In sections 5.4.1 and 5.4.2 it was shown that TQM is applicable irrespective of the internal configuration of the organisation that exists prior to its introduction. Furthermore, in sections 5.4.4 and 5.4.5 it was shown that TQM is applicable irrespective of the prevalent style of management that exists prior to its introduction.

The evidence presented in sections 6.4, 7.5, 8.3 and 9.3 suggested that neither the *class* nor the *size* of organisation has a major influence on the fundamental nature of the best practice TQM approach. Only two observed differences of opinion in the primary data were deemed sufficient in magnitude and meaningful enough to be identified in the conceptual map of the proposed theory. Moreover, when all of the statistically suggested differences in the primary data were examined together, they did not appear to cluster around any specific theme²⁸⁷. In other words, collectively they did not appear to represent or point towards a broader organisational contingency.

It is reasonable to conclude that within each individual organisation, the TQM approach is

²⁸⁶It could be argued that construction of the study sample itself supports this view, by confirming that TQM is applicable to both manufacturing organisations and service organisations, and to both large organisations and SMEs.

²⁸⁷The observed differences spanned a wide variety of organisational issues.

applicable on an organisation-wide basis.

12.3.3 The nature of the TQM approach

The present study has provided strong evidence that the TQM approach affects the activities of all parts of an organisation, it having shown that the range of TQM's influence within an organisation is both horizontally and vertically inclusive. The proposed theory clearly indicates that TQM affects the strategic level, the tactical/functional level and the task level of an organisation. Furthermore, the proposed theory shows irrefutably that the TQM approach affects all types and levels of personnel within an organisation - TQM affects the executive personnel, the managerial personnel and the operational personnel.

More specifically, the findings of the study leads the author to the following conclusions:

- the TQM approach has both a "hard side" and a "soft side", however, it is weighted in favour of the latter;
- the TQM approach explicitly recognises the power and competitive advantage that can be gained from: (a) moving the "distribution of intelligence" downward in the organisation and (b) encouraging and pursuing mutually beneficial relationships with parties outside of the organisation;
- the TQM approach has a major influence on the strategic level processes and considerations of an organisation;
- the TQM approach transcends management fads;
- the TQM approach recognises the value of both "incremental" and "breakthrough" improvement strategies and
- the TQM approach clearly can be positioned as a management philosophy.

Each is discussed in greater detail below.

The proposed theory substantiates the notion that TQM has both a "hard side" and a "soft side". However, the proposed theory also strongly suggests that the TQM approach of best practice organisations is weighted in favour of the latter. Whilst a TQM approach clearly requires a focus on systems, tools and techniques (sections 8.2.1, 8.2.3 and 8.2.5), and on establishing standards of performance (sections 8.2.1 and 8.2.2), the main enabling thrust of the approach appears to centre

around the values, attitudes and behaviours that mobilise employees around the goals of customer satisfaction and continuous improvement (sections 6.3.1 and 9.2), and that engage employees' active commitment by means of well supported participation and increased responsibility (sections 8.2.4 and 9.2). This proposition is particularly evident with reference to the three concepts of the proposed theory, *Internal collaboration*, *Dynamic/energetic leadership*, and *People realisation* (section 10.4).

Evidence has indicated that, at its core, TQM diffuses the role of traditional leaders and the role of traditional managers (sections 5.4.4 and 5.4.5) and through teamwork disseminates the responsibility for planning, executing and controlling the business of the organisation (sections 8.2.4 and 9.2). TQM recognises the power and the competitive advantage that can be gained from moving the "distribution of intelligence"²⁸⁸ downward in the organisation. The value of enlarging employees' remit as contributors to the organisation's well-being is explicitly recognised, as is the notion²⁸⁹ that individuals, as well as the organisation, have purposes that warrant consideration. Furthermore, TQM recognises the power and the competitive advantage that can be gained from encouraging and pursuing mutually beneficial relationships with parties outside of the organisation (section 9.2).

The present study supports the proposition that the TQM approach reaches far beyond the 'tactical' or 'activity' level focus of its predecessors, *quality control* and *quality assurance*. In chapter 7 it was shown that TQM is also concerned with and has a major influence on an organisation's strategic level processes and considerations. In the first instance, the proposed theory strongly supports the proposition that TQM decentralizes strategic thinking in an organisation. The evidence presented in sections 7.3.1, 7.4 and 9.2 indicated that TQM facilitates the integration of what are often referred to as the 'top-down' and the 'bottom-up' approaches to strategic planning. That is to say TQM enables both diversity of perspective and the achievement of unity of purpose in strategic planning, rather than one at the expense of the other. The present study also suggests that the TQM approach unites and merges what have respectively been labelled²⁹⁰ the 'outside-in' view of improving organisations' performance and the 'inside-out' view of improving organisations' performance (section 7.3.1). The former refers to the market selection and positioning perspective, while the latter refers to the management of internal change perspective. Evidence indicates that

²⁸⁸a phrase coined by Cole et al (1993).

²⁸⁹previously suggested by Spencer (1994).

²⁹⁰Baden-Fuller (1995).

the TQM approach achieves this by making what may best be termed "customer-focused business process capability" a common denominator in its strategic and tactical decisions (section 7.4). Furthermore, it is reasonable to conclude from the evidence presented in section 7.4 that TQM can effectively address many of the strategic issues faced by an organisation.

The present study refutes the idea that TQM is a 'management fad'. The organisations in the study's sample had introduced TQM to defend their existing position against new competitors, improve their competitive capability and gain competitive advantage, and/or introduce wide-ranging organisational change (section 5.2). Examination of the role of TQM clearly indicated that it is not the purpose of TQM to provide short-term gain at the expense of long-term improvement (section 6.3.1). Evidence from this sample suggests that the TQM approach is about protecting the organisation from complacency, self-interest and veneration of the past and about gearing the organisation for long-term survival. Furthermore, as an approach to management that clearly blends powerful sets of insights about customers, about competitors and about capabilities, TQM represents an "enduring logic"²⁹¹ that transcends management fads.

In the broader management literature it is observable that 'TQM' and 'continuous improvement' are often perceived to be synonymous, and that the terms are frequently used interchangeably. The study clearly indicates that 'continuous improvement' is an important part of TQM (section 9.2), but that TQM is much broader. The evidence presented in section 9.2 also indicated that the TQM approach is not concerned with 'incremental improvement' only. In a TQM approach the value of both incremental improvements and major/breakthrough improvements are recognised. The author would suggest that the practice and the future development of TQM would both benefit from a wider appreciation of these findings.

The study corroborates the belief evident in the more recent TQM literature that TQM is a **management philosophy**. This was not only suggested directly in the study's primary data (section 6.3.2), but is clearly evident in the ideologies and convictions expressed by the *nominal definitions* of the concepts of the proposed theory (section 10.4). The primary data also supported the notion that TQM is a journey with no end, rather than a project with a defined end (section 6.3.2). TQM is regarded as a permanent approach to conducting business. It is reasonable to conclude that *'TQM is not something an organisation does, but the way an organisation does*

²⁹¹a phrase coined by Collis and Montgomery (1995).

everything²⁹². The proposed theory substantiates the primary data finding (section 6.3.1) that *TQM is a way of working*.

12.3.4 Position of TQM in relation to schools of management thought

The study has shown that the impact of TQM goes beyond management practice. TQM is undeniably concerned with the attitude, the values and the behaviour of all of the members of an organisation. The results of the present study decisively endorse the sentiment of Grant et al (1994), that TQM also represents a challenge to the theories and assumptions on which conventional practices are based.

The proposed theory clearly demonstrates that TQM calls for re-evaluation and re-definition of broad organisational goals. Conventional management models have their roots in the economic model of the firm. The basic principle of the economic model of the firm is the maximisation of the shareholders' wealth. To this end, Drucker (1974) suggested that business management should always, in every decision and action, put economic performance first. The proposed theory clearly demonstrates that in the TQM approach, the fundamental *raison d'etre* of the organisation is continually ensuring customer satisfaction. The financial performance of the organisation is considered to be an end, not the means of achieving the end. That is to say, strong financial performance and hence shareholder value are considered to be the desirable outcome. Furthermore, the study has shown that the best practice TQM organisations recognise the continuous improvement of product, process and service quality as a generic strategy that enables convergence between the shareholders', customers' and employees' objectives.

Whilst the proposed theory provides strong evidence that TQM represents a departure from the systems-dominated analytical approaches to the management of quality, the primary data suggested, nonetheless, that TQM was not an anti-thesis of scientific management (section 6.3.2). This implied that the scientific school of management thought does still have a role to play within a best practice TQM approach. Examination of the proposed theory of TQM in relation to prominent schools of management thought substantiates this finding.

Since the early part of the twentieth century, when "management" as a subject first began to be systematically examined (Koontz, 1964), a number of competing management models have

²⁹²Butz Jr (1995).

emerged in the West. These were classified by Koontz (1961) into six different schools of managerial thought. Arguably however, the main competing schools which have dominated management theory are:

- *the scientific/system-oriented school of management* and
- *the human behaviour/social system school of management.*

The anecdotal evidence in the broad management literature suggests that the former has been the prevailing school for most of the twentieth century. The main proponents of this school were Taylor (1947), Fayol (1949), Urwick (1944) and Gulick (Gulick and Urwick (1937)), and an examination of appropriate literature would suggest that its broad characteristics are as follows:

- the primary managerial tasks are considered to be the design of working methods and systems, control of a poorly motivated workforce, design and implementation of work measurement systems and design of financial incentives to motivate the workforce;
- the underpinning principle of organisation design is specialisation. Tasks are standardised and people are fitted into tasks. This results in tall organisations with many layers of management;
- activities are organised around sales or tasks. Job description is used to define the content of the job, rules and procedures. The focus is on input rather than the desired output. Job responsibilities are left undefined;
- actions and decisions are based on a predetermined set of rules. Deviations from these rules result in sanctions against the individual. There is little scope for individual initiative and originality;
- the organisational structure necessary to support the principles of scientific management is inevitably highly systematised and hierarchical. The organisation is run by systems, rules and numbers and
- management is perceived as a unitary process irrespective of the nature of the organisation or the level of management.

Emphasis is clearly on systems rather than people; it is assumed that people will fit into the system. Workers are considered to be inherently lazy and money is considered to be the primary motivator. Organisations operating under such characteristics are often inflexible and do not have the capacity to improve continuously.

The main proponents of the human behaviour/social system school²⁹³ were Barnard (1938), Mayo

²⁹³It should be pointed out, that although a close examination suggests that their basic tenets are very close, it is not universally accepted that the *human behaviour* and the *social system* models are different versions of the same fundamental model. As similarities between the two models appear to far outweigh the

(1960), Follett (1940), Burns and Stalker (1961) and Woodward (1965). Similarly, examination of the appropriate literature would suggest that the broad characteristics of this school are as follows:

- the management task is considered essentially to involve a process of personal persuasive leadership. Co-operation is indisputably preferred to coercion;
- the organisation is viewed as a system of cultural inter-relationships. The organisation is run by people, and not by systems for people;
- management is considered to be responsible for the effects of work upon people and people upon work;
- it is considered essential that in designing the structure of the organisation, its operations, systems and human emotions are taken into account and
- management is considered to be responsible for converging the goals and aspirations of the organisation with those of individuals. The goals of the organisation should be clearly defined and communicated to the people who work within it. Management is responsible for creating processes that facilitate the establishment of a common purpose within the organisation, then provide persuasive leadership towards its attainment.

It is reasonable to conclude from the proposed theory of TQM, that TQM in essence embraces the strengths of these two competing schools of management thought. TQM's emphasis on processes, measurement, evaluation and review, management and problem solving tools and techniques and management by fact, captures important components of scientific management. These components are prevalent in the concepts *Process Architecture and Management*, *Explicit Measurement* and also *Strategic Framework* of the proposed theory. On the other hand, concern with employees, leadership, work design and alignment, communication and structural components is consistent with the human behaviour/social system of management. These traits are prevalent in the concepts *Internal Collaboration*, *Dynamic/Energetic Leadership*, *Strategic Framework* and *People Realisation* of the proposed theory.

It would appear therefore that TQM brings together the two dominant management models that hitherto have been considered mutually exclusive. It is reasonable to conclude that as delineated by the best practice organisations, TQM shows all the signs of a durable management philosophy. In the author's view, the evidence from this study and in particular the immediately preceding arguments, support the proposition that TQM can itself be considered to be a new pattern of management.

differences, they are treated here as one model.

12.4 Extending the Present Knowledge

It was argued in section 1.2 that, despite the interest, TQM was far from clearly understood and that academic research had not provided the corrective function for TQM that it could have and should have provided. These arguments led to identification of the need for substantive research to extend the current knowledge and understanding of TQM and to support its future development. It was argued that there was a need for the wide-ranging views and opinions to be reconciled into a common level of understanding. Specifically, that there was an urgent need to incorporate first-hand experience into the existing body of knowledge. Moreover, it was argued that the timing of the study was of particular importance given (a) the increasing number of organisations starting to adopt TQM and (b) the findings that a large contingent of organisations were misunderstanding and mis-applying TQM.

It is reasonable to conclude that this study has addressed these important needs and has filled a number of important gaps in the existing knowledge. More specifically, the study:

- (a) **can act as a conduit to improve understanding of TQM based on the proven practice of leading exponents;**
- (b) **contributes an understanding of TQM that can resolve many of the assumptions taken for granted about TQM;**
- (c) **can act as a conduit towards a deep and common level of understanding of TQM;**
- (d) **contributes an understanding of TQM that explicitly distinguishes its purpose from its mechanics;**
- (e) **has put forward a set of TQM concepts, or "building blocks", each comprising of nominal definitions and operational definitions which help to ensure that they are understandable and meaningful and**
- (f) **contributes a set of concepts (for which each contributing variable has a relative importance weighting) and an inter-relationship digraph that can act as a base-line from which existing TQM approaches may be critically examined.**

12.5 Recommendations

Recommendations are presented under three headings. In the first section recommendations about future use of the modified Delphi technique are presented. This is followed in the second section

by a number of recommendations concerning the introduction and use of TQM. In the last section the author makes recommendations for practical use of the research findings.

12.5.1 Future use of modified Delphi technique

The author would have no hesitation in recommending the modified Delphi technique for future TQM research in the domain of a sample of multiple organisations, or to other management research problems of the nature described in this thesis. That is to say, theory building and successive theory testing. Nevertheless, the author would make the following recommendations:

- Researchers should err in favour of a pre-coded questionnaire design format. Providing questionnaire design is preceded and built on comprehensive and thorough examination of the available literature in the subject area, this should enable a faster turnaround of analysis whilst minimising the dangers posed by introduction of bias.
- A preference for pre-coding would also enable a larger sample size to be targeted. Sample size in this study was not considered to be a limitation. However, a larger sample may permit a greater degree of stratification. Caution must be exercised however, not to allow an inclination for greater sample size to dilute the "expert" quality of the Delphi sample.
- An option the author would consider for future use of the modified Delphi technique when theory building and theory testing would be the construction of two similar samples, one for 'building' and one for 'testing'. This would permit a formal break between the two components without risking loss of interest / participation. Providing that the two samples were similar in constitution, it may be argued that the comparison of "perception" with "practice" would be meaningful and unobjectionable. In fact, it is reasonable to suggest that the use of two samples in this way would add weight to such a study.

12.5.2 The introduction and use of TQM

To organisations contemplating the introduction of TQM.²⁹⁴

²⁹⁴these recommendations are also pertinent to those organisations whose previous attempt(s) to introduce TQM have clearly proved to be futile.

- TQM is a permanent way that an organisation conducts its business. Furthermore, its underlying goals are long term. It is concerned with outcomes that are sustainable. Therefore, an organisation should not undertake to introduce TQM with the assumption that it is an activity in which it can invest resources with the expectation of an immediate return. If it does, it is destined to end up perceiving that TQM is a management fad.
- Organisations need not consider, or should not attempt to introduce TQM, unless they are willing to radically transform conventional practices. The introduction of TQM requires radical and pervasive change. The present study shows evidence that TQM involves the re-design of organisational structures, the re-design of work and the re-definition of management style. These findings confirm the view expressed by Grant et al (1994) that TQM cannot simply be grafted on to existing management structures and systems.
- TQM is a wide-ranging management philosophy. It affects all facets of an organisation. It therefore needs to be carefully studied and cannot be glibly picked up. It is reasonable to suggest that a deep understanding of TQM would be a pre-requisite for success²⁹⁵. Furthermore, it is imperative that the deep understanding extends beyond the operational means to the roles and scope of TQM.
- It is reasonable to suggest that if the organisation is to embrace TQM successfully, it must embrace TQM on an inclusive organisation-wide basis.

To the executives of organisations contemplating the introduction of TQM:

- Reported experience (see sections 2.8.2 and 2.8.4) would suggest that lack of commitment from top management is one of the most common reasons for the failure of TQM. The proposed theory has corroborated the notion that the senior management of an organisation must be the steadfast champions of TQM right from its inception. This implies that the deep understanding referred to above must start with the senior management of the organisation.
- The author would propose that central to the TQM education of senior management must be the message that TQM is an approach which envisages the minimisation and ultimately the

²⁹⁵ Findings from examination of the issues that were considered by the participating organisations in the process of making their decision to introduce TQM would appear to strongly support this proposition. This examination was not reported within this thesis.

elimination of trade-offs between the objectives of the organisation's owners, customers and employees.

- It is imperative to resist introducing the "faddish" elements of TQM widely promoted and marketed in anecdotal trade literature and, instead, to think through the primary reasons and purpose for which TQM is being adopted.²⁹⁶

To those organisations seeking to augment and consolidate existing TQM approaches:

- The evidence gathered in this study provides a strong argument for the constant re-evaluation of both the external environment and the organisation's internal environment and how they interact, irrespective of the competitive posture or financial position of the organisation.
- The evidence suggests that, in order to obtain long lasting performance benefits from the TQM approach, organisations must be willing to permit identified customer requirements, expectations and perceptions to drive both local and organisation-wide changes. Furthermore, the present study shows clear evidence that in a TQM approach, customer-focused business objectives should drive technology decisions, not vice-versa.
- The evidence suggests that in order to maximize the contribution of improvement efforts towards overall organisational effectiveness, organisations should focus on identifying and/or re-designing business processes. Focus on functions may lead to ineffective solutions.
- The evidence suggests that the value of seeking to converge and align the objectives of all members of the organisation, enabling them to work together and hence move the organisation in the same direction, should never be underestimated or underemphasised.

12.5.3 Practical use of research findings

The author would make the following suggestions for practical use of the research findings within the setting of industrial and commercial organisations:

- The inter-relationship digraph, in conjunction with the conceptual map, has the advantageous

²⁹⁶ Advice prompted by of Sitkin et al (1994).

attribute that it makes primary data accessible to practitioners. Therefore, it can be used in TQM education as a vehicle for conveying information about proven TQM practice. Furthermore, the propositions and their associated 'relational statements' provide a well-organised guide for systematically interpreting the inter-relationship digraph of TQM. It is important to stress however, that the propositions should not be treated as a set of instructions, but as a way of systematically thinking about and understanding the challenge.

- It is reasonable to suggest that the conceptual map of the proposed theory, by clearly distinguishing between the purpose/objectives and means of a best practice TQM approach, through nominal definitions and operational definitions respectively, readily lends itself to conversion into a practical TQM audit instrument. As Gill and Johnson (1991) advanced, the existence of operational definitions provides the basis for making observations and determining when an instance of a concept has empirically occurred. This could then be used in manufacturing or service organisations of all sizes as a pre-TQM audit tool or as the basis for periodic/continuous self-assessment of organisational TQM practice.

Finally, it was not the purpose of this study to identify education materials for undergraduate or postgraduate students in higher education. However, the author would suggest that the framework devised for the literature review would provide an excellent foundation upon which the 'Background' or 'Introductory' component of a formal TQM education course might be devised.

12.6 Directions for Future Research

Confirmatory testing of the proposed theory is regarded as a primary direction for future research, and a number of avenues in this respect can be identified.

The initial results concerning testing of the concepts of the proposed theory developed in this study were encouraging. However, a natural follow-up study would be to undertake more comprehensive confirmatory testing of the conceptual map of the proposed theory through questionnaire-based survey research²⁹⁷. Testing of the 'relationships' component of the proposed theory was not a planned objective of this study. However, the theory offers propositions that invite scrutiny. Translation of these propositions into testable hypotheses would facilitate this opportunity. These

²⁹⁷This would provide the opportunity for the development of a valid and reliable self-auditing instrument, as was proposed in section 12.5.3, which could be made available to current and potential TQM practitioners.

might also be subjected to questionnaire-based survey research. An alternative confirmatory testing approach would be replication of the theory building component of this study with a new sample of expert practitioners. The author would suggest that each of the directions for future research discussed thus far would require a well-constructed sample of committed participants such as that employed in this study.

Subjecting the proposed theory to direct empirical examinations to see whether or not real-world data support the advocated concepts and the advocated propositions (or developed hypotheses) through, for example, case-based or field research of a much smaller sample of best practice organisations, would be an alternative and equally beneficial confirmatory testing approach. Smaller, more specific parts of the proposed theory might be examined in such a sample in order to refine the *operational definitions* of the concepts, and/or to identify/confirm critically important tactical attributes.

It was beyond the scope of this study to establish if the organisations in the sample experience any isolated or recurring difficulties in sustaining a successful TQM approach. Identification of such difficulties and examination of their impact and influence would undoubtedly augment the TQM understanding provided by the proposed theory.

Other researchers are strongly urged to consider testing and extending the theory's boundaries to which generalisation may be taken to 'not for profit' organisations.

Reger et al (1994) suggested that organisational members understanding of TQM would not remain static throughout the TQM implementation process, rather, their conception of what should constitute a TQM approach changes. The author would suggest that recognition of this phenomenon represents an invaluable opportunity for organisations to introduce TQM in a manner that cumulatively builds organisational members' commitment to the approach. In the author's view this represents an important direction for future research.

It is the author's belief that the proposed theory provides a good basis for further conceptual and empirical work on TQM. Whatever research *strategies* may be deemed appropriate, the author would strongly urge other researchers to develop theories of TQM from the best practice domain - theories that would be comparable and cumulative, and therefore value-adding to the current knowledge.

REFERENCES

- Abbott, L. (1995), *Quality and competition*, Columbia University Press, New York.
- Abram, Hawkes plc and Kingston University. (1993), *A Report on TQM within the UK's 500 Largest Companies*, July, Abram, Hawkes plc.
- Ackoff, R. L. (1970), *A Concept of Corporate Planning*, Wiley Interscience, New York.
- Ackoff, R. L. (1993), "Beyond total quality management", *Journal for Quality and Participation*, Vol. 16 No. 2, pp. 66-78.
- Adamson, F. B. (1989), "Cultivating a charismatic quality leader", *Quality Progress*, Vol. 22 No. 7, pp. 56-57.
- Ahire, S. L. (1996), "An empirical investigation of quality management in small firms", *Production and Inventory Management Journal*, Vol. 37 No. 2, pp. 44-50.
- Ahire, S. L. and Golhar, D. Y. (1996), "Quality management in large vs small firms", *Journal of Small Business Management*, Vol. 34 No. 2, pp. 1-13.
- Ahire, S., Golhar, D. and Waller, M. A. (1996), "Development and validation of TQM implementation constructs", *Decision Sciences*, Vol. 27 No. 1, pp. 23-56.
- Ahire, S. L., Landeros, R. and Golhar, D. Y. (1995), "Total quality management: a literature review and an agenda for future research", *Production and Operations Management*, Vol. 4 No. 3, pp. 277-310.
- Ahire, S. L. and Rana, D. S. (1995), "Selection of TQM pilot projects using an MCDM approach", *International Journal of Quality & Reliability Management*, Vol. 12 No. 1, pp. 61-81.
- Albrecht, K. (1990), *Service Within: Solving the Middle Management Leadership Crisis*, Irwin, Homewood.
- Alpander, G. G. and Lee, C. R. (1995), "Culture, strategy and teamwork: the keys to organizational change", *Journal of Management Development*, Vol. 14 No. 8, pp. 4-18.
- Aly, N. A., Maytubby, V. J. and Elshennawy, A. K. (1990), "Total quality management: an approach and a case study", *Computers and Industrial Engineering*, Vol. 19 No. 1-4, pp. 111-116.
- Anderson, E. (1995), "High tech v high touch: a case study of TQM implementation in higher education", *Managing Service Quality*, Vol. 5 No. 2, pp. 48-56.
- Anderson, J. C., Rungtusanatham, M. and Schroeder, R. G. (1993), "Toward developing a theory of management underlying the Deming Management Method", *Working Paper 93-1*, Department of Operations and Management Science, University of Minnesota.
- Anderson, J. C., Rungtusanatham, M. and Schroeder, R. G. (1994), "A theory of quality management underlying the Deming Management Method", *Academy of Management Review*, Vol. 19 No. 3, pp. 472-509.
- Andrews, K. R. (1996), "The concept of corporate strategy", in Mintzberg, H. and Quinn, J. B. (Eds.), *The Strategy Process - Concepts, Contexts, Cases*, Prentice Hall, Inc., 3rd ed., New Jersey, pp. 47-55.
- Anfuso, D. (1994), "L.L. Bean's TQM efforts put people before processes", *Personnel Journal*, Vol. 73 No. 7, pp. 72-83.

- Anjard, R. P. (1995), "Keys to successful TQM training and implementation", *Training for Quality*, Vol. 3 No. 1, pp. 14-22.
- Anon. (1989), *Quality. Executive priority or afterthought*, American Society for Quality Control, Milwaukee.
- Anon. (1993a), "TQM: forging ahead or falling behind", *HR Focus*, Vol. 70 No. 7, p. 24.
- Anon. (1993b), *BS5750/ISO 9000/EN 29000: 1987 - A Positive Contribution to better business*, DTI, London.
- Anon. (1994a), "Managing employee involvement and total quality", *Personnel Review*, Vol. 23 No. 2, pp. 17-19.
- Anon. (1994b), "A close look at organization restructuring: is all this change necessary?", *Manage*, Vol. 45 No. 4, pp. 8-11.
- Ansoff, H. I. (1984), *Implanting Strategic Management*, Prentice-Hall International Inc, London.
- Anthony, R. N. (1973), "Some fruitful directions for research in management accounting", in Dopuch, N. and Revsine, L. (Eds.), *Accounting Research 1960-1970: A Critical Evaluation*, Centre for International Education and Research in Accounting, Illinois.
- AQA (The Australian Quality Award Limited). (1993), *1993 Award Criteria for the Australian Quality Award*.
- Aquino, N. R. (1992), "Total quality management", *Business & Economic Review*, Vol. 39 No. 1, pp. 19-21.
- Ascari, A., Rock, M. and Dutta, S. (1995), "Reengineering and organizational change: lessons from a comparative analysis of company experiences", *European Management Journal*, Vol. 13 No. 1, pp. 1-30.
- Ash, R. W. (1992), "The ABCs of developing TQM", *Security Management*, Vol. 36 No. 9, pp. 82-84.
- Askey, J. M. and Dale, B. G. (1994), "From ISO 9000 Series registration to total quality management: an examination", *Quality Management Journal*, Vol. 1 No. 4, pp. 67-76.
- A.T. Kearney and The TQM Magazine. (1991), *Total Quality: Time To Take Off The Rose-Tinted Spectacles*.
- Atkinson, P. E. (1990), "Creating cultural change", *Management Services*, Vol. 34 No. 11, pp. 6-10.
- Atkinson, P. E. (1991), "Leadership: total quality and cultural change", *Management Services*, Vol. 35 No. 6, pp. 16-19.
- Aubrey II, C. A. (1993), "Should the Board of Directors be involved in TQM?", *National Productivity Review*, Vol. 12 No. 3, pp. 317-323.
- Axland, S. (1992), "Small wonders", *Quality Progress*, November, pp. 29-34.
- Ayres, R. U. (1969), *Technological Forecasting and Long-Range Planning*, McGraw-Hill Book Company, New York.
- Azani, H. and Korramshangol, R. (1990), "Analytical Delphi Method (ADM): a strategic decision making model applied to location planning", *Engineering Costs and Production Economics*, Vol. 20 No. 1, pp. 23-28.
- Babbar, S. (1992), "A dynamic model for continuous improvement in the management of service quality",

International Journal of Operations and Production Management, Vol. 12 No. 2, pp. 38-48.

Bacharach, S. B. (1989), "Organisational theories", *Academy of Management Review*, Vol. 14 No. 4, pp. 496-515.

Baden-Fuller, C. (1995), "Strategic Innovation, corporate entrepreneurship and matching outside-in to inside-out approaches to strategy research", *British Journal of Management*, Vol. 6 Special Issue, pp. S3-S16.

Bamford, D. R. (1995), *An Investigation into the Collection, Measurement and Use of Quality Costs within a High Volume Production Environment*, unpublished MPhil dissertation, Middlesex University.

Banker, R., Potter, G. and Schroeder, R. (1993), "Manufacturing performance reporting for continuous quality improvement", *Management International Review*, Vol. 33 Special Issue, pp. 69-85.

Barnard, C. (1938), *The Functions of the Executive*, Harvard University Press, Cambridge, MA.

Baum, R. A. (1993), "It's either 3 for 3 with your customers, or you're out", *Journal for Quality and Participation*, Vol. 16 No. 7, pp. 50-51.

Bechtell, M. (1996), "Navigating organizational waters with Hoshin Planning", *National Productivity Review*, Vol. 15 No. 2, pp. 23-42.

Beerten, P. (1996), "Can we construct a quality and participation architecture", *Journal for Quality and Participation*, Vol. 19 No. 2, pp. 20-27.

Belohlav, J. A. (1993), "Quality, strategy and competitiveness", *California Management Review*, Spring, Vol. 35 No. 3, pp. 55-67.

Bemowski, K. and Kelly, T. (1992), "Consultant", *Quality Progress*, Vol. 25 No. 7, pp. 35-38.

Bendell, T. (1992), *The Quality Gurus*, Department of Trade and Industry (UK), London.

Bennett, R. (1991), *Organisational Behaviour*, Pitman Publishing, London.

Bennett, R. (1997), *Organisational Behaviour*, 3rd ed., Pitman Publishing, London.

Benson, P. G., Saraph, J. V. and Schroeder, R. G. (1991), "The effects of organizational context on quality management: an empirical investigation", *Management Science*, Vol. 37 No. 9, pp. 1107-1124.

Benson, T. E. (1992), "IQS: quality is not what you think it is", *Industry Week*, Vol. 241 No. 19, pp. 22-34.

Berry, L. L., Zeithaml, V. A. and Parasuraman, A. (1990), "Five imperatives for improving service quality", *Sloan Management Review*, Vol. 31 No. 4, pp. 29-38.

Berwick, D. M. (1989), "Continuous improvement as an ideal in health care", *New England Journal of Medicine*, Vol. 320 No. 1, pp. 53-57.

Bessant, J. and Caffyn, S. (1997), "High-involvement innovation through continuous improvement", *International Journal of Technology Management*, Vol. 14 No. 1, pp. 7-28.

Bethell, J. (1993), "Small firms head revolt against quality standard", *Sunday Times*, 12th September, London.

Bilston, F. and Sohal, A. S. (1995), "Learning about quality: a small business perspective", *The Learning Organization*, Vol. 2 No. 3, pp. 4-8.

Binney, G. (1992), *Making Quality Work: Lessons from Europe's Leading Companies*, Economist Intelligence Unit, Special Report.

Black, S. (1994), "Measuring the critical success factors of total quality management", in *12 Fresh Views on TQM*, European Foundation for Quality Management, Brussels, pp. 78-86.

Blackburn, R. and Rosen, B. (1993), "Total quality and human resource management: lessons learned from Baldrige award-winning companies", *Academy of Management Executive*, Vol. 7 No. 3, pp. 49-66.

Blake, R. R. and Mouton, J. S. (1985), *New Management Grid: The Key to Leadership Excellence*, Gulf Publishing Company, Houston.

Boaden, R. J. and Dale, B. G. (1993), "Managing quality improvement in financial services: a framework and case study", *Service Industries Journal*, Vol. 13 No. 1, pp. 17-39.

Boaden, R. J. and Dale, B. G. (1994), "A generic framework for managing quality improvement: theory and practice", *Quality Management Journal*, Vol. 1 No. 4, pp. 11-29.

Boje, D. M. (1993), "Editorial post-TQM", *Journal of Organizational Change Management*, Vol. 6, no. 4, pp. 4-8.

Borgowicz, A., Delene, L. M. and Lyth, D. M. (1990), "A synthesized service quality model with managerial implications", *International Journal of Service Industry Management*, Vol. 1 No. 1, pp. 27-45.

Bossink, B. A. G., Gieskes, J. F. B. and Pas, T. N. M. (1992), "Diagnosing total quality management - part 1", *Total Quality Management*, Vol. 3 No. 3, pp. 223-221.

Bossink, B. A. G., Gieskes, J. F. B. and Pas, T. N. M. (1993), "Diagnosing total quality management - part 2", *Total Quality Management*, Vol. 4 No. 1, pp. 5-12.

Bourgeois, L. (1996), *Strategic Management - from concept to implementation*, Dryden Press, Fort Worth.

Braham, J. (1989), "A rewarding place to work", *Industry Week*, Vol. 238 No. 18, pp. 15-19.

Brassard, M. (1989), *The Memory Jogger Plus+™, GOAL/QPC*, Meuthen, MA.

Brecka, J. (1994), "Study finds that gains with ISO 9000 registration increase over time", *Quality Progress*, May, pp. 18-20.

Bredrup, H. (1995), "Standard illusions: ISO 9000 as an alibi for quality", *European Quality*, Vol. 1, pp. 41-51.

Bright, K. and Cooper, C. L. (1993), "Organizational culture and the management of quality: towards a new framework", *Journal of Managerial Philosophy*, Vol. 8 No. 6, pp. 21-27.

Brockman, J. (1992), "Total quality management: the USA and UK compared", *Public Money & Management*, Vol. 12 No. 4, pp. 6-9.

Broedling, L. A. (1990), Foreword, in Varian, T. (Ed.), *Beyond the TQM Mystique: Real World Perspectives on Total Quality Management*, American Defense Preparedness Association with Organizational Dynamics, Washington D. C., pp. 1-3.

Brook, J. A. and Brook, R. J. (1989), "Exploring the meaning of work and nonwork", *Journal of Organizational Behaviour*, Vol. 10 No. 2, pp. 169-178.

Brooks, K. W. (1979), "Delphi technique: expanding applications", *North Central Association Quarterly*,

No. 53, pp. 377-385.

Brown, A. (1994), *The Quality Management Research Unit Experience with ISO 9000*, Paper presented at the Second National Research Conference on Quality Management, Monash Mt Eliza Business School, Australia.

Brown, A. and van der Wiele, T. (1997), "Insights into TQM and downsizing in large organizations", *Benchmarking for Quality Management and Technology*, Vol. 4 No. 3, pp. 202-212.

Brown, M. G. (1997), "Measuring up against the 1997 Baldrige criteria", *Journal for Quality & Participation*, Vol. 20 No. 4, pp. 22-28.

Brown, S. W., Gummesson, E., Edvardsson, B. and Gustavsson, B. (Eds). (1991), *Service Quality: Multidisciplinary and Multinational Perspectives*, Lexington Books, New York.

Bryman, A. (1989), *Research Methods and Organization Studies (Contemporary Social Research Series, no. 20)*, Unwin Hyman Ltd, London.

Buckley, J. W., Buckley, M. H. and Chiang, H-F. (1976), *Research Methodology and Business Decisions*, National Association of Accountants & The Society of Industrial Accountants of Canada.

Bunney, H. S. and Dale, B. G. (1997), "The implementation of quality management tools and techniques: a study", *The TQM Magazine*, Vol. 9 No. 3, pp. 183-189.

Burns, T. and Stalker, G. (1961), *The Management of Innovation*, Tavistock Publishers, London.

Burr, J. T. (1993), "A new name for a not-so-new concept", *Quality Progress*, Vol. 26 No. 3, pp. 87-88.

Bush, D. and Dooley, K. (1989), "The Deming Prize and Baldrige Award: how they compare", *Quality Progress*, January, pp. 28-30.

Butler, G. V. (1986), *Organization and Management*, Prentice-Hall International, Hemel Hempstead.

Butler, M. L. (1990), "Quality leadership equals quality service", *Bureaucrat*, Vol. 19 No. 2, pp. 44-46.

Butterfield, R. W. (1991), "Deming's 14 points - applied to service", *Training*, March, pp. 50-59.

Butz Jr, H. E. (1995), "Strategic planning: the missing link in TQM", *Quality Progress*, May, pp. 105-108.

Buzzell, R. and Gale, B. (1987), *The PIMS Principles: Linking Strategy to Performance*, Free Press, New York.

Calek, A. (1995), "Quality Progress' fifth Quality in education listing", *Quality Progress*, Vol. 28 No. 9, pp. 27-77.

Camillus, J. C. (1982), "Reconciling logical incrementalism and synoptic formalisation: an integrated approach to designing strategic planning processes", *Strategic Management Journal*, Vol. 3 No. 3, pp. 277-283.

Campbell, L. (1994), "BS 5750 - what's in it for small firms?", *Quality World*, June, pp. 377-379.

Cantor, D. and Brown, J. (1981), "Explanatory roles", in Antaki, C. (Ed.), *The psychology of ordinary explanations*, Academic Press, London, pp. 221-242.

Chafetz, J. S. (1978), *A Primer on the Construction and Testing of Theories in Sociology*, F. E. Peacock Publishers, Inc., Itasca.

- Chang, R. Y. (1993), "When TQM goes nowhere", *Training & Development*, Vol. 47 No. 1, pp. 22-29.
- Chase, R. L. (1989), *Winning with Quality: A Practical Approach to the Development of a Total Quality Strategy*, IFS Publications, Bedford.
- Choi, T. Y. and Behling, O. C. (1997), "Top managers and TQM success: one more look after all these years", *Academy of Management Executive*, Vol. 11 No. 1, pp. 37-47.
- Choppin, J. (1994), "Total quality cynicism", *Manufacturing Engineer*, December, pp. 266-267.
- Clemmer, J. (1991), "How total is your quality management?", *Canadian Business Review*, Vol. 18 No. 1, pp. 38-41.
- Coate, L. E. (1990), "TQM at Oregon State University", *Journal for Quality & Participation*, December, pp. 90-101.
- Cohen, S. and Brand, R. (1990), "Total quality management in the U.S. Environmental Protection Agency", *Public Productivity and Management Review*, Vol. 14 No. 1, pp. 99-114.
- Cole, R. E. (1991), "Comparing the Baldrige and the Deming", *Journal for Quality and Participation*, Vol. 14 No. 4, pp. 94-104.
- Cole, R. E., Bacdayan, P. and White, B. J. (1993), "Quality, participation, and competitiveness", *California Management Review*, Spring, pp. 68-81.
- Cole, W. E. and Mogab, J. W. (1995), *The Economics of Total Quality Management*, Blackwell Publishers, Cambridge.
- Collard, R. (1993), *Total Quality: Success Through People*, Institute of Personnel Management, London.
- Collier, D. A. (1992), "Service, please: The Malcolm Baldrige National Quality Award", *Business Horizons*, July-August, pp. 88-95.
- Collis, D. J. and Montgomery, C. A. (1995), "Competing on resources: strategy in the 1990s", *Harvard Business Review*, July-August, pp. 118-128.
- Commerce, N. (1994), "BS.5750", *Commerce Magazine*, May, pp. 16-18.
- Conway, W. E. (1992), "Quality management in an economic downturn", *Quality Progress*, May, pp. 27-29.
- Coopers & Lybrand and EFQM. (1994), "Economic aspects of quality", in *Panorama of EU Industry*, Office for Official Publications of the European Communities, Brussels, pp. 127-137.
- Cooke, R. A. and Szumal, J. L. (1993), "Measuring normative beliefs and shared behavioural expectations in organizations: the reliability and validity of the organizational culture inventory", *Psychological Reports*, No. 72, pp. 1299-1330.
- Corbett, L. M. and Harrison, N. J. (1992), "Manufacturing performance and employee involvement: a study of factors influencing improvement", *International Studies of Management & Organisation*, Vol. 22 No. 4, pp. 21-32.
- Coulson-Thomas, C. J. (1992), "Quality: where do we go from here?", *International Journal of Quality & Reliability Management*, Vol. 9 No. 1, pp. 38-55.
- Coulson-Thomas, C. and Coe, T. (1991), *The Flat Organisation: Philosophy and Practice*, British Institute of Management, Corby.

- Cound, D. A. (1987), "A call for leadership", *Quality Progress*, March, Vol. 20 No. 3, pp. 11-15.
- Couper, M. R. (1984), "The Delphi technique: characteristics and sequence model", *Advances in Nursing Science*, Vol. 7 No. 1, pp. 72-77.
- Cowling, A. and Newman, K. (1995), "Banking on people: TQM, service quality, and human resources", *Personnel Review*, Vol. 24 No. 7, pp. 25-40.
- Coyle-Shapiro, J. (1995), "The impact of a TQM intervention on teamwork: a longitudinal assessment", *Employee Relations*, Vol. 17 No. 3, pp. 63-74.
- Creelman, J. (1991), "Attention to detail", *The TQM Magazine*, Vol. 3 No. 5, pp. 301-303.
- Cronin, E. and Payne, R. (1993), *Factors influencing the effectiveness of service quality initiatives and their implementation in UK banks*, Sheffield University Management School Discussion Paper No. 93.31.
- Crosby, P. B. (1979), *Quality is Free: The Art of Making Quality Certain*, New American Library, New York.
- Crosby, P. B. (1984), *Quality Without Tears: The Art of Hassle-free Management*, McGraw-Hill, New York.
- Crosby, P. B. (1991), "Quality management in emerging nations", *Productivity*, Vol. 32 No. 3, pp. 415-420.
- Cullen, J. and Hollingham, J. (1987), *Implementing Total Quality*, IFS Publications, Bedford.
- Cummings, S. (1993), "Brief case: the first strategists", *Long Range Planning*, Vol. 26 No. 3, pp. 133-135.
- d'Amboise, G. and Muldowney, M. (1988), "Management theory for small business: attempts and requirements", *Academy of Management Review*, Vol. 13 No. 2, pp. 226-240.
- Dale, B. G. and Boaden, R. J. (1993), "Improvement framework", *Total Quality Management*, Vol. 5 No. 1, pp. 23-26.
- Dale, B. G., Boaden, R. J., Wilcox, M. and McQuater, R. E. (1997), "Sustaining total quality management: what are the key issues?", *The TQM Magazine*, Vol. 9 No. 5, pp. 372-380.
- Dale, B.G. and Cooper, C. L. (1994a), "Total quality management: some common mistakes made by senior management", *Quality World Technical Supplement*, March, pp. 4-11.
- Dale, B.G. and Cooper, C. L. (1994b), "Introducing TQM: the role of senior management", *Management Decision*, Vol. 32 No. 1, pp. 20-26.
- Dale, B. G. and Lightburn, K. (1992), "Continuous quality improvement: why some organisations lack commitment", *International Journal of Production Economics*, Vol. 27 No. 1, pp. 57-67.
- Dale, B., van der Wiele, T., Timmers, J. G., Williams, R. and Bertsch, B. (1993), "Communal education", *Training for Quality*, Vol. 1 No. 1, pp. 24-28.
- Daley, D. M. (1992), "Pay for performance, performance appraisal, and total quality management", *Public Productivity & Management Review*, Vol. 16 No. 1, pp. 39-51.
- Davies, E. (1994), "Questions on quality", *Manufacturing Engineer*, December, pp. 262-265.
- Davis, T. (1993), "Effective supply chain management", *Sloan Management Review*, Summer, pp. 35-46.
- Davy, J. A., White, R. E., Merritt, N. J. and Gritzmacher, K. (1992), "A derivation of the underlying

constructs of just-in-time management systems", *Academy of Management Journal*, Vol. 35 No. 3, pp. 653-670.

Dawson, P. and Palmer, G. (1993), "Total quality management in Australia and New Zealand companies: some emerging theorists' issues", *International Journal of Employment Studies*, Vol. 1 No. 1, pp. 115-136.

Dawson, P. and Patrickson, M. (1991), "Total quality management in the Australian banking industry", *International Journal of Quality & Reliability Management*, Vol. 8 No. 5, pp. 66-76.

de Geus, A. (1997), "The living company", *Harvard Business Review*, March-April, pp. 51-59.

de Hann, T. and Peters, R. (1993), "Technology: toys or tools? results of a Dutch Delphi study", *Information and Management*, Vol. 25 No. 6, pp. 283-289.

de Leon, L. and Taher, W. (1996), "Expectations and job satisfaction of local-government professionals", *American Review of Public Administration*, Vol. 26 No. 4, pp. 401-416.

De Meyer, A. and Ferdows, K. (1991), "Quality up, technology down: manufacturing improvement programmes in Europe", *International Journal of Technology Management*, pp. 136-153.

Deal, T. E. and Kennedy, A. A. (1982), *Corporate Cultures - The Rites and Rituals of Corporate Life*, Addison-Wesley, Reading, MA.

Dean, Jr, J. W. and Bowen, D. E. (1994), "Management theory and total quality: improving research and practice through theory development", *Academy of Management Review*, Vol. 19 No. 3, pp. 392-418.

Dean, M. B. and Helms, M. M. (1996), "The implementation of total quality management into public sector agencies: a case study of the Tennessee Valley Authority", *Benchmarking for Quality Management and Technology*, Vol. 3 No. 1, pp. 50-64.

Dedhia, N. S. (1995), "Survive business challenges with the total quality management approach", *Total Quality Management*, Vol. 6 No. 3, pp. 265-272.

Deeks, J. (1976), *Small Firm Owner-Manager Entrepreneurial Behaviour and Management Practice*, Praeger, New York.

Deming, W. E. (1982), *Quality, productivity, and competitive position*, MIT Centre for Advanced Engineering, Cambridge, MA.

Deming, W. E. (1986), *Out of the crisis*, MIT Centre for Advanced Engineering, Cambridge, MA.

Deshpande, R. and Parasuraman, A. (1986), "Linking corporate culture to strategic planning", *Business Horizons*, May-June, pp. 28-37.

Develin & Partners. (1989), *The effectiveness of quality improvement programmes in British business*, Develin & Partners, Harefield.

Dillman, D. (1978), *Mail and Telephone Surveys: The Total Design Method*, Wiley Interscience, New York.

Dobbs, M. F. (1994), "Continuous improvement as continuous implementation: implementing TQM in the City of Santa Ana", *Public Productivity & Management Review*, Vol. 18 No. 1, pp. 89-100.

Dobler, D. W., Burt, D. N. and Lee, L. (1990), *Purchasing and Materials Management*, 5th ed., McGraw Hill, New York.

Dobson, R. L. (1991), "Speeding the way to total quality", *Training and Development*, June, pp. 35-42.

Dobyns, L. and Crawford-Mason, C. (1991), *Quality or Else: The Revolution in World Business*, Houghton-Mifflin, Boston.

Donaldson, G. (1995), "A new tool for boards: the strategic audit", *Harvard Business Review*, July-August, pp. 99-107.

Dooley, K. J., Bush, D., Anderson, J. C. and Rungtusanatham, M. (1990), "The United States' Baldrige Award and Japan's Deming Prize: two guidelines for total quality control", *Engineering Management Journal*, Vol. 2 No. 3, pp. 9-16.

Drucker, P. F. (1974), *Management - Tasks, Responsibilities, Practices*, Heinemann, London.

DTI and CBI. (1994), *Competitiveness - how the best UK companies are winning*, DTI and CBI, London.

Duncalf, A. J. and Dale, B. G. (1988), "Quality management effectiveness - an analytical approach", *International Journal of Operations & Production Management*, Vol. 8 No. 5, pp. 3-45.

Edwards, J. and Hodgson, A. (1994), "Amersham International Plc: stimulating participation in quality improvement", in Teare, R., Atkinson, C. and Westwood, C. (Eds.), *Achieving Quality Performance - Lessons from British Industry*, Cassell, London.

EFQM (European Foundation for Quality Management). (1992), *Total Quality Management, The European Model for Self-Appraisal: Guidelines for Identifying and Addressing Total Quality Issues*, Eindhoven, Netherlands.

Ehrenberg, R. H. and Stupak, R. J. (1994), "Total quality management: its relationship to administrative theory and organizational behaviour in the public sector", *Public Administration Quarterly*, Vol. 18 No. 1, pp. 75-98.

Eisenhardt, K. M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, 1989, pp. 532-550.

Ellram, L. and Edis, O. (1996), "A Case study of successful partnering implementation", *International Journal of Purchasing and Materials Management*, Vol. 32 No. 4, pp. 11-19.

Emery, C. R., Summers, T. P. and Surak, J. G. (1996), "The role of organizational climate in the implementation of total quality management", *Journal of Managerial Issues*, Vol. 8 No. 4, pp. 484-496.

Emory, C. W. and Cooper, D. R. (1991), *Business Research Methods*, 4th ed., Irwin, Homewood.

Eskildson, L. (1995), "TQM's role in corporate success: analysing the evidence", *National Productivity Review*, Autumn, pp. 25-38.

Fayol, H. (1949), *General & Industrial Management*, Pitman, London.

Feigenbaum, A. V. (1951), *Quality Control: Principles, practice and administration*, McGraw-Hill, New York.

Feigenbaum, A. V. (1961), *Total Quality Control: Engineering and management*, 2nd ed., McGraw-Hill, New York.

Feigenbaum, A. V. (1982), "Quality and business growth today", *Quality Progress*, November, pp. 22-25.

Feigenbaum, A. V. (1986), *Total Quality Control*, 3rd ed., McGraw-Hill, New York.

Feigenbaum, A. V. (1991), *Total Quality Control*, 4th ed., McGraw-Hill, New York.

- Feigenbaum, A. V. (1992), "TQM: health care can learn from other fields", *Hospitals*, Vol. 66 No. 22, pp. 56.
- Fenwick, A. C. (1991), "Five easy lessons: a primer for starting a total quality management program", *Quality Progress*, Vol. 24 No. 12, pp. 63-66.
- Ferdows, K. and De Meyer, A. (1990), "Lasting improvements in manufacturing performance: in search of a new theory", *Journal of Operations Management*, Vol. 9 No. 2, pp. 168-184.
- Fischer, D. H. (1970), *Historians' Fallacies: Toward a Logic of Historical Thought*, Harper & Row, New York.
- Fisher, K. and Spillane, J. A. (1991), "Quality and competitiveness", *Training & Development*, Vol. 45 No. 1, pp. 19-24.
- Fisher, T. J. (1992), "The impact of quality management on productivity", *International Journal of Quality & Reliability Management*, Vol. 9 No. 3, pp. 44-52.
- Flynn, B. B., Schroeder, R. G., Flynn, E. J. and Amundson, S. D. (1996), "Empirical Foundation for Examination of the Relationship Between Quality and Product Innovation Speed", in *Manufacturing Strategy, Operations Strategy in a Global Context*, London Business School, London.
- Follett, M. P. (1940), Metcalf, H. C. and Urwick, L. F. (Eds.), *Dynamic Administration*, Harper & Row, New York.
- Foster, M., Smith, S., Whittle, S. and Tranfield, D. (1994), "Regenerating your TQM effort: what to do when it runs out of steam?", *The TQM Magazine*, Vol. 6 No. 4, pp. 42-47.
- Frank, C. (1995), "Quest for Excellence VII", *Journal of Research of the National Institute of Standards and Technology*, Vol. 100 No. 3, http://www.nist.gov/quality_program/cr100-3.htm.
- Fredendall, L. D. and Robbins, T. L. (1995), "Modeling the role of total quality management in the customer focused organisation", *Journal of Managerial Issues*, Vol. 7 No. 4, pp. 403-419.
- Frehr, H. U. (1997), "From ISO 9000 to total quality management, a rough road", *Human Systems Management*, Vol. 16 No. 3, pp. 185-193.
- Friesecke, R. F. (1983), "The quality revolution: a challenge to management", *Managerial Planning*, Vol. 32 No. 1, pp. 7-9, 26.
- Fulmer, R. M. (1993), "The tools of anticipatory learning", *Journal of Management Development*, Vol. 12 No. 6, pp. 7-14.
- Gale, B. T. and Klavans, R. (1985), "Formulating a quality improvement strategy", *Journal of Business Strategy*, Vol. 5 No. 3, pp. 21-32.
- GAO (United States General Accounting Office). (1990), *Management Practices: U.S. Companies Improve Performance Through Quality Efforts*.
- Garvin, D. A. (1983), "Quality on the line", *Harvard Business Review*, September-October, pp. 65-75.
- Garvin, D. A. (1984), "What does product quality really mean ?", *Sloan Management Review*, Vol. 26 No. 1, pp. 25-43.
- Garvin, D. A. (1987), "Competing on the eight dimensions of quality", *Harvard Business Review*, November-December, pp. 101-109.

- Garvin, D. A. (1991), "How the Baldrige Award really works", *Harvard Business Review*, November-December, pp. 80-93.
- Geanuracos, J. and Meiklejohn, I. (1993), *Performance Measurement: The New Agenda*, Business Intelligence, London.
- Gerstner, E. (1985), "Do higher prices signal higher quality?", *Journal of Marketing Research*, Vo. 22 No. 5, pp. 209-215.
- Gharajedaghi, J. (1994), "Making TQM work for America", *Total Quality Review*, March/April, pp. 11-18.
- Ghobadian, A. (1993), *Integrating Operations Strategy and Quality Improvement: The Way Ahead*, Inaugural Professorial Lecture, Middlesex University.
- Ghobadian, A. and Gallear, D. N. (1996), "Total quality management in SMEs", *Omega - The International Journal of Management Science*, Vol. 24 No. 1, pp. 83-106.
- Ghobadian, A. and Gallear, D. (1997), "TQM and organisation size", *International Journal of Operations and Production Management*, Vol. 17 Nos. 1/2, pp. 121-163.
- Ghobadian, A., Gallear, D., Woo, H. and Liu, J. (1998), *Total Quality Management: Impact, Introduction and Integration Strategies*, CIMA Publishing, London.
- Ghobadian, A., Liu, J., Gallear, D and Woo, H. (1996), "Strategies for integrating quality and business processes", in *Proceedings of British Academy of Management Annual Conference*, Aston Business School, 16-18 September, pp. 8.11-8.36.
- Ghobadian, A. and Speller, S. (1994), "Gurus of quality: a framework for comparison", *Total Quality Management*, Vol. 5 No. 3, pp. 53-69.
- Ghobadian, A., Speller, S. and Jones, M. (1994a), "Service quality: concepts and models", *International Journal of Quality & Reliability Management*, Vol. 11 No. 9, pp. 43-66.
- Ghobadian, A. and Woo, H. S. (1994), *Comparing the Premier Quality Awards of Four Continents*, Middlesex University Business School Occasional Paper Number 13.
- Ghobadian, A. and Woo, H. S. (1996), "Characteristics, benefits and shortcomings of four major quality awards", *International Journal of Quality & Reliability Management*, Vol. 13 No. 2, pp. 10-45.
- Ghobadian, A., Woo, H. and Liu, J. (1994b), "Benefit, impact and shortcomings of the four major quality awards", in Case, K. and Newman, S. T. (Eds.), *Advances in Manufacturing Technology VIII*, Taylor & Francis, London.
- Gill, J. and Johnson, P. (1991), *Research Methods for Managers*, Paul Chapman Publishing Ltd, London.
- Gilmore, H. L. (1974), "Product conformance cost", *Quality Progress*, Vol. 7 No. 5, pp. 16-19.
- Glaser, B. G. and Strauss, A. L. (1967), *The Discovery of Grounded Theory*, Aldine, Illinois.
- Glover, T. (1993), "Achieving the organizational change necessary for successful TQM", *International Journal of Quality & Reliability Management*, Vol. 10 No. 6, pp. 47-64.
- Goh, P. L. and Ridgeway, K. (1994), "The implementation of total quality management in small and medium-sized manufacturing enterprises", *The TQM Magazine*, Vol. 6 No. 2, pp. 54-60.
- Golembiewski, R. T. and McConkie, M. (1975), "The centrality of interpersonal trust in group processes",

in Cooper, C. L. (Ed.), *Theories of Group Processes*, Wiley & Sons, New York.

Goodman, J. A., Broetzmann, S. M. and Ward, D. S. (1993), "Preventing TQM problems: measured steps toward customer-driven quality improvement", *National Productivity Review*, Vol. 12 No. 4., pp. 555-571.

Grant, R. M. (1991), "The resource-based theory of competitive advantage: implications for strategy formulation", *California Management Review*, Vol. 33 No. 3, pp. 114-135.

Grant, R. M., Shani, R. and Krishnan, R. (1994), "TQM's challenge to management theory and practice", *Sloan Management Review*, Vol. 35 No. 2, pp. 25-35.

Graves, D. (1993), "Forget the myths and get on with TQM - fast", *National Productivity Review*, Vol. 12 No. 3, pp. 301-311.

Green, S. G. and Welsh, M. A. (1988), "Cybernetics and dependence: reframing the control concept", *Academy of Management Review*, Vol. 13, No. 2, pp. 287-301.

Griffin, R. (1988), "Consequences of quality circles in an industrial setting: a longitudinal assessment", *Academy of Management Journal*, Vol. 31 No. 2, pp. 338-358.

Gronroos, C. (1983), *Strategic Management and Marketing in the Service Sector*, Marketing Science Institute, Cambridge, MA.

Gronroos, C. (1988), "Service quality: the six criteria of good perceived service quality", *Review of Business*, Vol. 9 No. 3, pp. 10-14.

Grocock, J. M. (1986), *The chain of quality: Market dominance through superior product quality*, Wiley, New York.

Gulick, L. H. and Urwick, L. F. (Eds.). (1937), *Papers on the Science of Administration*, Columbia University Press.

Gummesson, E. (1991), *Qualitative Methods in Management Research*, Sage Publications, London.

Gupta, A. K., Brockhoff, K. and Weisenfeld, U. (1992), "Making trade-offs in the new product development process: a German/US comparison", *Journal of Product Innovation Management*, Vol. 9 No. 1, pp. 11-19.

Gupta, V. K. and Graham, D. J. (1997), "A customer-driven quality improvement and management project at Diamond Offshore Drilling", *Project Management Journal*, Vol. 28 No. 3, pp. 22-28.

Hackman, J. and Wageman, R. (1995), "Total quality management: empirical, conceptual, and practical issues", *Administrative Science Quarterly*, Vol. 40 No. 2, pp. 309-334.

Haddad, C. J. (1996), "Operationalizing the concept of concurrent engineering: a case study from the U.S. auto industry", *IEEE Transactions on Engineering Management*, Vol. 43 No. 2, pp. 124-133.

Haefner, J. J. (1993), "TQM: implement a quality evolution, not revolution", *Executive*, Vol. 33 No. 5, pp. 14-19.

Hahn, C. K., Kim, K. H. and Kim, J. S. (1986), "Costs of competition: implications for purchasing strategy", *Journal of Purchasing and Materials Management*, Vol. 22 No. 3, pp. 2-7.

Hakes, C. (Ed.). (1991), *Total Quality Management: the key to business improvement*, Chapman Hall, London.

Halachmi, A. (1995/96), "The pros and cons of participating in a quality award program", *National*

Productivity Review, Vol. 15 No. 1, pp. 87-100.

Hamel, G. (1996), "Strategy as revolution", *Harvard Business Review*, July-August, pp. 69-82.

Hamel, G. and Prahalad, C. K. (1993), "Strategy as stretch and leverage", *Harvard Business Review*, March-April, pp. 75-84.

Hames, R. D. (1991), "Managing the process of cultural change", *International Journal of Quality & Reliability Management*, Vol. 8 No. 5, pp. 14-23.

Handy, C. B. (1985), *Understanding Organizations*, Penguin, Harmondsworth.

Hankes, J. (1993), "Great expectations", *Management Accounting*, Vol. 71 No. 8, pp. 28-33.

Hannagan, T. (1995), *Management Concepts & Practices*, Pitman Publishing, London.

Harari, O. (1993a), "Ten reasons why TQM doesn't work", *Management Review*, Vol. 82 No. 1, pp. 33-38.

Harari, O. (1993b), "The eleventh reason why TQM doesn't work", *Management Review*, Vol. 82 No. 5, pp. 31-36.

Harber, D., Burgess, K. and Barclay, D. (1993), "Total quality management as a cultural intervention: an integrative review", *International Journal of Quality & Reliability Management*, Vol. 10 No. 6, pp. 17-27.

Harre, R. (1981), "Expressive aspects of descriptions of others", in Antaki, C. (Ed.), *The psychology of ordinary explanations*, Academic Press, London, pp. 139-156.

Harte, H. G. and Dale, B. G. (1995a), "Total quality management in professional services: an examination. Part 1", *Managing Service Quality*, Vol. 5 No.4, pp. 38-43.

Harte, H. G. and Dale, B. G. (1995b), "Total quality management in professional services: an examination. Part 2", *Managing Service Quality*, Vol. 5 No. 5, pp. 43-48.

Hartley, J. L., Meredith, J. R., McCutcheon, D. and Kamath, R. R. (1997), "Suppliers' contributions to product development: an exploratory study", *IEEE Transactions on Engineering Management*, Vol. 44 No. 3, pp. 258-268.

Hatch, M. J. (1997), *Organization Theory - Modern, Symbolic and Postmodern Perspectives*, Oxford University Press, New York.

Hayes, N. (1997), *Successful Team Management*, International Thompson Business Press, London.

Hayes, R. H., Wheelwright, S. C. and Clark, K. B. (1988), *Dynamic Manufacturing*, Free Press, New York.

Haywood, M. (1992), "Effective training: toward a strategic approach", *Cornell Hotel & Restaurant Administration Quarterly*, Vol. 33 No. 6, pp. 43-54.

Haywood-Farmer, J. (1988), "A conceptual model of service quality", *International Journal of Operations and Production Management*, Vol. 8 No. 6, pp. 19-29.

Heath, P. M. (1990), "Quality - and how to achieve it", *Management Decision*, Vol. 28 No. 8, pp. 42-46.

Heberlein, T. A. and Baumgartner, R. (1978), "Factors affecting response rates to mailed questionnaires: a quantitative analysis of the published literature", *American Sociological Review*, No. 43, pp. 447-462.

Heilpern, J. D. and Nadler, D. A. (1992), "Implementing total quality management: a process of cultural

- change", in Nadler, D. (Ed.), *Organizational Architecture: Designs for Changing Organizations*, Jossey-Bass, San Francisco.
- Heinz, P. (1994), *Creating World Class Suppliers: Unlocking Mutual Competitive Advantage*, FT/Pitman Publishing, London.
- Heller, R. (1994), "Putting the total into total quality", *Management Today*, August, pp. 56-60.
- Helmer, O. and Rescher, N. (1959), "On the epistemology of the inexact sciences", *Management Science*, Vol. 6 No. 1, pp. 25-52.
- Hendricks, C. F. and Triplett, A. (1989), "TQM: strategy for '90s management", *Personnel Administrator*, Vol. 34 No. 12, pp. 42-48.
- Hendricks, K. B. and Singhal, V. R. (1996), "Quality awards and the market value of the firm: an empirical investigation", *Management Science*, Vol. 42 No. 3, pp. 415-436.
- Herzberg, F. (1987), "One more time: how do you motivate employees?", *Harvard Business Review*, Vol. 65 No. 5, pp. 109-120.
- Hiam, A. (1992), *Closing the Quality Gap: Lessons From America's Leading Companies*, Prentice-Hall, Englewood Cliffs.
- Hiam, A. (1993), "Strategic planning unbound", *Journal of Business Strategy*, Vol. 14 No. 2, pp. 47-52.
- Higginson, T. and Waxler, R. P. (1994), "Communication, commitment and corporate culture: the foundation for TQM and reengineering", *Industrial Management*, Vol. 36 No. 6, pp. 4-7.
- Hill, S. (1991), "How do you make a flexible firm? the total quality model", *Work, Employment and Society*, Vol. 5 No. 3, pp. 397-415.
- Hill, T. (1985), *Manufacturing Strategy*, Macmillan, London.
- Hinings, C. R. and Greenwood, R. (1988), *The Dynamics of Strategic Change*, Blackwell, Oxford.
- Hitchner, E. (1993), "A strategy for quality", *National Productivity Review*, Vol. 12 No. 4, pp. 573-579.
- Ho, S. K. and Fung, C. K. (1995), "Developing a TQM excellence model: part 2", *The TQM Magazine*, Vol. 7 No. 1, pp. 24-32.
- Hodge, B. J. and Anthony, W. P. (1991), *Organization Theory: A Strategic Approach*, 4th ed., Allyn and Bacon, Needham Heights.
- Hodgetts, R., Luthans, F. and Lee, S. M. (1994), "New paradigm organizations: from total quality to learning to world-class", *Organizational Dynamics*, Vol. 22 No. 2, pp. 4-19.
- Hofer, C. W. and Schendel, D. (1986), *Strategy Formulation: Analytical Concepts*, West Publishing Company, St. Paul.
- Hohner, G. (1993), "Quality leadership at Baxter Healthcare Corporation", *Industrial Engineering*, Vol. 25 No. 1, pp. 31-35.
- Holder, T. and Walker, L. (1993), "TQM implementation", *Journal of European Industrial Training*, Vol. 17 No. 7, pp. 18-21.
- Holpp, L. (1989), "10 reasons why total quality is less than total", *Training*, Vol. 26 No. 10, pp. 93-103.

- Homans, G. C. (1951), *The Human Group*, Routledge & Kegan Paul, London.
- Honeycutt, A. (1993), "Total quality management at TRW", *Journal of Management Development*, Vol. 12 No. 5, pp. 3-11.
- Huczynski, A. (1987), *Encyclopedia of Organizational Change Methods*, Gower, Aldershot.
- Huczynski, A. and Buchanan, D. (1991), *Organizational Behaviour*, Prentice Hall International, Hemel Hempstead.
- Hudetz, F. C. (1994/1995), "Self-actualization and self-esteem are the highest order of incentives", *Small Business Forum*, Vol. 12 No. 3, pp. 73-75.
- Hunt, V. D. (1993), *Managing for Quality*, Business One Irwin, Homewood.
- Hunter, L. and Beaumont, P. B. (1993), "Implementing TQM: top down or bottom up?", *Industrial Relations Journal*, Vol. 24 No. 4, pp. 318-327.
- Hunter, W. G., O'Neill, J. K. and Walter, C. (1987), "Doing more with less in the public sector", *Quality Progress*, July, pp. 19-26.
- Hutt, G. (1994), "Incorporating quality performance objectives into performance appraisal systems", *The TQM Magazine*, Vol. 6 No. 1, pp. 8-12.
- Huxtable, N. (1995), *Small Business Total Quality*, Chapman and Hall, London.
- IDS. (1990), *Total Quality Management*, Study 457, May, Incomes Data Services Ltd, London.
- Imai, M. (1986), *Kaizen: The key to Japan's competitive success*, McGraw-Hill, New York.
- Instone, F. J. and Dale, B. G. (1989), "A case study of the typical issues involved in quality improvement", *International Journal of Operations & Production Management*, Vol. 9 No. 1, pp. 15-26.
- Irani, Z., Sharp, J. M. and Kagioglou, M. (1997), "Improving business performance through developing a corporate culture", *The TQM Magazine*, Vol. 9 No. 3, pp. 206-216.
- Ishikawa, K. (1985), *What is Total Quality Control? The Japanese way*, Prentice-Hall, London.
- Ivanovic, A. (1988), *Dictionary of Personnel Management*, Peter Collin Publishing, Middlesex.
- Jacoby, J., Olsen, J. C. and Haddock, R. A. (1973), "Price, brand name and product composition characteristics as determinants of perceived quality", *Journal of Applied Psychology*, Vol. 55 No. 6, pp. 570-579.
- James, G. (1992), "Quality of working life and total quality management", *International Journal of Manpower*, Vol. 13 No. 1, pp. 41-58.
- Janis, I. L. (1977), *Victims of Groupthink*, Houghton Mifflin, Boston.
- Janis, I. L. (1982) *Victims of Groupthink: A Psychological Study of Foreign Policy Decisions and Fiascos*, 2nd ed., Houghton Mifflin, Boston.
- Johannsen, H. (1990), *International Dictionary of Management*, 4th ed., Kogan Page, London.
- Johnson, J. G. (1991), "The culture clock: TQM and doing the right thing right at the right time", *Journal for Quality & Participation*, Vol. 14 No. 6, pp. 10-14.

- Johnson, G. and Scholes, K. (1989), *Exploring corporate strategy: text and cases*, Prentice Hall International, Hemel Hempstead.
- Johnson, R. and Kleiner, B. H. (1993), "New developments in TQM", *Work Study*, Vol. 42 No. 6, pp. 5-9.
- Johnston, C. G. and Daniel, M. J. (1991), "Customer satisfaction through quality", *Canadian Business Review*, Vol. 18 No. 4, pp. 12-15.
- Jordan, J. (1992-1993), "Everything you wanted to know about TQM", *Public Manager*, Vol. 21 No. 4, pp. 45-48.
- Jones, C. (1992), "Developing a total quality strategy", *Management Services*, Vol. 36 No. 3, pp. 22-27.
- Juran, J. M. (1951), *Quality Control Handbook*, McGraw-Hill, New York.
- Juran, J. M. (1986), "A universal approach to managing for quality - the quality trilogy", *Quality Progress*, August, pp. 19-24.
- Juran, J. M. (1992), *Juran on quality by design: The new steps for planning quality into goods and services*, Free Press, New York.
- Juran, J. M. (1993), "Made in U.S.A.: a renaissance in quality", *Harvard Business Review*, August, pp. 42-50.
- Juran, J. M., Gryna, F. M. and Bingham, R. S. (Eds). (1974), *Quality Control Handbook*, 3rd ed., McGraw-Hill, New York.
- Juran, J. M. and Gryna Jr, F. M. (Eds.). (1988), *Juran's Quality Control Handbook*, 4th ed., McGraw-Hill, New York.
- JUSE (Union of Japanese Scientists and Engineers). (1990), *The Deming Prize Guide for Overseas Companies*, Tokyo, Japan.
- Kane, E. J. (1992), "Implementing TQM at Dun & Bradstreet Software", *National Productivity Review*, Vol. 11 No. 3, pp. 405-416.
- Kanji, G. K. and Asher, M. (1993), *Total Quality Management Process: A Systematic Approach*, Carfax Publishing, Abingdon.
- Kano, N. (1993), "A perspective on quality activities in American firms", *California Management Review*, Spring, Vol. 35 No. 3, pp. 12-31.
- Kanter, R. H. (1989), "How the kinder, more cooperative corporation wins", *Working Woman*, Vol. 14 No. 5, pp. 118-120.
- Kasul, R. A. and Motwani, J. G. (1995), "Total quality management in manufacturing", *International Journal of Quality & Reliability Management*, Vol. 12 No. 3, pp. 57-76.
- Kathawala, Y. (1989), "A comparative analysis of selected approaches to quality", *International Journal of Quality & Reliability Management*, Vol. 6 No. 5, pp. 7-17.
- Kekale, T. and Kekale, J. (1995), "A mismatch of cultures: a pitfall of implementing a total quality approach", *International Journal of Quality & Reliability Management*, Vol. 12 No. 9, pp. 210-220.
- Kendrick, J. J. and Heckel, J. (1988), "Hewlett-Packard's quest for quality: built-in production quality at Greeley", *Quality*, Vol. 27 No. 1, pp. 16-21.

- Kennedy, C. (1989), "Xerox charts a new strategic direction", *Long Range Planning*, Vol. 22 No. 1, pp. 10-17.
- Kets de Vries, M. and Miller, D. (1984), *The Neurotic Organization*, Jossey Bass, San Francisco.
- Kharbanda, O. P. and Stallworthy, E. A. (1990), "A review of statistical and mathematical techniques in decision making and a call for "lateral thinking"", *Management Decision*, Vol. 28 No. 4, pp. 29-35.
- Kilmann, R., Saxton, M. and Serpa (1985), "Gaining control", in Schein, E. (Ed.), *Organisational Culture and Leadership*, Jossey-Bass, San Francisco.
- Kim, K. Y., Miller, J. G. and Heineke, J. (1997), "Mastering the quality staitcase, step by step", *Business Horizons*, January-February, Vol. 40 No. 1, pp. 17-21.
- Kim, P. S., Pindur, W. and Reynolds, K. (1995), "Creating a new organizational culture: the key to total quality management in the public sector", *International Journal of Public Administration*, Vol. 18 No. 4, pp. 675-709.
- Kim, W. C. and Mauborgne, R. (1997), "Opportunity beckons", *Financial Times*, August 18, p. 8.
- King, B. (1989), *Hoshin* Planning: The Developmental Approach*, GOAL/QPC, Methuen, MA.
- Koontz, H. (1961), "The management theory jungle", *Journal of the Academy of Management*, Vol. 4 No. 3, pp. 182-186.
- Koontz, H. (Ed.). (1964), *Toward a Unified Theory of Management*, McGraw-Hill, New York.
- Kordupleski, R. E., Rust, R. T. and Zahorik, A. J. (1993), "Why improving quality doesn't improve quality (or whatever happened to marketing?)", *California Management Review*, Spring, Vol. 35 No. 3, pp. 82-95.
- Kotter, J. P. and Heskett, J. L. (1992), *Corporate Culture and Performance*, Free Press, New York.
- Krausz, E. and Miller, S. H. (1974), *Social Research Design*, Longman, London.
- Krishnan, R., Shani, A. B. and Grant, R. B. (1993), "In search of quality improvement: problems of design and implementation", *The Academy of Management Executive*, Vol. 7 No. 4, pp. 7-21.
- Krygier, A. (1993), "TQM - a world view", *Journal of Management Development*, Vol. 12 No. 7, pp. 36-39.
- Kuhn, T. S. (1970), *The Structure of Scientific Revolutions*, 2nd Ed., University of Chicago Press, Chicago.
- Kwok, D. (1990), "TQM and the Australian CEOs", *Quality*, November, pp. 14-15.
- Laing, R. D. (1967), *The Politics of Experience and the Birds of Paradise*, Penguin, Harmondsworth.
- Lakhe, R. R. and Mohanty, R. P. (1995), "Understanding TQM", *Production Planning & Control*, Vol. 5 No. 5, pp. 426-441.
- Lakhe, R. R. and Mohanty, R. P. (1995), "Understanding TQM in service systems", *International Journal of Quality & Reliability Management*, Vol. 12 No. 9, pp. 139-153.
- Lamming, R. (1993), *Beyond Partnership: Strategies for Innovation and Lean Supply*, Prentice Hall, Hemel Hempstead.
- Landeros, R. and Monczka, R. M. (1989), "Cooperative Buyer/seller relationships and a firm's competitive posture", *Journal of Purchasing and Materials Management*, Vol. 25 No. 3, pp. 9-18.

- Landeros, R., Reck, R. and Plank, R. E. (1995), "Maintaining buyer-supplier partnerships", *International Journal of Purchasing and Materials Management*, Vol. 31 No. 3, pp. 3-11.
- Lang, H. and Lefebvre, B. (1991), "Total quality concept", *International Journal of Technology Management*, Vol. 6 Nos. 1/2, pp. 149-154.
- Lant, T. K. and Montgomery, D. B. (1987), "Learning from strategic success and failure", *Journal of Business Research*, Vol. 15, pp. 503-518.
- Lascelles, D. M. and Dale, B. G. (1988), "A review of the issues involved in quality improvement", *International Journal of Quality & Reliability Management*, Vol. 5 No. 5, pp. 76-94.
- Lascelles, D. and Dale, B. (1990a), "Quality management: the Chief Executive's perception and role", *European Management Journal*, Vol. 8 No. 1, pp. 67-75.
- Lascelles, D. M. and Dale, B. G. (1990b), "The use of quality management techniques", *Quality Forum*, Vol. 16 No. 4, pp. 188-192.
- Lawler, E. (1986), *High Involvement Management*, Jossey-Bass, San Francisco.
- Lawler III, E. E., Mohrman, S. A. and Ledford Jr, G. E. (1992), *Employee Involvement and Total Quality Management: Practices and Results in Fortune 1000 Companies*, Jossey-Bass, San Francisco.
- Leavitt, H. J. (1954), "A note on some experimental findings about the meanings of price", *Journal of Business*, Vol. 27 No. 7, pp. 205-206.
- Lee, S. M., Luthans, F. and Hodgetts, R. M. (1992), "Total quality management: implications for Central and Eastern Europe", *Organizational Dynamics*, Vol. 20 No. 4, pp. 42-55.
- Leonard, F. S. and Sasser, W. E. (1982), "The incline of quality", *Harvard Business Review*, September-October, pp. 163-171.
- Letza, S. and Zain, M. (1994), "TQM and business performance - is there a link?", *Business Executive*, Vol. 8 No. 46, pp. 10-11.
- Levine, C. (1993), "How TQM worked for one firm", *Journal of Accounting*, Vol. 176 No. 3, pp. 73-79.
- Levinthal, D. A. and March, J. G. (1981), "A model of adaptive organizational search", *Organization Science*, Vol. 2, pp. 307-333.
- Levitt, B. and March, J. G. (1988), "Organizational learning", *Annual Review of Sociology*, Vol. 14, pp. 319-40.
- Levitt, T. (1972), "Production-line approach to service", *Harvard Business Review*, Vol. 50 No. 5, pp. 41-52.
- Lewis, D. (1996a), "The organizational culture saga - from OD to TQM: a critical review of the literature", *Leadership & Organization Development Journal*, Vol. 17 No. 1, pp. 12-19.
- Lewis, D. (1996b), "Part 2 - applications", *Leadership & Organization Development Journal*, Vol. 17 No. 2, pp. 9-16.
- Linkow, P. (1989), "Is your culture ready for total quality?", *Quality Progress*, Vol. 22 No. 11, pp. 69-71.
- Linstone, H. A. and Turoff, M. (1975), *The Delphi Method: Techniques and Applications*, Addison Wesley Publishing Company, Reading, MA.

- Lockhart, D. C. (Ed.) (1984), *Making Effective Use of Mailed Questionnaires*, Jossey-Bass, San Francisco.
- Lockyer, K. (1986), "Service - a polemic and proposal", *International Journal of Operations & Production Management*, Vol. 6 No. 3, pp. 5-9.
- Logothesis, N. (1992), *Managing for Total Quality*, Prentice Hall, Hemel Hempstead.
- Longenecker, C. O. and Scazzero, J. A. (1993), "Total quality management from theory to practice: a case study", *International Journal of Quality & Reliability Management*, Vol. 10 No. 5, pp. 24-31.
- Luchs, R. (1986), "Successful businesses compete on quality not costs", *Long Range Planning*, Vol. 19 No. 1, pp. 12-17.
- Maccoby, M. (1990), "How to be a quality leader", *Research-Technology Management*, Vol. 33 No. 5, pp. 51-52.
- MacBeth, D. K. (1992), "Winning production's battle", *Management Today*, April, pp. 76-79.
- MacBeth, D. K. (1994), *Partnership Sourcing: An Integrated Supply Chain Management Approach*, Pitman Publishing, London.
- MacDonald, J. (1995), "Customer care is not good enough", *The TQM Magazine*, Vol. 7 No. 4, pp. 5-8.
- Madu, C. N., Kuei, C-H. and Madu, A. N. (1991), "Setting priorities for the IT industry in Taiwan - a Delphi study", *Long Range Planning*, Vol. 24 No. 5, pp. 105-118.
- Main, J. (1986), "Under the spell of the quality gurus", *Fortune*, August 18, pp. 24-27.
- Main, J. (1994), *Quality Wars: The Triumphs and Defeats of American Business*, The Free Press, New York.
- Mallinger, M. (1993), "Ambush along the TQM trail", *Journal of Organizational Change Management*, Vol. 6 No. 4, pp. 30-42.
- Mani, B. G. (1995), "Old wine in new bottles tastes better: a case study of TQM implementation in the IRS", *Public Administration Review*, Vol. 55 No. 2, pp. 147-158.
- Mann, R. S. and Kehoe, D. F. (1994a), "An evaluation of the effects of quality improvement activities on business performance", *International Journal of Quality & Reliability Management*, Vol. 11 No. 4, pp. 29-44.
- Mann, R. S. and Kehoe, D. F. (1994b), "The quality improvement activities of total quality management (paper 1)", *Quality World Technical Supplement*, March, pp. 43-56.
- Mann, R. S. and Kehoe, D. F. (1994c), "The implementation of total quality management (paper 2)", *Quality World Technical Supplement*, March, pp. 57-66.
- Mann, R. S. and Kehoe, D. F. (1995), "Factors affecting the implementation and success of TQM", *International Journal of Quality & Reliability Management*, Vol. 12 No. 1, pp. 11-23.
- Manni, K. E., Putterill, M. S. and Sluti, D. G. (1994), "Empirical analysis of quality improvement in manufacturing", *International Journal of Quality & Reliability Management*, Vol. 11 No. 7, pp. 19-37.
- Marash, S. E. (1993), "The key to TQM and world-class competitiveness, part 1", *Quality*, September, pp. 37-39.
- March, J. G. (1991), "Exploration and exploitation in organizational learning", *Organization Science*, Vol.

2 No. 1, pp. 71-87.

Mattsson, J. (1992), "A service quality model based on ideal value standard", *International Journal of Service Industry Management*, Vol. 3 No. 3, pp.18-33.

Mayo, E. (1960), *The Human Problems of an Industrial Civilization*, The Viking Press, New York.

McCabe, D. (1996), "The best laid schemes o' TQM: strategy, politics and power", *New Technology, Work and Employment*, Vol. 11 No. 1, pp. 28-38.

McConnell, J. D. (1968), "An experimental examination of the price-quality relationship", *Journal of Business*, Vol. 41 No. 10, pp. 439-444.

McCormick, D. and Milford, P. (1990), "A vision of quality at US West", *Journal for Quality & Participation*, Jan/Feb, pp. 14-17.

McKiernan, P. and Morris, C. (1994), "Strategic planning and financial performance in UK SMEs: does formality matter?", *British Journal of Management*, Vol. 5 Special Issue, pp. 531-541.

McMillan, I. C. (1975), "Strategy and flexibility in the smaller business", *Long Range Planning*, Vol. 8 No. 3, pp. 62-63.

McNabb, D. E. and Sepic, F. T. (1995), "Culture, climate, and total quality management: measuring readiness for change", *Public Productivity & Management Review*, Vol. 18 No. 4, pp. 369-385.

McReynolds, J. S. and Fern, R. H. (1992), "Improve operations by benchmarking 'best-practice' companies", *Corporate Controller*, Vol. 4 No. 5, pp. 20-24.

Mears, P. (1993), "How to stop talking about, and begin progress toward, total quality management", *Business Horizons*, May-June, Vol. 16 No. 6, pp. 11-14.

Meinol, J. R. and Ehrlich, S. B. (1987), "The romance of leadership and the evaluation of organizational performance", *Academy of Management Journal*, Vol. 30 No. 1, pp.91-109.

Mels, G., Boshoff, C. and Nel, D. (1997), "The dimensions of service quality: the original European perspective revisited", *The Service Industries Journal*, Vol. 17 No. 1, pp. 173-189.

Meyer, A. D. and Starbuck, W. H. (1991), "Organisations and industries in flux: the interplay of rationality and ideology", *Working paper*, University of Oregon.

Milakovich, M. E. (1990), "Total quality management for public sector productivity improvement", *Public Productivity and Management Review*, Vol. 14 No. 1, pp. 19-32.

Miller, D. (1990), *The Icarus Paradox: How Exceptional Companies Bring About Their Own Downfall*, Harper Collins, New York.

Miller, D. (1993), "The architecture of simplicity", *Academy of Management Review*, Vol. 18, pp. 116-138.

Miller, D. (1994), "What happens after success: the perils of excellence*", *Journal of Management Studies*, Vol. 31 No. 3, pp. 325-358.

Miller, D. and Friesen, P. H. (1984), *Organizations: A Quantum View*, Prentice-Hall, Englewood Cliffs.

Mintzberg, H. (1973), "Strategy-making in three modes", *California Management Review*, Vol. 16 No. 2, pp.44-53.

- Mintzberg, H. (1979), *The Structuring of Organizations*, Prentice-Hall, Englewood Cliffs.
- Mintzberg, H. (1980), *The Nature of Managerial Work*, Prentice-Hall, Englewood Cliffs.
- Mintzberg, H. (1987), "Crafting strategy", *Harvard Business Review*, July-August, pp. 66-75.
- Mintzberg, H. (1996), "Five Ps for strategy", in Mintzberg, H. and Quinn, J. B. (Eds.), *The Strategy Process - Concepts, Contexts, Cases*, Prentice Hall, Inc., 3rd ed., New Jersey, pp. 10-17.
- Mintzberg, H. and Quinn, J. B. (1991), *The Strategy Process*, 2nd ed., Prentice Hall, New Jersey.
- Mizuno, S. (1988), *Management for Quality Improvement: The Seven New QC Tools*, Productivity Press, Cambridge, MA.
- Mohrman, S. A., Tenkasi, R. V., Lawler III, E. E. and Ledford Jr, G. E. (1995), "Total quality management: practice and outcomes in the largest US firms", *Employee Relations*, Vol. 17 No. 3, pp. 26-41.
- Moreno-Luzon, M. D. (1993), "Can total quality management make small firms competitive", *Total Quality Management*, Vol. 4, No. 2, pp. 165-181.
- Morgan, G. (Ed.) (1983), *Beyond Method*, Sage, London.
- Morrow, P. C. (1997), "The measurement of TQM principles and work-related outcomes", *Journal of Organizational Behaviour*, Vol. 18 No 4, pp. 363-376.
- Mortiboys, R. J. (1984), "When quality is considered why buy British", *International Journal of Quality & Reliability Management*, Vol. 1 No. 1, pp. 15-19.
- Mortiboys, R. and Oakland, J. S. (1992), *Total Quality Management and Effective Leadership*, (UK) Department of Trade and Industry.
- Mower, J. C. and Wilemon, D. (1989), "Rewarding technical teamwork", *Research-Technology Management*, Vol. 32 No. 5, pp. 24-29.
- Munroe-Faure, L. and Munroe-Faure, M. (1992), *Implementing Total Quality Management*, Pitman, London.
- Myers, K. and Ashkenas, R. (1993), "Results-driven quality. . .now!", *Management Review*, Vol. 82 No. 3, pp. 40-44.
- Nagel, J. R. (1994), "TQM and the Pentagon", *Industrial Engineering*, Vol. 26 No. 12, pp. 57-59.
- Nakhai, B. and Neves, J. S. (1994), "The Deming, Baldrige, and European Quality Awards", *Quality Progress*, Vol. 27 No. 4, pp. 33-37.
- Nelson, K. (1991), "Building in quality", *Canadian Business Review*, Vol. 18 No. 4, pp. 22-25.
- Newall, D. and Dale, B. G. (1991), "The introduction and development of a quality improvement process: a study", *International Journal of Production Research*, Vol. 29 No. 9, pp. 1747-1760.
- NIST (National Institute of Standards and Technology). (1993), *Application Guidelines for the Malcolm Baldrige National Quality Award*.
- Oakland, J. S. (1989), *Total Quality Management*, Heinemann, London.
- Oakland, J. S. (1993), *Total Quality Management*, Butterworth Heinemann, Oxford.

Oakland, J. S. and Beardmore, D. (1995), "Best practice customer service", *Total Quality Management*, Vol. 6 No. 2, pp. 135-148.

Oakland, J. S. and Porter, L. J. (1994), *Cases in Total Quality Management*, Butterworth Heinmann, Oxford.

Oakland, J. S., Zairi, M. and Letza, S. R. (1994), "TQM and Bottom line results", *Quality World*, September, pp.600-604.

ODI. (1987), *Total Quality - The ODI Survey*, ODI Limited, Bristol.

Olshfski, D. and Joseph, A. (1991), "Assessing training needs of executives using the Delphi technique", *Public Productivity and Management Review*, Vol. 14 No. 3, pp. 297-301.

Ouchi, W. (1981), *Theory Z*, Addison-Wesley, Reading, MA.

Palmer, R. and Wilson, J. P. (1995), "Maintaining the energy for commitment to quality", *Training for Quality*, Vol. 3 No. 2, pp. 9-13.

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1985), "A conceptual model of service quality and its implications for future research", *Journal of Marketing*, Vol. 49 No. 4, pp. 41-50.

Parker, M. and Slaughter, J. (1993), "Should the labour movement buy TQM?", *Journal of Organizational Change Management*, Vol. 6 No. 4, pp. 43-56.

Parks, B., Olson, P. D. and Bokor, D. W. (1991), "Don't mistake business plans for planning", *Journal of Small Business Strategy*, Vol. 2 No. 1, pp. 15-24.

Partlow, C. G. (1993), "How Rotz-Carlton applies 'TQM'", *Cornell Hotel & Restaurant Administration Quarterly*, Vol. 34 No. 4, pp. 16-24.

Pasternak, D. P. and Berry, J. A. (1994), "Health care's multiple dimensions of quality", *Quality Progress*, Vol. 26 No. 12, pp. 87-91.

Patel, A. (1993), "Total quality management (TQM): paving the way for future training?", *Industrial and Commercial Training*, Vol. 25 No. 2, pp. 23-32.

Payne, S. L. (1951), *The Art of Asking Questions*, Princeton University Press, Princeton.

Pearce II, J. A. and Robinson Jr, R. B. (1988), *Strategic Management - Strategy Formulation and Implementation*, Richard D Irwin Inc, Homewood.

Peckron, H. S. (1971), "Quality control program synthesis", *Marquette Business Review*, Vol. 14 No. 2, pp. 192-203.

Pegels, C. C. (1994), "Total quality management defined in terms of reported practice", *International Journal of Quality & Reliability Management*, Vol. 11 No. 5, pp. 6-18.

Penzer, E. (1991), "Big ideas come in small packages", *Incentive*, June, pp. 34, 38-39, 103.

Peters, T. J. and Austin, N. (1985), *A Passion for Excellence*, Collins, Oxford.

Peters, T. J. and Waterman. R. H. (1982), *In Search of Excellence*, Harpers & Row, London.

Pfau, L. D. (1989), "Total quality management gives companies a way to enhance position in global marketplace", *Industrial Engineering*, Vol. 21 No. 4, pp. 77-87.

- Phillips, L. W., Chang, D. R. and Buzzell, R. D. (1983), "Product quality, cost position and business performance: a test of some key hypotheses", *Journal of Marketing*, Vol. 47 No. 2, pp. 26-43.
- Pike, J. and Hewins, M. (1992), "Calculating the benefits", *The TQM Magazine*, Vol. 4 No. 5.
- PIMS. (1978), *Formulating a quality improvement strategy*, Letter No. 4, p. 4, and Letter No. 31, p. 5.
- Pitman, G. A., Motwani, J. G and Schliker, D. (1994), "Total quality management in the American defence industry - a case study", *International Journal of Quality & Reliability Management*, Vol. 11 No. 9, pp. 101-108.
- Pitmann, G. (1993), "Everyday excellence at Premier Bancorp", *Bank Marketing*, Vol. 25 No. 4, pp. 10-16.
- Plank, R. E. (1993), "Cross-functional issues in selling and sales management", in *Proceedings of the 1993 Academy of Marketing Science*, Miami, FL, pp. 114-118.
- Pondy, L. R. and Huff, A. S. (1988), "Budget cutting in Riverside: emergent policy reframing as a process of conflict minimization", in Pondy, L. R., Boland, R. J. and Thomas, H. (Eds.), *Managing Ambiguity and Change*, Wiley, New York, pp. 177-200.
- Poole, M. S. and Van de Ven, A. H. (1989), "Using paradox to build management and organisation theories", *Academy of Management Review*, Vol. 14 No. 4, pp. 562-578.
- Porter, L. J. and Parker, A. J. (1993), "Total quality management - the critical success factors", *Total Quality Management*, Vol. 4 No. 1, pp. 13-22.
- Porter, M. E. (1980), *Competitive Strategy, Techniques for Analysing Industries and Competitors*, The Free Press, New York.
- Porter, M. E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York.
- Powell, T. C. (1995), "Total quality management as competitive advantage: a review and empirical study", *Strategic Management Journal*, Vol. 16 No. 1, pp. 15-37.
- Prahalad, C. K. and Hamel, G. (1990), "The core competence of the corporation", *Harvard Business Review*, May-June, pp. 79-91.
- Preston, A. P. and Saunders, I. W. (1994), "Understanding quality leadership", *Asia Pacific Journal of Quality Management*, Vol. 3 No. 1, pp. 24-42.
- Price, M. J. and Chen, E. E. (1993), "Total quality management in a small high technology company", *California Management Review*, Vol. 35 No. 3, pp. 96-117.
- Pugh, D. S. (Ed.) (1971), *Organisation Theory: Selected Readings*, Penguin, Harmondsworth.
- Pulat, B. M. (1994), "Total quality management: a framework for application in manufacturing", *The TQM Magazine*, Vol. 6 No. 1, pp. 44-49.
- Pye, A. (1988), "Management training: acts of faith, scenes of competence", *Journal of General Management*, Vol. 13 No. 4, pp. 74-88.
- Quinn, J. B. (1980), *Strategies for Change*, Irwin, Homewood.
- Quinn, J. B. (1996), "Strategies for change", in Mintzberg, H. and Quinn, J. B. (Eds.), *The Strategy Process - Concepts, Contexts, Cases*, Prentice Hall, Inc., 3rd ed., New Jersey, pp. 3-10.

Quinn, J. B. and Hilmer, F. G. (1996), "Core competencies and strategic outsourcing", in Mintzberg, H. and Quinn, J. B. (Eds.), *The Strategy Process - Concepts, Contexts, Cases*, Prentice Hall, Inc., 3rd ed., New Jersey, pp. 63-73.

Radel, R. J., Hunter, S. R. and Mitchell, R. D. (1994), "The road to quality travelled by the TVA's Environmental Research Center", *National Productivity Review*, Vol. 13 No. 3, pp. 399-415.

Radovilsky, Z. D., Gotcher, J. W. and Slattsveen, S. (1996), "Implementing total quality management: statistical analysis of survey results", *International Journal of Quality & Reliability Management*, Vol. 13 No. 1, pp. 10-23.

Raisbeck, I. (1994), "Making customer satisfaction a business priority at the UK's Royal Mail", *Managing Service Quality*, Vol. 4 No. 5, pp. 13-15.

Rau, H. (1995), "15 years and still going . . .", *Quality Progress*, Vol. 28 No. 7, pp. 57-59.

Ray, P. K. and Sahu, S. (1989), "Productivity management in India: a Delphi study", *International Journal of Operations and Production Management*, Vol. 10 No. 5, pp. 25-51.

Rayner, P. and Porter, L. J. (1991), "BS5750/ISO9000 - the experience of small and medium-sized firms", *International Journal of Quality & Reliability Management*, Vol. 8, No. 6, pp. 16-28.

Raynor, M. E. (1992), "Quality as a strategic weapon", *Journal of Business Strategy*, Vol. 13 No. 5, pp. 3-9.

Reeves, C. A. and Bednar, D. A. (1994), "Defining quality: alternatives and implications", *Academy of Management Review*, Vol. 19 No. 3, pp. 419-445.

Reger, R. K., Gustafson, L. T., DeMarie, S. M. and Mullane, J. V. (1994), "Reframing the organisation: why implementing total quality is easier said than done", *Academy of Management Review*, Vol. 19 No. 3, pp. 565-584.

Reichheld, F. F. and Sasser, W. E. (1990), "Zero defections: quality comes to services", *Harvard Business Review*, Vol. 68 No. 5, pp. 105-111.

Reinmann, C. W. (1989), "Baldrige Award, Deming Prize: a clear distinction", *Quality Progress*, April, pp. 10-11.

Reisz, P. C. (1979), "Price-quality correlations for packaged food products", *Journal of Consumer Affairs*, Vol. 13 Winter, pp. 236-247.

Rigg, M. (1993), "Organization change and individual behaviour", *Industrial Engineering*, December, pp. 12-13.

Robinson, R. (1982), "The importance of 'outsiders' in small firm strategic planning", *Academy of Management Journal*, Vol. 25 No. 1, pp. 80-93.

Robinson, S. (1991), "Reversing the role", *The TQM Magazine*, Vol. 3 No. 5, pp. 297-299.

Robson, M. (1989a), *The Journey to Excellence*, Wiley, Chichester.

Robson, M. (1989b), "Quality management and the management of quality", *Journal for Quality & Participation*, Vol. 12 No. 1, pp. 70-73.

Rodrigues, C. A. (1994), "Employee participation and empowerment programs", *Empowerment in Organizations*, Vol. 2 No. 2, pp. 29-40.

- Roland, C., Cronin, K., Guberman, C. and Morgan, R. (1997), "Insights into improving organizational performance", *Quality Progress*, Vol. 30 No. 3, pp. 82-85.
- Rosenberg, J. M. (1978), *Dictionary of Business and Management*, Wiley, New York.
- Ross, J. E. (1993), *Total Quality Management: Text, Cases and Readings*, St. Lucie Press, Delray Beach, FL.
- Ross, J. E. and Shetty, Y. K. (1985), "Making quality a fundamental part of strategy", *Long Range Planning*, Vol. 18 No. 1, pp. 53-58.
- Ross, P. J. (1989), *Taguchi Techniques for Quality Engineering*, McGraw-Hill, New York.
- Roth, W. (1991), "Why aren't leaders leading ?", *Journal for Quality and Participation*, Vol. 14 No. 3, pp. 76-80.
- Roufaiel, N. S. and Meissner, M. (1995), "Self-managing teams - a pipeline to quality and technology management", *Benchmarking for Quality Management & Technology*, Vol. 2 No. 1, pp. 21-37.
- Rubin, I. and Inguagiato, R. (1991), "Changing the work culture", *Training and Development*, Vol. 45 No. 7, pp. 57-60.
- Rumelt, R. R. (1996), "Evaluating business strategy", in Mintzberg, H. and Quinn, J. B. (Eds.), *The Strategy Process - Concepts, Contexts, Cases*, Prentice Hall, Inc., 3rd ed., New Jersey, pp. 55-63.
- Saraph, J. V., Benson, G. and Schroeder, R. G. (1989), "An instrument for measuring the critical factors of quality management", *Decision Sciences*, Vol. 20 No. 4, pp. 810-829.
- Saraph, J. V. and Sebastian, R. J. (1993), "Developing a quality culture", *Quality Progress*, Vol. 26 No. 9, pp. 73-78.
- Sathe, V. (1983), "Implications of corporate culture: a manager's guide to action", *Organizational Dynamics*, Autumn, pp. 5-23.
- Scala, S. and McGrath, R. (1993), "Advantages and disadvantages of electronic data interchange: an industry perspective", *Information and Management*, Vol. 25 No. 2, pp. 85-91.
- Schaffer, R. H. and Thomson, H. A. (1992), "Successful change programs begin with results", *Harvard Business Review*, January-February, pp. 80-89.
- Scheidt, A. and Amsler, G. M. (1995), "Military pharmacy looks to TQM to satisfy its customers", *National Productivity Review*, Vol. 14 No. 2, pp. 47-56.
- Schein, E. (1984), "Coming to a New awareness of organizational culture", *Sloan Management Review*, Winter, pp. 3-16.
- Schmidt, W. H. and Finnigan, J. P. (1992), *The Race Without a Finish Line*, Jossey Bass Inc, San Francisco.
- Schoeffler, S., Buzzell, R. D. and Heany, D. F. (1974), "Impact of strategic planning on profit performance", *Harvard Business Review*, March-April, pp. 137-145.
- Schonberger, R. J. (1992), "Is strategy strategic? impact of total quality management on strategy", *Academy of Management Executive*, Vol. 6 No. 3, pp. 80-87.
- Schonberger, R. J. (1994), "Total quality: teammanship over leadership", *Benchmarking for Quality Management & Technology*, Vol. 1 No. 1, pp. 38-47.

- Schuman, H. and Presser, S. (1981), *Questions and Answers in Attitude Surveys*, Academic Press, San Diego.
- Schwartz, H. and Davis, S. M. (1981), "Matching corporate culture and business strategy", *Organizational Dynamics*, Summer, pp. 30-48.
- Scurr, C. (1990), "Management services and total quality management", *Management Services*, Vol. 34 No. 7, pp. 16-18.
- Seddon, J. (1997), *In Pursuit of Quality - The Case Against ISO 9000*, Oak Tree Press, Dublin.
- Seel, I. C. (1994), "Total Quality at Thomas Cork SML", *Managing Service Quality*, Vol. 4 No. 5, pp. 21-25.
- Seemer, R. H. (1993), "Winning more than the Malcolm Baldrige National Quality Award at AT&T Transmission Systems", *National Productivity Review*, Vol. 12 No. 2, pp. 143-165.
- SEPSU (Science and Engineering Policy Studies Unit). (1994), *UK Quality Management - Policy Options*, June, SEPSU Policy Study 10 (The Royal Society and Royal Academy of Engineering), London.
- Shadur, M. A. (1995), "Total quality - systems survive, cultures change", *Long Range Planning*, Vol. 28 No. 2, pp. 115-125.
- Shapiro, B. P. (1968), "The psychology of pricing", *Harvard Business Review*, Vol. 46 No. 4, pp. 17-18.
- Shea, J. and Gobeli, D. (1995), "TQM: the experience of ten small businesses", *Business Horizons*, January-February, Vol. 38 No. 1, pp. 71-77.
- Sheridan, J. H. (1973), "Are we making them like we used to?", *Industry Week*, 23 July, pp. 24-29.
- Shetty, Y. K. (1991), "Strategies for US competitiveness: a survey of business leaders", *Business Horizons*, Vol. 34 No. 6, pp. 43-48.
- Simmons, D. E., Shadur, M. A. and Preston, A. P. (1995), "Integrating TQM and HRM", *Employee Relations*, Vol. 17 No. 3, pp. 75-86.
- Sinclair, J. and Collins, D. (1994), "Towards a quality culture ?", *International Journal of Quality & Reliability Management*, Vol. 11 No. 5, pp. 19-29.
- Sink, D. S. (1991), "TQM: the next frontier or just another bandwagon?", *Productivity*, Vol. 32 No. 3, pp. 400-414.
- Sirota, D., Usilaner, B. and Weber, M. S. (1994), "Breaking through the cultural wall", *Journal for Quality and Participation*, Vol. 17 No. 2, pp. 74-83.
- Sitkin, S. B. (1992), "Learning through failure: the strategy of small losses", in Staw, B. M. and Cummings, L. L. (Eds.), *Research in Organizational Behaviour*, JAI Press, Greenwich, CT, pp. 231-266.
- Sitkin, S. B., Sutcliffe, K. M. and Schroeder, R. G. (1994), "Distinguishing control from learning in total quality management: a contingency perspective", *Academy of Management Review*, Vol. 19 No. 3, pp. 537-564.
- Slack, N. (1991), *The Manufacturing Advantage. Achieving Competitive Manufacturing Operations*, Mercury Books, London.
- Sletto, R. F. (1937), *A Construction of Personality Scales by the Criterion of Internal Consistency*, Sociological Press, Hanover, NH.

Smith, S., Tranfield, D., Foster, M. and Whittle, S. (1994), "Strategies for managing the TQM agenda", *International Journal of Operations & Production Management*, Vol. 14 No. 1, pp. 75-88.

Sohal, A. S. and Lu, E. (1995), "The quest for quality at Safeway Australia", *Benchmarking for Quality Management & Technology*, Vol. 2 No. 2, pp. 37-54.

Sohal, A. S., Tay, G-S. and Wirth, A. (1989), "Total quality control in an Asian division of a multinational corporation", *International Journal of Quality & Reliability Management*, Vol. 6 No. 6, pp. 60-74.

Spelcher, J. (1991), "TQM Panel Discussion", *Third International Conference on Productivity and Quality Research*, February, Miami.

Spelcher, J. W. (1993), *Managing Quality in America's Most Admired Companies*, Industrial Engineering and Management Press, Norcross and Berret-Koehler Publishers, San Francisco.

Speller, S. and Ghobadian, A. (1993), "Change for the public sector", *Managing Service Quality*, September, pp. 29-34.

Spencer, B. A. (1994), "Models of organization and total quality management: a comparison and critical evaluation", *Academy of Management Review*, Vol. 19 No. 2, pp. 446-471.

Starbuck, W. H. (1985), "Acting first and thinking later: theory versus reality in strategic change", in Pennings, J. M. and Associates, *Organizational Strategy and Change*, Jossey-Bass, San Francisco, pp. 336-372.

Starbuck, W. H. and Hedberg, B. L. T. (1977), "Saving an organization from a stagnating environment", in Thorelli, H. B. (Ed.), *Strategy + Structure = Performance*, Indiana University Press, Bloomington.

Starbuck W. H. and Milliken, F. J. (1988), "Challenger: fine tuning the odds until something breaks", *Journal of Management Studies*, Vol. 25, pp. 319-40.

Staw, B. M., Sandelands, L. and Dutton, J. (1981), "Threat-rigidity effects in organizational behaviour: a multilevel analysis", *Administrative Science Quarterly*, Vol. 26, pp. 501-524.

Steele, J. (1993), "Implementing total quality management for long- and short-term bottom-line results", *National Productivity Review*, Summer, pp. 425-441.

Stein, M. M. (1993), "The ultimate customer-supplier relationship at Bose, Honeywell, and AT&T", *National Productivity Review*, Vol. 12 No. 4, pp. 543-548.

Steiner G. A. (1969), *Top Management Planning*, Macmillan, New York.

Stoddart, D. E. (1988), "Meeting the Challenge for Quality", *The TQM Magazine*, Vol. 1 No. 1, pp. 51-56.

Strebel, P. (1996), "Why do employees resist change?", *Harvard Business Review*, May-June, pp. 86-92.

Stuart, F. I. (1993), "Supplier partnerships: influencing factors and strategic benefits", *International Journal of Purchasing and Materials Management*, Vol. 29 No. 4, pp. 22-28.

Sudman, S. and Bradburn, N. M. (1974), *Response Effects in Surveys*, Aldine, Chicago.

Sullivan-Taylor, B. and Wilson, M. (1996), "TQM implementation in New Zealand service organizations", *The TQM Magazine*, Vol. 8 No. 5, pp. 56-64.

Summers, B. (1993), "Total quality management: what went wrong?", *Corporate Board*, Vol. 14 No. 79, pp. 20-25.

- Taguchi, G. (1986), *Introduction to quality engineering*, Asian Productivity Organisation, Tokyo.
- Tamuz, M. (1988), *Monitoring Dangers in the Air: Studies in Information and Ambiguity*, Un-published doctoral dissertation, Stanford University, Stanford.
- Tannenbaum, S. I., Mathieu, J. E., Sala, E. and Cannon-Bowers, J. A. (1991), "Meeting trainees' expectations: the influence of training fulfilment on the development of commitment, self-efficacy, and motivation", *Journal of Applied Psychology*, Vol. 76 No. 6, pp. 759-769.
- Tanner, S. (1994), "Service quality as a competitive strategy", *Journal of Quality and Participation*, Vol. 17 No. 7, pp. 58-64.
- Taylor, F. W. (1911), *The Principles of Scientific Management*, Norton, New York.
- Taylor, F. W. (1947), *Principles of Scientific Management*, Harper & Row, New York.
- Teare, R., Atkinson, C. and Westwood, C. (Eds.). (1994), *Achieving Quality Performance - Lessons from British Industry*, Cassell, London.
- Tenner, A. R. and DeToro, I. J. (1992), *Total Quality Management*, Addison-Wesley Publishing, Reading.
- Terziovski, M., Samson, D. and Dow, D. (1997), "The business value of quality management systems certification: evidence from Australia and New Zealand", *Journal of Operations Management*, Vol. 15 No. 1, pp. 1-18.
- The Conference Board Inc. (1989), *Current Practices in Measuring Quality*, Research Bulletin No. 234.
- Thomas, C. (1986), "Improving Federal work quality", *Bureaucrat*, Vol. 15 No. 2, pp. 31-34.
- Tillery, K. R. and Rutledge, A. L. (1991), "Quality-strategy and quality-management connections", *International Journal of Quality & Reliability Management*, Vol. 8 No. 1, pp. 71-77.
- Tolchinsky, P. D. and Ranney, J. M. (1994), "Preventing TQM crash landings", *Journal for Quality and Participation*, Vol. 17 No. 4, pp. 50-57.
- Townsend, P. L. and Gebhardt, J. E. (1989), "We have lots of managers . . . we need leaders", *Journal for Quality and Participation*, September, pp. 18-20.
- Tribus, M. (1989), *Creating the Quality Service Company*, National Society of Professional Engineers, Washington Engineering Centre, Alexandria.
- Tsiotras, G. and Gotzamani, K. (1996), "ISO 9000 as an entry key to TQM: the case of Greek industry", *International Journal of Quality & Reliability Management*, Vol. 13 No. 4, pp. 64-76.
- Tsoukas, H. (1989), "The validity of idiographic research explanations", *Academy of Management Review*, Vol. 14 No. 4, pp. 551-561.
- Turner, D. and Crawford, M. (1992), "Managing current and future competitive performance: the role of competence", Center for Corporate Change, Australian Graduate School of Management, University of New South Wales, Kensington, Australia.
- Tushman, M. L. and Romanelli, E. (1985), "Organizational evolution: a metamorphosis model of convergence and reorientation", in Cummings, L. and Staw, B. (Eds.), *Research in Organizational Behaviour*, JAI Press, Greenwich, CT.
- Urwick, L. F. (1944), *The Elements of Administration*, Pitman & Sons, London.

US Federal Quality Institute. (1991), *Federal Total Quality Management Handbook*, May, U.S. Government Printing Office, Washington D. C.

Ushio, S. (1993), "The future of high-tech: forecast for the next decade", *Tokyo Business Today*, Vol. 61 No. 4, pp. 42-45.

Van Aken, E. M., Monetta, D. J. and Sink, D. S. (1994), "Affinity groups: the missing link in employee involvement", *Organizational Dynamics*, Vol. 22 No. 4, pp. 38-55.

Van de Ven, A. H. (1989), "Nothing is quite so practical as a good theory", *Academy of Management Review*, Vol. 14 No. 4, pp. 486-489.

van de Wiele, T., Dale, B. G., Timmers, J. Bertsh, B. and Williams, R. T. (1993), "Total quality management: a state-of-the-art survey of European 'industry'?", *Total Quality Management*, Vol. 4 No. 1, pp. 23-38.

van der Wiele, A., Snoop, P., Bertsch, B., Timmers, J., Williams, A. R. T. and Dale, B. G. (1990), "Total quality management training and research in Europe: a state-of-the-art survey", in *Proceedings of the First European Conference on Education, Training and Research in Total Quality Management*, IFS Publications, Bedford, pp. 3-28.

van der Wiele, A., Williams, A. R. T., Dale, B. G., Carter, G., Kolb, F., Luzon, D. M., Schmidt, A. and Wallace, M. (1996), "Quality management self-assessment: an examination in European business", *Journal of General Management*, Vol. 22 No. 1, pp. 48-67.

van Donk, D. P. and Sanders, G. (1993), "Organizational culture as a missing link in quality management", *International Journal of Quality & Reliability Management*, Vol. 10 No. 5, pp. 5-15.

Vesey, J. T. (1992), "Time-to-market: put speed in product development", *Industrial Marketing Management*, Vol. 21 No. 2, pp. 151-159.

Vinzant, J. C. and Vinzant, D. H. (1996), "Strategic management and total quality management: challenges and choices", *Public Administration Quarterly*, Vol. 20, No. 2, pp. 201-219.

von Rutte, R. (1989), "Management of quality: quality of management", *The TQM Magazine*, Vol. 1 No. 3, pp. 149-151.

Vorstman, H. R. (1990), *Produktmarktbeleid en kwaliteit*, eerste druk, Samson, Alphen aan de Rijn.

Wacker, G. and Sheu, C. (1994), "The stages of quality management evolution in the Pacific Rim", *International Journal of Quality & Reliability Management*, Vol. 11 no. 7, pp. 38-50.

Waldman, D. A. (1994), "The contributions of total quality management to a theory of work performance", *Academy of Management Review*, Vol. 19 No. 3, pp. 510-536.

Walker, T. (1992), "Creating total quality improvement that lasts", *National Productivity Review*, Vol. 11 No. 4, pp. 473-478.

Walsh, P. (1995), "Overcoming chronic TQM fatigue", *The TQM Magazine*, Vol. 7 No. 5, pp. 58-64.

Walton, R. E. (1989), *Up and Running: Integrating Information Technology and the Organisation*, Harvard Business School Press, Boston.

Wason, S. K. and Bhalla, S. K. (1994), "Managing the technological process", *Quality Progress*, Vol. 27 No. 1, pp. 81-85.

- Watkins, E. (1992), "How Ritz-Carlton won the Baldrige Award", *Lodging Hospitality*, Vol. 48 No. 11, pp. 22-24.
- Weaver, C. N. (1993), "How to use process improvement teams", *Quality Progress*, Vol. 26 No. 12, pp. 65-68.
- Webb, E. J., Campbell, D. T., Schwartz, R. D. and Sechrest, L. (1972), *Unobtrusive Measures: Nonreactive Research in the Social Sciences*, Rand McNally & Company, Chicago.
- Webb, P. B. and Bryant, H. L. (1993), "The challenge of *Kaizen* technology for American business competition", *International Journal of Organizational Change Management*, Vol. 6 No. 4, pp. 9-16.
- Weick, K. E. (1979), *The Social Psychology of Organizing*, Addison-Wesley, Reading.
- Weick, K. E. (1989), "Theory construction as disciplined imagination", *Academy of Management Review*, Vol. 14 No. 4, pp. 516-531.
- Weintraub, D. L. (1993), "Implementing total quality management", *Economic Development Review*, Vol. 11 No. 3, pp. 39-42.
- Wellburn, J. (1996), "A TQM life cycle case study", *The TQM Magazine*, Vol. 8 No. 3, pp. 35-45.
- Wellins, R. S., Ginnodo, W. L., Day, C. R., Colteryahn, K. L. Mussitsch, K. and Price, D. (1993), *TQM: Forging Ahead or Falling Behind?*, Development Dimensions International, Quality and Productivity Management Association, Bridgeville, and *Industry Week*.
- Welsh, J. and White, J. (1981), "A small business is not a little big business", *Harvard Business Review*, July-August, pp. 18-32.
- Wernick, S. (1991), "TQM keys job shop profitability, survival", *Quality*, May, pp. 14-17.
- West, J. P., Berman, E. M. and Milakovich, M. E. (1993), "Implementing TQM in local government: the leadership challenge", *Public Productivity & Management Review*, Vol. 17 No. 2, pp. 175-189.
- Westbrook, J. D. (1993), "Organizational culture and its relationship to TQM", *Industrial Management*, Vol. 35 No. 1, pp. 1-3.
- Wetzel, C. F., Jr and Yenko, N. M. (1992), "Taking quality beyond the awareness stage", *Journal for Quality & Participation*, Vol. 15 No. 1, pp. 36-41.
- Wheatley, M. (1992), "Playing piggy in the middle", *Total Quality Management*, Vol. 4 No. 4, pp. 207-210.
- Whetten, D. A. (1989), "What constitutes a theoretical contribution?", *Academy of Management Review*, Vol. 14 No. 4, pp. 490-495.
- Whitehall, B. (1992), "How Millikens action teams involve clients in quality", *Business Marketing Digest*, Vol. 17 No. 1, pp. 11-16.
- Whiteley, R. C. (1991), "Why customer focus strategies often fail", *The Journal of Business Strategy*, September/October, Vol. 12 No. 5, pp. 34-37.
- Whitney, J. O. (1996), "Strategic renewal for business units", *Harvard Business Review*, July-August, pp. 84-98.
- Whittle, A. and McNiven, S. (1993), "A multiple application", *Total Quality Management*, Vol. 5 No. 2, pp. 27-30.

- Whittle, S., Smith, S., Tranfield, D. and Foster, M. (1992), "Implementing total quality", *International Journal of Technology Management*, Vol. 7, Nos. 4/5 Special Issue, pp. 235-243.
- Wilcox, M., Dale, B. G., Boaden, R. J. and McQuater, R. E. (1996), "Managing for quality: the strategic issues", *International Journal of Technology Management*, Vol. 12 No. 1, pp. 59-74.
- Wilensky, H. (1971), *Organizational Intelligence*, Free Press, New York.
- Wilkins, A. L. (1983), "The culture audit: a tool for understanding organizations", *Organizational Dynamics*, Autumn, pp. 24-38.
- Wilkinson, A. (1992), "The other side of quality: 'soft' issues and the human resource dimension", *Total Quality Management*, Vol. 3 No. 3, pp. 323-329.
- Wilkinson, A., Allen, P. and Snape, E. (1991), "TQM and the management of labour", *Employee Relations*, Vol. 13 No. 1, pp. 24-31.
- Wilkinson, A., Marchington, M. and Goodman, J. (1992), "Total quality management and employee involvement", *Human Resource Management Journal*, Vol. 2 No. 4, pp. 1-20.
- Wilkinson, A., Redman, T. and Snape, E. (1994), "Quality management and the manager", *Employee Relations*, Vol. 16 No. 1, pp. 62-70.
- Wilkinson, A., Redman, T. and Snape, E. (1995), "New patterns of quality management in the United Kingdom", *Quality Management Journal*, Winter, pp. 37-51.
- Wilkinson, A. and Willmott, H. (1996), "Quality management, problems and pitfalls: a critical perspective", *International Journal of Quality & Reliability Management*, Vol. 13 No. 2, pp. 55-65.
- Williams, M. (1993a), "Cotting on to the need for change", *Total Quality Management*, Vol. 5 No. 1, pp. 35-38.
- Williams, M. (1993b), "Perception or reality?", *Managing Service Quality*, May, pp. 23-26.
- Wilshaw, G and Dale, B. G. (1996), "Developing a continuous improvement philosophy in a marketing organisation: an examination of key events", *The Service Industries Journal*, Vol. 16 No. 3, pp. 401-415.
- Wisner, J. D. and Eakins, S. G. (1994), "A Performance assessment of the US Baldrige quality award winners", *International Journal of Quality & Reliability Management*, Vol. 11 No. 2, pp. 8-25.
- Witcher, B. (1994), "The adoption of total quality management in Scotland", *The TQM Magazine*, Vol. 6 No. 2, pp. 48-53.
- Woodward, J. (1965), *Industrial Organisation: Theory & Practice*, Oxford University Press, London.
- Wright, P. C. and Kusmanadji, K. (1993), "The strategic application of TQM principles to human resources management", *Training for Quality*, Vol. 1 No. 3, pp.5-14.
- Yearout, S. L. (1992), "The international quality study reveals which countries lead the race for total quality", *The Journal of European Business*, March-April, pp. 27-30.
- Younger, A. (1990), "Q-share - a share of TQM", *The TQM Magazine*, October, pp. 275-278.
- Zairi, M. (1994), "Leadership in TQM implementation", *The TQM Magazine*, Vol. 6 No. 6, pp. 9-16.
- Zairi, M., Letza, S. R. and Oakland, J. S. (1994), *TQM: Its Impact on Bottom Line Results*, Technical

Communications (publishing) Ltd, Letchworth.

Zairi, M. and Youssef, M. A. (1995), "Benchmarking critical factors for TQM, part 1: theory and foundations", *Benchmarking for Quality Management & Technology*, Vol. 2 No 1, pp. 5-20.

Zand, D. E. (1972), "Trust and managerial problem solving", *Administrative Science Quarterly*, Vol. 17, pp. 229-39.

Zeithaml, V. A., Berry, L. L. and Parasuraman, A. (1988), "Communication and control processes in the delivery of service quality", *Journal of Marketing*, Vol. 52 No. 2, pp. 35-48.

Zeithaml, V. A., Parasuraman, A. and Berry, L. L. (1990), *Delivering Quality Service*, Free Press, New York.

Zenger, J. H. (1989), "Leadership skills for quality improvement", *Executive Excellence*, Vol. 6 No. 6, pp. 11-12.

Zetie, S., Sparrow, J., Woodfield, A. and Kilmartin, T. (1994), "Hydrapower Dynamics", in Teare, R., Atkinson, C. and Westwood, C. (Eds.), *Achieving Quality Performance*, Cassell, London.

Zucker, L. (1977), "The role of institutionalization in cultural persistence", *American Sociological Review*, Vol. 42, pp. 726-43.

APPENDIX 2.1.1 - TQM "usage" surveys

Examples of surveys relating to the "usage status" of TQM in various countries:

- Blauw, J. N. and During, W. E. (1990), "Total quality control in Dutch industry", *Quality Progress*, Vol. 23 No. 2, pp. 50-52.
- McDermott, T. (1994), "TQM: the total quality maquiladora", *Business Mexico*, Vol. 4 No. 11, pp. 42-45.
- Witcher, B. (1994), "The adoption of total quality management in Scotland", *The TQM Magazine*, Vol. 6 No. 2, pp. 48-53.
- Miller, W. H. (1995), "The future? Not yet", *Industry Week*, Vol. 244 No. 8, p. 73.
- LvA de Macedo-Soares, T. D. and Lucas, D. C. (1996), "Key quality management practices of leading firms in Brazil: findings of a pilot study", *The TQM Magazine*, Vol. 8 No. 4, pp. 55-70.
- Sullivan-Taylor, B. and Wilson, M. (1996), "TQM implementation in New Zealand service organizations", *The TQM Magazine*, Vol. 8 No. 5, pp. 56-64.
- Gieskes, J. B., Baudet, F., Schuring, R. W. and Boer, H. (1997), "Continuous improvement in the Netherlands: current practices and experiences in Dutch manufacturing industry", *International Journal of Technology Management*, Vol. 14 No. 1, pp. 50-60.

or regions of countries:

- Moras, R. G., Sanchez, C. M. and Ford, R. G. (1994), "Quality success stories in San Antonio industry", *Production & Inventory Management Journal*, Vol. 35 No. 4, pp. 36-42.
- Randhawa, S. U., McDowell, E. D., Tabaka, P. J. and Howard, N. L. (1994), "TQM practices: a survey of companies in the Pacific Northwest", *Industrial Engineering*, Vol. 26 No. 10, pp. 28-30.

Examples of surveys relating to the "usage status" of TQM in various industry sectors:

- Roth, J. (1993), "Productivity and quality improvement: a special report", *American Printer*, Vol. 212 No. 2, pp. 41-46.
- Rivers, D. B. (1993), "Harnessing the power of TQM", *Bank Marketing*, Vol. 25 No. 6, pp. 35-37.
- Porter, L. J. and Smith G. S. (1993), "Total quality management in the UK retail sector", Vol. 21 No. 4, pp. 13-19.
- Ferguson, K. H. (1994), "Customer focus, tight markets drive industry's quality emphasis", *Pulp & Paper*, Vol. 68 No. 6, pp. 65-71.
- Abdul-Rahman, H. (1996), "Some observations on the management of quality among construction professionals in the UK", *Construction Management & Economics*, Vol. 14 No. 6, pp. 485-495.
- Knight, D. and McCabe, D. (1996), "Do quality initiatives need management", *The TQM Magazine*, Vol. 8 No. 3, pp. 24-26.
- Millen, R. and Maggard, M. (1997), "The change in quality practices in logistics: 1995 versus 1991", *Total Quality Management*, Vol. 8 No. 4, pp. 173-179.

Examples of surveys relating to the "usage status" of TQM in various types of organisation:

- Horine, J. E., Hailey, W. A. and Rubach, L. (1993), "Transforming schools", *Quality Progress*, Vol. 26 No. 10, pp. 31-38.
- Anonymous, (1993), "The quality march", *Hospitals and Health Networks*, Vol. 67 No. 24, pp. 40-42.
- Berman, E. M., West, J. P. and Milakovich, M. E. (1994), "Implementing TQM in the States", *Spectrum: The Journal of State Government*, Vol. 67 No. 2, pp. 6-12.
- Oakland, J. S. and Aldridge, A. J. (1995), "Quality management in civil and structural engineering consulting", *International Journal of Quality & Reliability Management*, Vol. 12 No. 3, pp. 32-48.
- Williamson, V. and Schwarzkopf, A. B. (1995), "Total quality management in state government", *Oklahoma Business Bulletin*, Vol. 63 No. 3, pp. 6-15.
- Davidson, J. M. and Pruden, A. L. (1996), "Quality deployment in R&D organizations", *Research-Technology Management*, Vol. 39 No. 1, pp. 49-55.
- Lackritz, J. R. (1997), "TQM within Fortune 500 corporations", *Quality Progress*, Vol. 30 No. 2, pp. 69-72.

Examples of surveys that have attempted to ascertain the "usage status" of TQM in comparative terms. That is to say, for example between different regions:

- Knotts, R. and Tomlin, S. (1994), "A comparison of TQM practices in U. S. and Mexican companies", *Production & Inventory Management Journal*, Vol. 35 No. 1, pp. 53-58.
- Barad, M. (1995), "Some cultural/geographical styles in quality strategies and quality costs", *International Journal of Production Economics*, Vol. 41 Nos. 1-3, pp. 81-92.

APPENDIX 2.2.1.2 - Deming's fourteen points for management and seven deadly sins.

The fourteen points for management:	
Point 1	Create constancy of purpose toward improvement of product and service with the aim to become competitive and stay in business, and to provide jobs.
Point 2	Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership of change.
Point 3	Cease dependence on mass inspection to improve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
Point 4	End the practice of awarding business on the basis of price tag alone. Instead, minimise total cost. Move towards a single supplier for any one item, on a long-term relationship of loyalty and trust.
Point 5	Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
Point 6	Institute training on the job.
Point 7	Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of workers.
Point 8	Drive out fear, so that everyone may work effectively for the company.
Point 9	Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and use that may be encountered with the product or service.
Point 10	Eliminate slogans, exhortations, and targets for the workforce asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the workforce.
Point 11	(a) Eliminate work standards (quotas) on the factory floor. Substitute leadership. (b) Eliminate management by objective. Eliminate management by numbers, numeric goals. Substitute leadership.
Point 12	(a) Remove barriers that rob the hourly worker of his (or her) right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality. (b) Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and of management by objective.
Point 13	Institute a vigorous program of education and self-improvement.
Point 14	Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.
<i>Source: from Out of the Crisis: 23-24 by W. E. Deming (1996), Cambridge: Massachusetts Institute of Technology, reproduced in Anderson et al (1994).</i>	

The seven deadly sins:	
1	Lack of constancy of purpose. A company that is without constancy of purpose has no long-range plans for staying in business. Management is insecure, and so are employees.
2	Emphasis on short-term profits. Looking to increase the quarterly dividend undermines quality and productivity.
3	Evaluation by performance, merit rating, or annual review of performance. The effects of these are devastating - teamwork is destroyed, rivalry is nurtured. Performance ratings build fear and leave people bitter, despondent, beaten. They also encourage defections in the ranks of management.
4	Mobility of management. Job-hopping managers never understand the firms they work for and are never there long enough to follow through on long-term changes that are necessary for quality and productivity.
5	Running a company on visible figures alone. The most important figures are unknown and unknowable - the "multiplier" effect of a happy customer, for example.
6	Excessive medical costs for employee health care, which increase the final costs of goods and services.
7	Excessive costs of warranty, fuelled by lawyers who work on the basis of contingency fees.
<i>Source: Hunt (1993).</i>	

APPENDIX 4.2.3 - Participant invitation letter

[date text]

Name
Title/Position
Address 1
Address 2
Address 3

Middlesex University
The Burroughs
London NW4 4BT

Dear [Name]

I am writing to invite you to participate in our research programme. This is concerned with establishing a theory for Total Quality Management (TQM). As you may know a great deal of uncertainty surrounds the TQM concept and we hope that our research will help to resolve some of the misunderstandings.

Our aim, using input from Total Quality best practice, is to come to a consensus on issues relating to the following questions :-

- (i) Why implement TQM ?
- (ii) What exactly is TQM, and what changes does it bring ?
- (iii) How can TQM practices be most successfully implemented ?
- (iv) Once the new tools, management processes and working practices have been set in motion, how do enterprises successfully keep the momentum going ?, and
- (v) What are the effects of change that TQM brings about ?

We will be utilising the Delphi Technique to conduct our research. This technique aims at structuring a group communication process where the group members are not assembled together, such that the process is effective in allowing the group of individuals as a whole to consider a complex problem. Your participation would involve completing a series of three to four focused and structured questionnaires, the first of which would be sent to you in early August. Provision would also be made for your own comments.

During this process we would provide you with feedback reports detailing our findings, and at the end of the study will supply you with a final report. Our intention is to publish a series of papers communicating our findings. All information you would supply us with would be treated in the strictest of confidence, with no reference made to your company.

I would be most grateful if you would let me know as soon as possible if you would be willing to participate. In addition, if you could recommend one to two other people within your organisation, who you feel have had the necessary experience of Total Quality Management with your organisation to take part in this study, it would be most helpful to me if you could let me know by telephone or facsimile.

If you would like more information please do not hesitate to contact me on the above telephone number. Your participation would be most greatly appreciated.

Yours Sincerely

David N Gallear
Research Officer

APPENDIX 4.2.4 - Listing of participants' organisations

3M Corporate Quality Services (USA)
Alcoa of Australia Limited (AUSTRALIA)
Allied Signal Aerospace (CANADA)
Allied Signal Limited (GB)
American Express Europe Limited (GB)
AT&T Universal Card Services (USA)
Avon Rubber Plc (GB)
Black & Decker (GB)
BOC Limited Special Gases (GB)
Bridgeport Machines Limited (GB)
Digital Equipment International B.V. (GB)
Dresser Pump Division UK (GB)
DuPont DN (FRANCE)
DuPont de Nemours (BELGIUM)
DuPont de Nemours International S.A. (SWITZERLAND)
Dutton Engineering (Woodside) Limited (GB)
EMI Compact Disc UK (GB)
Exxon Chemical Limited (GB)
Fisher-Rosemount Control Systems (GB)
Four Square (Division of Mars) (GB)
Girobank plc (GB)
Hydrapower Dynamics Limited (GB)
IBM Europe S.A. (FRANCE)
IBM United Kingdom Limited (GB)
Kodak (Australasia) Pty Limited (AUSTRALIA)
Land Rover (GB)
Marriott Management Services (USA)
Milliken Industrials Limited (GB)
National Roads and Motorists Association (NRMA) Limited (AUSTRALIA)
Pitney Bowes plc (GB)
Rank Xerox UK Limited (GB)
Renault UK Limited (GB)
Renishaw plc (GB)
Rover Group Limited (GB)
Royal Mail South Wales & South West (GB)
Rylands-Whitecross Limited (GB)
Scotts Hotels Limited (GB)
T R Fastenings Limited (GB)
Tioxide Europe Limited (GB)
Toyota Motor Corporation Australia Limited (AUSTRALIA)
UOP Limited (GB)
Vita Services Limited (GB)
Zeneca Pharmaceuticals (GB)

APPENDIX 4.2.5a - Business dimensions for individual participants

Participant Case No.	Organization SIZE	Industry CLASS	Manufacturing Dimensions :			Service Dimensions :				
			Transformation process type	Production proc intensity	Supply type	Frequency of customer cont	Intensity of customer cont	Physical product Y/N	Delivery proc intensity	Variety of services
48	L	M/S	R	L+C	B	H	H	Y	L	M
1	L	M/S	F	C		L	H	Y	C	L
2	L	M	P	C	S					
49	L	M	F	L	S	H				
3	L	M	B	C	B					
4	L	S				H	H	Y	B	H
5	L	S				H	H	Y	B	H
6	L	M	P+JS+B+R	L	B					
7	L	M	B	L+C	OEM					
50	SME	M	JS	L	B					
8	SME	M	B	L	OEM					
9	L	S				H	H	N	B	H
10	SME	M/S	B	L	B	L	H	Y	B	L
11	SME	M	B	C	B					
12	L	M	F	C	S					
51	L	M	B+F	C	B					
52	L	M/S	F	C	S	H	H	Y	B	H
13	SME	M	JS+B	L	S	H	H	Y	L	H
14	SME	M	B	neither						
15	SME	M	F	C	mat's producer	H	H	Y	C	M
16	SME	M	P+B	C	OEM					
17	L	M/S	F	C	OEM	H	L	Y	L	L
18	L	S				H	H	Y	B	M
19	SME	M	F	L	S					
20	L	M/S	F	C	OEM	H	H	Y	B	H
21	L	M/S	R+F	C	B	H	H	Y	C	H
22	L	S				H	H	Y	B	H
23	L	M/S	B	C	B	H	H	Y	B	H
24	L	M/S	B+R+F	C	OEM					
25	L	S				H	H	Y	L	M
26	L	M	B+F	C	B					
27	L	S				H	H	Y	B	M
29	L	M/S	F	C	OEM	H	H	Y	B	M
30	L	M/S	B+R	C		H	H	Y	B	H
31	L	S				H	H	Y	B	H
32	L	S				H	H	Y	B	H
33	SME	M	B	C	S					
34	L	M	R	C	OEM					
35	L	M	R	L+C	OEM					
36	L	M	R	L+C						
37	L	S				H	H	Y	B	M
38	SME	M	F	C	B					
39	L	S				H	H	Y	B	H
40	L	M	F	C	see				C	M
41	SME	M/S	B	C	S	H	H	Y	C	H
42	SME	M/S	B	C	S	H	H	Y	C	H
43	SME	M	F	C						
44	L	M/S	F	L+C	B	H	H	N	B	M
45	L	M/S	P	C	OEM	L	L	Y	C	M
46	SME	M	B	C	B					
47	L	M	B	C	Pharm' manuf'					

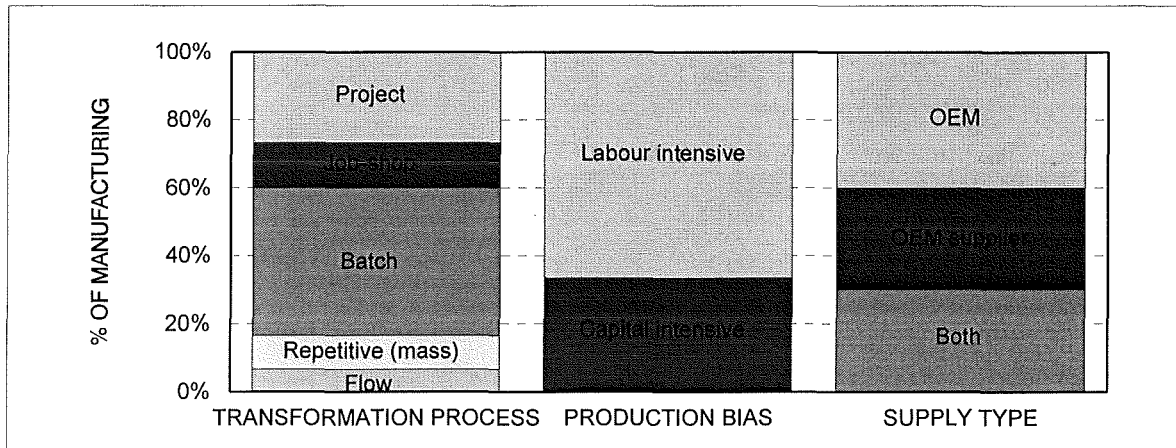
KEY :	L : >500	M=manufacturing	P=project	L=labour intensive	OEM	H=high	H=high	Y=yes	L=labour intensive	H=high
	SME : 1-499	S=service	JS=job-shop	C=capital intensive	S=OEM supplier	L=low	L=low	N=no	C=capital intensive	M=medium
		M/S=man/serv	B=batch		B=Both				B=Both	L=low
			R=repetitive (mass)							
			F=flow process							

APPENDIX 4.2.5b - Business characteristics profile for three classes of organisation

Characteristics of those organisations with a manufacturing orientation:

Illustration 4.2.5.1 shows the characteristics profile for those organisations with a manufacturing industry orientation. Batch production was the dominant transformation process. The majority (approx. 70 percent) of the manufacturing organisations had operations that were considered labour intensive as opposed to capital intensive. Forty percent were original equipment manufacturers (OEMs), thirty percent supplied their goods to OEMs and thirty percent served both supply streams.

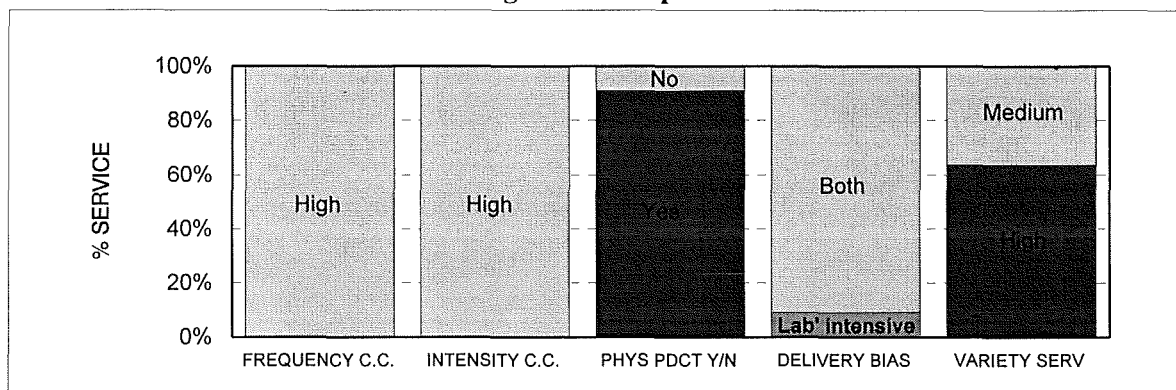
Illustration 4.2.5.1 - Manufacturing oriented organisations' profile



Characteristics of those organisations with a service orientation:

Illustration 4.2.5.2 shows the overall service delivery characteristics profile for those organisations with a service industry orientation. ALL of the service organisations reported both a high degree of customer contact, and a high intensity of customer contact. Whilst they did no manufacturing, over 90% of them have a service offering which incorporated a physical product. There was little bias in the type of delivery process intensity - over 90% reported that their operations were both capital intensive and labour intensive. The majority (approx. 65%) of these service organisations catered for a high variety of service offerings, with the remainder catering for a medium variety, and none catering for a low variety.

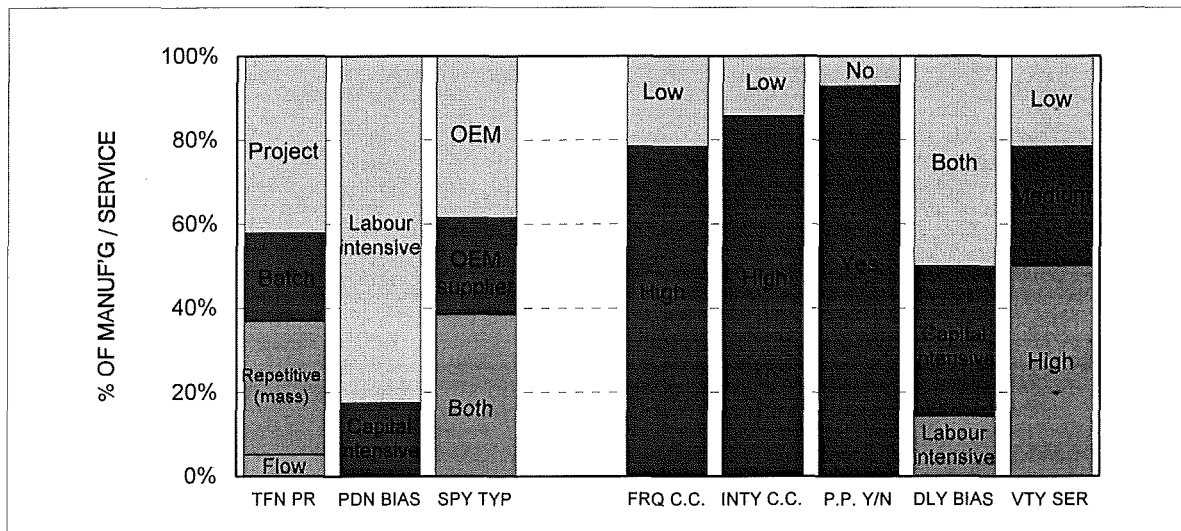
Illustration 4.2.5.2 - Service oriented organisations' profile



Characteristics of those organisations with both a manufacturing/service orientation:

Illustration 4.2.5.3 shows both the overall manufacturing characteristic profile and the overall service delivery characteristic profile for those organisations with a *dual* manufacturing industry and service industry (M/S) orientation. Unlike the purely manufacturing organisations, the M/S organisations had project production as their largest classification of manufacturing transformation process, closely followed by repetitive (mass) production, then batch production. Over 80% had operations that were labour intensive as opposed to capital intensive. Similarly to the purely manufacturing organisations, the M/S organisation's supply type (i.e. OEM; OEM supplier; or both) was roughly proportionate. On the service side, the M/S organisations showed similar characteristics to the purely service organisations with a high frequency and high intensity of customer contact. The majority of M/S organisations had a physical product as part of their service offering. The latter observation was 'inherently' expected. In addition, it appeared that a high variety of service offerings was the preferred strategy for the M/S organisations, though approximately twenty percent and thirty percent respectively had a low variety, and medium variety of service offerings.

Illustration 4.2.5.3 - Manufacturing/service oriented organisations' profile



MIDDLESEX UNIVERSITY BUSINESS
SCHOOL

Total Quality Management
Delphi Study
Questionnaire Round 1

General Information.

Name :
Title :
Organisation :

Size (No. employees) a. within transformation process / service delivery areas . . .
b. within administrative areas

Industry Type :

Manufacturing Service
(tick as appropriate.)

If a manufacturing organisation ;

a. Please specify the main transformation process type :

Project Job-Shop Batch
 Repetitive (Mass) Flow-Process

b. Is your production process :

Labour Intensive Capital Intensive

c. Are you an :

Original Equipment Manufacturer (OEM) OEM Supplier Both
(tick as appropriate.)

If a service organisation ;

a. Is the frequency of customer contact : High OR Low
b. Is the intensity of customer contact : High OR Low
c. Is there a physical product delivered : YES NO

- d. Is your delivery process : Capital intensive Labour intensive
 Both
- e. Is the variety of services : High Medium Low

NOTES

- 1./ We advise you to quickly scan through each whole questionnaire before completing. This will help you to direct the information you give appropriately.
- 2./ You may wish to take a photocopy of your completed questionnaire. This will be useful to refer back to when you receive the final report.
- 3./ If you feel there is an element of TQM which relates to this questionnaire's area of the study and is very important to your organisation, that you have not had a chance to expose due to the structure/wording of the questionnaire, please give brief details under the additional answering space provided at the end of the booklet.
- Similarly, if you recall a significant problem or barrier related to one of the areas in questionnaire, we would be most grateful if you would give brief but clear details, either under the relevant question, or under the additional answering space provided.
- 4./ Some questions in questionnaire round 3 contain the instruction :-
 (Please give a percentage weighting e.g. YES 70 / NO 30 or YES 20 / NO 80.)
 This simply means that if there is neither an absolute YES or absolute NO answer to the question, express instead, the extent to which 'it' does happen using a percentage.

Where possible, we would be most grateful if you would send us working examples relating to the information requested.

Round 1 : SECTION 1 - Why Total Quality Management ?

1./ Was there a specific point in time when your company introduced Total Quality Management ? (If Yes tick box a). Alternatively, would you say that your present day quality culture and performance, has come about through a long-term process of continuous incremental changes ? (If Yes tick box b).

- (a) (b)

If (a), please identify how long ago your company initiated its' TQM programme :

2a./ Please identify the **primary reasons** for introducing Total Quality Management by ticking the appropriate box(es) below.

- pressure / request from major customers to change your systems in line with theirs (ie. to integrate forwards).
- financial / economic survival.
- competitive changes made by your competitors.
- change in balance of activities.
- major revision / updating of plant / facilities provided the opportunity to simultaneously revise working practices and management processes.
- loss of market share.
- pressure from end customers to improve your overall performance.
- focus for culture change
- other(s) (please specify) :

2b./ Can you please expand on the **primary reasons** in the space below.

2c./ Would you say the introduction of TQM was a :

- Proactive action Defensive action
 Reactive action Offensive action

3a./ Please indicate by ticking the relevant box(es), how and/or through what medium were the reason(s) for introducing Total Quality Management identified ?

- Competitor(s)
 Supplier(s)
 Customer(s)
 Management literature
 A subsidiary of your organisation
 Internal sources
 Other(s) (please specify) :

3b./ Can you please expand on the above.

3c./ Would you say that your Total Quality Programme is linked with the overall corporate strategy ?

- Yes No

4./ Was an external consultant consulted **before** the decision to adopt Total Quality Management was taken ?

- Yes No

5a./ Before the final decision to adopt Total Quality Management was taken, who in the organisation (**by title**) was consulted ?

5b./ Please give an outline of what was considered and debated during the decision making phase.

5c./ Was an external consultant used **after** the decision to adopt TQM was taken, and if so, what was the extent of their involvement ?

- Yes No

6./ Please indicate the type of organisational structure(s) that existed prior to the introduction of your Total Quality programme :

- Self-contained unit Multi-layered Flat Functional

- Matrix Network Other (please specify) :-

Notes

- Self-contained unit :-** organisational activities organised on the basis of products, services or customers.
- Multi-layered :-** multiple management layers.
- Flat :-** minimal management layers.
- Functional :-** structured into task specialized departments.
- Matrix :-** jointly emphasises functional specialization and self-containment.
- Network :-** spans the boundaries of the organisation to include co-operative arrangements with other organisations.

7./ What **quality practices** existed in your organisation **prior** to introducing your Total Quality Programme ? (Please indicate the general characteristics by ticking the appropriate box(es)).

- Formal Detective
- Informal Preventative
- Quality Control Department solely responsible for the general management of quality
- Everybody within the organisation responsible for quality management
- Top management took overall responsibility for, and ownership of quality
- First line supervisors took overall responsibility for quality management

Please provide more detailed or additional information in the spaces below;

- a. (for manufacturing organisations) :- within the transformation process areas :
(for service organisations) :- within the service delivery areas :

b. within administrative areas :

8./ How would you describe your organisations **culture and management style** prior to the implementation of your Total Quality programme ? (Please indicate the general characteristics by ticking the appropriate boxes below).

- Passive Proactive Directive
- Reactive Participative

- Team Management** - interdependence through a common stake in organisation purpose leads to relationships of trust and respect.
- Middle of the Road Management** - adequate organisation performance, by balancing the necessity to get work out, with maintaining morale of people at a satisfactory level.
- Authorative-Compliance Management** - efficiency in operations results from arranging conditions of work in such a way that human elements interfere to a minimum degree.
- Impoverished Management** - exertion of minimum effort to get work done is sufficient to sustain organisation membership.
- Other** (please specify)

Can you please expand on the general characteristics in the space below.

9./ Now that you are X years down the Total Quality Management path, do you feel the original reasons for taking on Total Quality Management that were valid at the time, are still valid, and have any additional reasons / benefits come to light since ? (Please specify)

ROUND 2 SECTION 1 : Round 1 Further Exploration

Would you please tick the appropriate boxes to indicate what was discussed (i) in general, and (ii) in detail, in the decision making phase prior to your organisations final decision to adopt TQM.

	In general	In detail
Benefits to be gained;	<input type="checkbox"/>	<input type="checkbox"/>
The need for change;	<input type="checkbox"/>	<input type="checkbox"/>
Expectations of TQM;	<input type="checkbox"/>	<input type="checkbox"/>
Customer expectations;	<input type="checkbox"/>	<input type="checkbox"/>
Applicability of TQM;	<input type="checkbox"/>	<input type="checkbox"/>
Alternative strategies for TQM;	<input type="checkbox"/>	<input type="checkbox"/>
Strategic integration of TQM with other business strategies;	<input type="checkbox"/>	<input type="checkbox"/>
The implementation plan;	<input type="checkbox"/>	<input type="checkbox"/>
Other organisation' TQM experiences;	<input type="checkbox"/>	<input type="checkbox"/>
The commitment required;	<input type="checkbox"/>	<input type="checkbox"/>
What will be required;	<input type="checkbox"/>	<input type="checkbox"/>
Leadership;	<input type="checkbox"/>	<input type="checkbox"/>
Responsibilities;	<input type="checkbox"/>	<input type="checkbox"/>
What is realistically deliverable;	<input type="checkbox"/>	<input type="checkbox"/>
Measures for TQM progress;	<input type="checkbox"/>	<input type="checkbox"/>
Support resources required;	<input type="checkbox"/>	<input type="checkbox"/>
Use of consultants;	<input type="checkbox"/>	<input type="checkbox"/>

How to communicate the change to organisation members;	<input type="checkbox"/>	<input type="checkbox"/>
The timescales involved;	<input type="checkbox"/>	<input type="checkbox"/>
The timing of the introduction;	<input type="checkbox"/>	<input type="checkbox"/>
Use of a trial period or not;	<input type="checkbox"/>	<input type="checkbox"/>
Removing fear;	<input type="checkbox"/>	<input type="checkbox"/>
Probable impact of TQM;	<input type="checkbox"/>	<input type="checkbox"/>
Possible workforce reaction;	<input type="checkbox"/>	<input type="checkbox"/>
The need for certification;	<input type="checkbox"/>	<input type="checkbox"/>
The costs involved;	<input type="checkbox"/>	<input type="checkbox"/>
The current financial position;	<input type="checkbox"/>	<input type="checkbox"/>

Round 2 : What is Total Quality Management ?

1a./ In your organisations view, **what in general terms** is Total Quality Management ?
(Please indicate the degree of your agreement with the following statements, by ticking the appropriate box on the scale adjacent to each entry).

	Strongly agree	Agree	Unbiased	Disagree	Strongly disagree
a management philosophy;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
an anti-thesis of scientific management;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a set of quality improvement tools;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a way of working;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a management process;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a set of core values;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a guide for achieving organisational objectives;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a framework for company-wide improvement efforts;
- a change agent for organisational culture;
- a process for longterm survival;
- a blueprint for the future;
- an expression of company image/purpose;
- a means of harnessing the competence and expertise of people;
- a means of fostering new ideas;
- about ensuring constancy of purpose;
- an enabling process;
- a means of fostering programme controlled and/or continuous, change;
- about building consensus;
- about ensuring customer satisfaction;
- about fostering competitive advantage;
- a means of channelling company effort;
- about corporate identity;
- an integrating device;
- outcome focused;
- a proven method of improving business results.

1b./ Please state your organisation's definition of TQM if you have one.

1c./ If your organisation does not have its own definition of TQM would you please indicate how closely the following statement describes TQM at your organisation.

"A structured attempt to re-focus the organisation's behaviour, planning and working practices towards: integrated; employee driven; problem-solving; error eradication; team effort; fact-based decision-making; customer oriented; and open and fear-free business practices based on a 'continuous improvement' culture covering every facet of the organisation's activities."

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Strongly agree | Agree | Disagree | Strongly disagree |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1d./ In your organisations view, what is Total Quality Management **not** ?

(Please indicate the degree of your agreement with the following statements, by ticking the appropriate box on the scale adjacent to each entry).

- | | Strongly agree | Agree | Unbiased | Disagree | Strongly disagree |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a one-off process; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| static; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| a project; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| absolute; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ad hoc; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| an end in itself; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| a limited function; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| prescriptive; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| solely about production / service; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| solely input focused; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| solely output focused; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| organisational dependent; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| sector specific; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| internal environment dependent; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| external environment dependent; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| only process oriented; | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

easily understood;
 easily implemented.

focus on external rather than internal issues;
 capacity requirements;
 co-ordination of functional strategies;
 reaction to competitors every move;
 planning processes;
 management attitudes.

2a./ How in your organisations view does Total Quality Management **relate to strategy** ?

(Please indicate the degree of your agreement with the following statements, by ticking the appropriate box on the scale adjacent to each entry).

(i) Total Quality Management :-

	Strongly agree	Agree	Unbiased	Disagree	Strongly disagree
is a focus for strategy;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
helps to coordinate strategy;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is a communication strategy;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
provides a link between strategy and tactic;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
helps avoid uncontrolled drift from business objectives;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
helps to achieve strategic fit;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
facilitates better and clearer strategic analysis and choice;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is a strategic tool.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2b./ Does your organisation regard **product, process and service quality** as a generic business strategy ?

YES NO

If you would like to make any further comments please do so below :

2c./ Does your organisation regard **TQM** as a generic strategy underpinning / supporting other efforts of the organisation ?

YES NO

If you would like to make any further comments please do so below :

(ii) TQM directly addresses the following strategic issues :-

	Strongly agree	Agree	Unbiased	Disagree	Strongly disagree
communication;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
human resource management;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
development of process capability;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
facilities location;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ethos to accept change more readily;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2d./ Does your organisation have a quality assurance certification ?

YES NO

If YES, which one ? Was this a customer requirement or did your organisation prompt this ? Please briefly expand ?

3./ This question is concerned with establishing, **what the elements and sub-elements of TQM are?**

For each of the following five main elements, would you please indicate whether or not your organisation regards them as important facets of your TQM programme. If YES, would you then please indicate the degree of importance your organisation attaches to each of the sub-elements listed below each main element. (5 = very important; 1 = not important at all).

(i) Management Process	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	
	5	4	3	2	1
Planning process;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integration of functions;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employee reporting structure;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cross-functional coordination;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decision making - level of delegation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standards of performance;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality assurance processes;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management style;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management tools;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shared responsibility or departmentalized;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conflict management;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Role of senior management;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Role of quality support;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trust;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Procedures for identifying major improvement projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(ii) Market Focus	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	
	5	4	3	2	1
Market mentality - restricted to the marketing function or cascaded throughout the organisation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowing your markets;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowing your customers;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowing your vendors;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Establishing customer needs, wants and expectations - market research;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales/promotional tools;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product development process;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vendor selection and quality assurance;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competitive benchmarking (benchmarking against competition);	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generic benchmarking (benchmarking against best practice outside of your organisations industry sector.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 (iii) Process Focus :	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	
	5	4	3	2	1
Complaint management;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ownership of the process - who defines the requirements ?;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Definition of the process;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process improvement teams;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Team member selection;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process benchmarking;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Technical support;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control measures for the process;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tools for identification of problems and solutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(iv) People Focus :		YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
	5	4	3	2	1
Job description;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motivation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remuneration system;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recognition;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rewards and incentives;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hiring policy and profile;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Empowerment and education;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Career path;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skills levels;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job flexibility;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Team working;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eliminating fear :					
-employees fear,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-employees and managements fears,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-managements fears;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employee involvement;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(v) Communication and Measurement	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	
	5	4	3	2	1
Internal communications :					
philosophy of the business;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
policies;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
procedures;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
information reporting structure;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
feedback within the organisation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
communication training;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
listening training;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
periodic assessments of effectiveness of training;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
top level performance information pushed down and communicated throughout the organisation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
understanding measurement links to the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External communications :					
consumer education;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
creation of expectations;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
advertising;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
image;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
solicitation/awareness;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
business links with the community;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
agreement of service levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measurements :					
employee performance evaluation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- process performance evaluation;
- service performance evaluation;
- complaint tracking;
- customer satisfaction tracking;
- how to compare service levels;
- data audit (checking data validity and accuracy);
- quality costing;

Data Quality Activities

- defining activities to be pursued during
- planning, implementing, and reviewing; and
- describing roles and responsibilities of
- each key individual during each step above.

If there are any **general** comments you would like to make on the above, please do so in the space provided below.

4a./ Does your organisation have a mission / values statement ?

YES NO

If YES, is this communicated to all members of the organisation ?

YES NO

If YES, how ?* If NO, to whom is it communicated, why these, and do you intend or try to communicate it to all members of the organisation ?* (*delete as applicable).

4b./ Does your organisation conduct regular business environmental analysis ?

YES NO

If YES, could you please briefly detail the frequency, and the scope of the analysis.

4c./ What is the forward looking time horizon for your organisation's key operating strategies ?

4d./ How are your organisation's operating strategies and policies cascaded down / deployed through each layer of the organisation ?

5a./ Does your organisation have a permanent 'steering committee' or 'quality strategy department' to oversee organisation wide total quality initiatives ?

YES NO

If YES, could you please outline the function of the committee / department (ie. its role), how it operates, and how it interfaces with the rest of the organisation (ie. is it set up by business unit, or centrally to the whole organisation ?)

5b./ Does this committee / department standardise on a methodology or framework for achieving its objectives ?

YES NO

Please expand below.

6./ Does your organisation practice **self-assessment** ?

YES NO

If YES, what criteria is used ?

7./ What, in your organisation's view, are the **necessary conditions** that must exist for the attainment of organisation wide quality ?

(Please indicate how important your organisation views the following, by ticking the appropriate box on the scale adjacent to each entry (5 = very important; 1 = not important at all).

	5	4	3	2	1
involvement of, and commitment from all employees;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
leadership and vision from the top;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
commitment to and promotion of the TQM concept by the Chief Executive to all levels and activities of the organisation;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
active and visible participation of top management;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
building and maintaining a human environment that allows the members of the organisation to improve quality, continually based on mutual trust and collaboration;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

effective policy deployment;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
appropriate partnerships between your organisation and your customers;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
appropriate partnerships between your organisation and your suppliers;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
teamwork;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
continuous investment in training, and development of all employees skills;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
quality of the work environment and working life;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
an internal customer/supplier relationship philosophy the objectives of which are understood and committed to by all employees;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
all employees dedicated to continuous (process / working practice) improvement;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
shared responsibility;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
involvement in the community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please state any other **necessary conditions** which your organisation views as essential for the attainment of organisation wide quality in the space below.

8a./ In the previous questionnaire you indicated the type of organisational structure that existed before the introduction of your TQM programme. How has the structure changed thus far, are further changes planned, and if so, to what ?

8b./ How is responsibility for all aspects of quality distributed throughout the members of the organisation ?

**MIDDLESEX UNIVERSITY BUSINESS
SCHOOL**

**Total Quality Management
Delphi Study
Questionnaire Round 3**

Round 3 : SECTION 1 : General

1a./ Please describe the really successful aspects of your organisations TQM implementation.

1b./ Please highlight practices or organisational characteristics pre-TQM, that influenced the successes, partial successes, or failure of the TQM implementation.

	Practices	Organisational Characteristics
Successes		
Partial successes		
Failure		

2./ Did you instigate any specific initiatives prior to, or in preparation for, the launch of TQM ? Please describe.

3./ Were employees informed that the organisation planned to embrace the principles of TQM?

YES NO

If YES, how? :-

- a) Single , or Series , of presentations.
How many employees attended each presentation?
Who made the presentation(s)?
Was it a two-way process? YES NO
- b) Newsletter
- c) Video
- d) No specific event
- e) Other (please specify) :-
-
-

If YES, please give brief details of the 'theme' that was used. Alternatively, please enclose documentary evidence.

Section 2 : The implementation strategy and plan.

4./ If your organisation has a permanent 'steering committee/council' to oversee company-wide quality initiatives, was its role during implementation different from its longterm role? (Please give brief details).

YES NO

5a./ Was a comprehensive implementation plan drawn up before attempting to introduce the

total quality concept?

YES NO

5b./ In relation to the content of the implementation plan, please broadly outline (i) the new initiatives, and (ii) the existing initiatives that were identified for change. Please also indicate how they were phased.

New initiatives :-

Existing initiatives :-

(If possible we would be most grateful if you could supply us with a copy of your broad implementation plan).

5c./ Was a framework or model used to aid drawing up the implementation plan, for example; Crosby's 14 steps, EQA model, PIMS, or one developed in-house, etc?

YES (developed externally)

YES (developed internally)

NO

If 'developed externally', could you either :-

- (i) Supply us with the documentation detailing how you used the framework; OR
(ii) Briefly outline how you used the framework in the space provided below.
-
-
-

If 'developed internally', how was the plan put together?, and what techniques were used?

If YES, **externally or internally**, for each dimension listed below, please indicate how suitable the framework, model or method described above was for the purpose.

Overall suitability	4	3	2	1
Comprehensiveness	4	3	2	1
Ease of use	4	3	2	1
Flexibility	4	3	2	1

(4 = very suitable; 3 = suitable; 2 = not very suitable; 1 = positively unsuitable)

6./ Was developing the implementation plan an **individual** or **team** effort ?

Individual

Team

Neither

If '**team**', who was involved ?

7./ How did your organisation decide implementation priorities ?

8./ How was individual responsibility for the different implementation initiatives decided?

9./ Were concrete timescales set against the achievement of implementation initiatives ?

YES NO

If YES, what was the overall time-scale of the original implementation plan ?

10./ Did the implementation take longer, shorter, or the same time as you planned ?

Longer Shorter

Same as planned

11./ Could you please describe the role of external consultants used after the decision to adopt TQM had been taken, by ticking the appropriate box(es) :-

'External consultants were used :

- in 'facilitating' the development of the implementation strategy and plan';
YES NO
- to define content of the implementation plan';
YES NO
- to directly train employees in TQM tools and techniques';
YES NO
- to train a group of employees how to train the majority of employees in TQM techniques and tools i.e. to train facilitators';
YES NO
- to initially introduce all employees to the new TQM programme';
YES NO

How valuable and successful do you think the work of the consultants was ?

Section 3 : TQM in practice

12./ What does your organisation regard as the most important ingredient in gaining staff commitment to change ?

13./ Please indicate how extensively the total quality '**management and problem solving tools and techniques**' listed below, are used by your organisation.

Extensively Moderately Occasionally

- Benchmarking
- Quality costing exercises
- Quality function deployment
- Process flowcharting
- Taguchi methods
- Brainstorming
- Total preventative maintenance
- Pareto analysis
- Force field analysis
- Cause and effect (fishbone) analysis
- Stratification
- FMECA
- Statistical process control (SPC)
- Poka-Yoke
- Histograms
- Scatter diagrams
- Others (please specify) :-

d) Usual number of employees on team :-

1-3 ; 3-6 ; 6-9 ; 9-12 ; 12-15 ;

e) Are team members :- told to be on team ; asked to be on team ;
voluntarily on team ?

f) If applicable, who decides who is to be on the team :-

team leader ; management ; no-one ; Other

g) What activities take place during the meetings :-

initial training ; refresher training ; team administration ;
problem analysis ; recommendation for problem solution ;
management presentation ; problem identification ;
a decision on the recommendation ;

15./ What does your organisation do to promote **team building** ? (Please give brief details)

14./ Does your organisation use 'continuous improvement teams (CITs)' ?

YES NO

If YES :-

a) Are these teams :- cross-functional ; within function ?

b) Are the team members usually :-

a mixture of management ; white collar ; operatives ;
technical specialists ; a cross section from different organisational levels ?

c) What is team meeting frequency :-

weekly ; bi-weekly ; monthly ; Other

16./ If you think that **fear of change** was present, and hence an obstacle to be overcome, in order to successfully implement TQM at your organisation, please indicate for whom in the table below. Please also detail the elements of your TQ programme that had a positive influence on driving out or alleviating these fears.

	YES	NO	<i>Elements that helped drive out the fear.</i>
Operators			
White collar			
Lower management			

Middle management			
Top management			

Section 3.1 : Process management specific:-

17./ For the achievement of everyday tasks, do your employees organise themselves into cells / process teams (not to be confused with continuous improvement teams) ?
 YES NO

If YES, please give brief details relating to how they are set up, why they are set up that way, and how they report.

Are team leaders multi-skilled to aid team training and relief of absentees ?
 (Please give a percentage weighting e.g. YES 70 / NO 30, or YES 20 / NO 80.)
 YES NO

Are team members encouraged to learn the skills spectrum of all group members ?
 (Please give a percentage weighting e.g. YES 70 / NO 30, or YES 20 / NO 80.)
 YES NO

18./ Are employees encouraged to inspection / appraise their own work ?
 (Please give a percentage weighting e.g. YES 70 / NO 30, or YES 20 / NO 80.)
 YES NO

19./ Does your organisation apply preventative techniques to encourage task achievement to be done right first time ?
 (Please give a percentage weighting e.g. YES 70 / NO 30, or YES 20 / NO 80.)
 YES NO

20a./ Who agrees ownership of processes ?

20b./ How does your organisation encourage process ownership ?

Section 4 : Measurement and Communication for Total Quality

21./ Does your organisation view performance measurement as :-
 i./ a 'competitive tool', YES NO
 and/or;
 ii./ an 'integrated part of the TQM concept' YES NO

22./ Please indicate which of the following attributes your organisation's performance measurement system encompasses :-

(Please either tick boxes, OR, give a percentage weighting e.g. YES 70 / NO 30, or YES 20 / NO 80.)

Final results :-

Financial YES NO
 :- profitability YES NO
 liquidity YES NO
 capital structure YES NO
 market ratios YES NO

Measures of competitiveness YES NO
 :- relative market share and position YES NO
 sales growth YES NO
 measure of customer base YES NO

Process / Determinant measures :-

Quality / customer satisfaction YES NO
 :- reliability YES NO

product performance	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
technical service	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
service performance	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
communication	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
compliance	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
contact & accessibility	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

<i>Timeliness</i>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
:- responsiveness	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
on-time delivery	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
consistent delivery	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

<i>Innovation / effectiveness</i>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
:- performance of the innovation process	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
performance of the individual innovation	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

<i>Flexibility</i>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
:- value flexibility	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
delivery speed flexibility	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
specification flexibility	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

Productivity / efficiency YES NO

Employee satisfaction YES NO

23./ Is your performance measurement system periodically reviewed and modified to focus on value drivers ?

YES NO

If YES, please briefly describe the review process.

24a./ Has emphasis on finance as a performance indicator changed since the introduction of your TQM programme ?

YES NO

24b./ How has your **financial** performance measurement system changed as the result of the introduction of TQM ?

24c./ How, in broad terms, has your **non-financial** performance measurement system changed since the introduction of your TQM programme ?

(If possible, we would be most grateful if you would send us working examples of the performance indicators you use, especially those used for management decision making purposes, and for shopfloor/workplace/service achievement informing purposes.)

Section 5 : Lessons learnt.

25./ Now that you are X years down the TQM implementation path, can you identify anything major that in **hindsight** you would have definitely done differently (and not necessarily because it was bad). If so, how would you suggest it should be done ?

26./ During implementation, did your organisation encounter any major **problems** that delayed implementation plans, and if so, how were these problems overcome ?

Additional answering space if required.

MIDDLESEX UNIVERSITY BUSINESS
SCHOOL

Total Quality Management
Delphi Study
Questionnaire Round 4

Round 4 : Section 1 - TQM MOMENTUM & ENTHUSIASM

In questions 1a, 1b and 1c, 'enthusiasm' and 'momentum' should be interpreted as follows :

Enthusiasm - 'a strong interest for or great eagerness in something'

Momentum - 'strength or continuity derived from an initial effort'

1a Does your organisation find that *enthusiasm* for TQM is cyclic (i.e. enthusiasm experiences 'highs' and 'lows') ?

YES NO

If YES :-

(i) what is the average period of the cycle ?;

(ii) how is a loss of *enthusiasm* usually identified, and where in the organisation does the loss usually occur ?;

(iii) how does your organisation go about rejuvenating *enthusiasm* for TQM ?
(Please give examples of the strategies / methods used);

1b Did your organisation notice any shifts in *enthusiasm* in the early stages of TQM implementation ?

YES NO

If YES, please state where :-

1c Has your organisation ever experienced a loss of TQM *momentum* ?

YES NO

If YES :-

(i) how old was the TQM programme when this loss of *momentum* occurred ?;

(ii) how was the loss of *momentum* identified ?;

(iii) how did your organisation recover the TQM *momentum* ? (Please give examples of the strategies / methods used);

1d Does your organisation attempt to relate overall improvements in product/service quality to changes in overall financial performance ?

YES NO

If YES, please briefly outline the method used :-

1e Does your organisation attempt to relate overall improvements in operational performance to changes in overall financial performance ?

YES NO

If YES, please briefly outline the method used :-

Section 2 - BUSINESS PLANNING & QUALITY INTEGRATION

2a Is it your organisation's policy to set major quality goals at the corporate level ?

YES NO

If YES, can you please provide typical examples :-

If NO, where are major quality goals set ?

2b Is it your organisation's policy to insist that functional / departmental plans include quality improvement programmes / projects ?

YES NO

If YES, to what extent is this policy adhered to ? (* Please state where in the organisation any exceptions occur and if possible, why ?)

rigidly throughout organisation* ;

loosely throughout the organisation* ;

(no means of checking) .

2c Is conformance to quality a required part of an individual's tasks ?

YES NO

2d Does contribution to quality improvement efforts form a part of the procedure for reviewing an individual's performance ?

YES NO

2e What are the **KEY** objectives for quality improvement in your organisation's next year's plans ?

2f Does your organisation actively review , evaluate , and improve the effectiveness of business planning processes ? (Please tick applicable boxes for YES)

2g *In round 2, 90% of participating organisations indicated that they had a mission/values statement, that was communicated to all members of the organisation.*

If you were one of these organisations, does your organisation actively seek to measure the acceptance of and commitment to its values ?

YES NO N/A

2h Do quality measures form a part of regular management information at :-

Senior management level YES NO ;

Middle management level YES NO ;

Junior management level YES NO ?

Section 3 - CUSTOMER RELATIONS

In round 2, 'knowing your customers' was identified as a cornerstone of TQM. This section explores the nature of customer relations. This section is divided into three headings; Customer Requirements; Customer Service; and Customer Satisfaction. Please read through all questions in this section before attempting to answer any. This will help you to direct your answers appropriately.

3.1 Customer Requirements

3.1a Does your organisation have a routine methodology for determining customer's **CURRENT** requirements and expectations ?

YES NO

If YES please state :-

i. the information sought :-

ii. the methods and frequency of collection :-

If NO, please state why ?

3.1b Is 'competitor analysis' conducted to see how your organisation performs relative to your competitors in determining customer's **CURRENT** requirements and expectations ?

YES NO

3.1c Does your organisation have a routine methodology for determining customer's **FUTURE** requirements and expectations ?

YES NO

If YES please state :-

i. information sought :-

ii. the methods and frequency of collection :-

If NO, please state why ?

3.1d Is 'competitor analysis' conducted to see how your organisation performs relative to your competitors in determining customer's **FUTURE** requirements and expectations ?

YES NO

3.1e Is it your organisation's policy to attempt to **exceed** your customer's requirements ?

YES NO

If YES, please briefly describe how :-

3.1f Does your organisation have a defined process or methodology for **disseminating** customer's requirements and expectations ?

YES NO

If YES, please map out or describe the fundamentals of this dissemination process in the space below, including who or which groups in the organisation receive this information

3.1g Does your organisation have mechanisms in place for evaluating and improving the effectiveness of the processes to collect and disseminate customer requirements ?

YES NO

If YES, please map out or describe the fundamentals of these mechanisms in the space below, including the frequency they are used.

3.1h Does your organisation actively attempt to determine :-

(i) specific product and service features;

YES NO and

(ii) the relative importance of these features to customers ?

YES NO

3.2 Customer Service

3.2a Is it your organisation's policy to review the performance of the **customer service** it delivers ?

YES NO

3.2b Does your organisation follow up with customers on products, services, and recent transactions to seek feedback / improve relationships ?

YES NO

If YES, please map out or describe the fundamentals of this process(es) in the space below, including how your organisation encourages customer feedback.

3.2c In general, what types of customer feedback does your organisation receive ?

3.2d How does your organisation take steps to ensure that customers have easy access to the appropriate person(s) in your organisation for assistance ?

3.2e Does your organisation maintain a customer compliment database ?

YES NO

3.2f Does your organisation maintain a customer complaint database ?

YES NO

3.2g Does your organisation have a defined process for handling customer complaints ?

YES NO

If YES, please map out or describe the fundamentals of this process in the space below and describe how your organisation ensures that complaints and problems are resolved promptly and effectively ?

3.2h Does your organisation set standards for responding to customer complaints ?

YES NO

If YES, please list (e.g. speed of response) :-

3.2i Does your organisation set priorities for improvement projects based upon analysis of customer complaints ?

YES NO

3.2j When resolving customer complaints, does your organisation offer customers anything over and above the obligatory complaint resolution, e.g. a goodwill gift ?

YES NO

If YES, please give examples :-

3.2k If in a manufacturing organisation or a service organisation with a low degree of customer contact, does your organisation encourage your customers to visit your organisation ?

YES NO N/A

3.3 Customer Satisfaction

3.3a Is *customer satisfaction* measured by your organisation ?

YES NO

If YES,

i. what are the measures (If too many measures to define here, please state the key measures. Any additional documentation would be much appreciated) ?

ii. what are the methods of data/information collection ?

iii. how are the measures used by your organisation ?

3.3b Are *customer satisfaction* measures universal for all customers, or are different sets of measures designed specifically for different groupings of customers ?

UNIVERSAL SPECIFIC

3.3c Does your organisation attempt to quantify *customer satisfaction* relative to that for competitors ?

YES NO

3.3d Does your organisation actively take steps to ascertain customer *perceptions* of your organisation ?

YES NO

3.3e Does your organisation attempt to measure the perceptions and needs of unserved customers (i.e. customers you would like to have) ?

YES NO

Section 4 - SUPPLIER RELATIONS

This section is concerned with establishing how your organisation assesses supplier capabilities and assures quality requirements are met. Please read through the whole of this section prior to answering any questions.

4a Please give an estimate of how many suppliers your organisation has :- _____

4b Please indicate which of the following criteria your organisation assesses its suppliers against :-

- Speed of delivery or lead-time
- Reliability of delivery
- Price competitiveness
- Quotation response time
- Product/service innovation
- Design capability
- Proactiveness
- Interactiveness
- Management attitude/culture

- Contractual framework
- Financial viability
- Marketing strategy and policy
- QA (including third party approvals)
- Manufacturing capability
- Technical support/backup
- Handling of complaints
- Packaging capabilities
- OTHERS (please list)

4c To what extent does your organisation involve your suppliers in your improvement activities ?

Occasionally * ; Moderately * ; Extensively *

Please try and quantify your above choice along the following dimensions :

- Average supplier man hours per month _____

- Proportion of total number of suppliers actively involved per annum _____

* Please briefly state the reasons for the choice made above :-

In what main areas do your suppliers help you ?

4d To what extent does your organisation assist its suppliers to improve the quality of their products or services ?

Occasionally * ; Moderately * ; Extensively *

Please try and quantify your choice along the following dimension :

- Average man hours per month per supplier _____

* Please briefly state the reasons for the choice made above.

In what main areas do you help your suppliers ? (Please include your organisation's policy on formal supplier development and accreditation process).

4e What linkages exist for communicating / defining quality requirements to suppliers ?

4f What linkages exist for communicating supplier performance back to your suppliers, and suggesting key areas for improvement ?

4g Does your organisation have a formal supplier recognition scheme e.g. 'supplier of the year' ?

YES NO

If YES, please briefly describe :-

4h What are your organisation's future plans for improving supplier performance ?

Section 5 - EMPLOYEE RELATIONS, DEVELOPMENT & SATISFACTION

This section is divided into five headings. Please read through all questions in this section before attempting to answer any. This will help you to focus your answers appropriately.

5.1 Human Resource Management

5.1a Are human resource issues an item on the corporate planning agenda ?

YES NO

5.1b Does your organisation define human resource plans and set human resource priorities:-

(i) in the short term YES NO

If YES, please give :-

(a) **qualitative** examples (i.e. concerned with or depending on quality) :

(b) **quantitative** examples (i.e. concerned with or measurable by quantity) :

(ii) in the long term YES NO

If YES, please give :-

(a) **qualitative** examples (i.e. concerned with or depending on quality) :

(b) **quantitative** examples (i.e. concerned with or measurable by quantity) :

5.1c How does your organisation evaluate and improve its human resource planning processes ?

5.2 Employee Involvement and Empowerment

In previous rounds 'employee involvement and empowerment' have been identified numerous times as cornerstones of TQM process. This sub-section explores the nature of 'employee involvement and empowerment' in greater detail.

5.2a What are the principal mechanisms your organisation uses to promote ongoing employee contribution to quality improvement ?

5.2b Please describe the specific ways in which employees are empowered to act, take initiatives and accept responsibility at your organisation. Please include in your answer, (i) how the organisation seeks to **increase** employee empowerment, responsibility and innovation, and (ii) what latitude of empowerment is given to employees (please give examples).

5.2c Does your organisation have indicators that it uses to evaluate the extent and effectiveness of employee **involvement** ?

YES NO

If YES, please describe them and how they are useful to the organisation :-

5.2d Does your organisation relate to the concept of the '*internal customer*'.

YES NO

If YES, how is the concept of the '*internal customer*' promoted and used within your organisation ?

5.3 Quality Education and Training

5.3a Does your organisation differentiate between *education* and *training* ?

YES NO

If YES, please state how.

The following education / training related questions (b), (c), (d), (e), (f) and (g) may require different answers for different levels of the organisation. A table has been provided for this purpose. If you wish, please alter the headings to those that more accurately reflect the levels where education / training differs at your organisation.

Each question in the table has answering space split between education and training. If you feel that your organisation distinguishes between education and training to the extent that this division is useful, please use it. Otherwise ignore the division, but please make this clear to us by crossing out the words 'Education' and 'Training'.

	MANAGEMENT	STAFF (professionals, accountants, engineers etc)	DIRECT LABOUR (operators etc)
5.3b - How are education and training needs identified ?			
<i>Education</i>			

<i>Training</i>						
5.3c - Please indicate which of the following are addressed by the process(es) described in 5.3b above. (Tick box only if a 'YES')						
<i>Education</i>	Knowledge	<input type="checkbox"/>	Knowledge	<input type="checkbox"/>	Knowledge	<input type="checkbox"/>
	Skills	<input type="checkbox"/>	Skills	<input type="checkbox"/>	Skills	<input type="checkbox"/>
	Attitudes	<input type="checkbox"/>	Attitudes	<input type="checkbox"/>	Attitudes	<input type="checkbox"/>
	Experience	<input type="checkbox"/>	Experience	<input type="checkbox"/>	Experience	<input type="checkbox"/>
<i>Training</i>	Knowledge	<input type="checkbox"/>	Knowledge	<input type="checkbox"/>	Knowledge	<input type="checkbox"/>
	Skills	<input type="checkbox"/>	Skills	<input type="checkbox"/>	Skills	<input type="checkbox"/>
	Attitude	<input type="checkbox"/>	Attitudes	<input type="checkbox"/>	Attitudes	<input type="checkbox"/>
	Experience	<input type="checkbox"/>	Experience	<input type="checkbox"/>	Experience	<input type="checkbox"/>

	MANAGEMENT	STAFF (professionals, accountants, engineers etc)	DIRECT LABOUR (operators etc)
5.3d -	How does your organisation go about deciding what education and training is to be given to employees ?		

<i>Education</i>			
<i>Training</i>			
5.3e - Do employees take an active part in identifying their education and training needs ?			
<i>Education</i>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
<i>Training</i>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

	MANAGEMENT	STAFF (professionals, accountants, engineers etc)	DIRECT LABOUR (operators etc)
5.3f -	Without detailing specific education / training items, please list the principle education and training areas (e.g. quality awareness, quality tools etc)		

<i>Education</i>			
<i>Training</i>			
5.3g - What does your organisation find are the principal and most effective mechanisms for education and training delivery ?			
<i>Education</i>			
<i>Training</i>			

5.3h Does your organisation seek to assess the effectiveness of education and training ?

YES NO

If YES, please map out or describe the fundamentals of this process, including frequency, in the space below.

5.3i Please provide the quality education/training related general statistics listed below, and indicate whether each statistic is on an upward or a downward trend :

- percentage employees receiving training / education; _____ / _____
(Trend : ↗ ↘ (please circle))
- hours of education / training received per year per employee; _____ / _____
(Trend : ↗ ↘ (please circle))
- annual education / training costs per head; _____ / _____
(Trend : ↗ ↘ (please circle))
- percentage of total annual training costs accounted for by quality related education / training. _____ / _____
(Trend : ↗ ↘ (please circle))

5.3j In your organisation's view is education and training a key element of the organisations ability to maintain its quality ?

YES NO

5.3k Would you say that quality education / training programmes at your organisation are well planned ?

YES NO

If NO, please state why :-

5.4 Employee Development

5.4a Does your organisation actively measure the level of *employee satisfaction* ?

YES NO

If YES, what employee satisfaction related data does the organisation collect ?;

Please also briefly state the principle methods and frequency of collection :-

5.4b Are achievement goals set for *employee satisfaction* ?

YES NO

5.4c Does your organisation monitor :-

absenteeism YES NO ;

staff turnover YES NO ;

grievances YES NO ;

OTHERS (please state) :-

5.4d Is the information described in (c) above used to provide key input to overall organisational planning ?

YES NO

5.4e Is career path planning an integral part of individual employee's review process ?

YES NO

5.4f How does your organisation evaluate and use all the employee-related data to improve the development and effectiveness of the entire workforce ?

5.4g Does your organisation use upward evaluation (i.e. are employees invited to comment on the performance of their superiors) ?

YES NO

If YES, does this affect any performance related pay to senior staff ?

YES NO

5.4h What special services, facilities and opportunities does your organisation make available to employees. (Please tick and add to the list below) :

- counselling YES NO ;

- recreational facilities YES NO ;

- cultural facilities YES NO ;

- non-work related education YES NO ;

- opportunity to gain qualifications YES NO ;

(eg NVQ)

- OTHER services/facilities/schemes (please state)

5.4i What is your organisation's policy on job security ?

5.4j How does management define employee satisfaction ?

5.5 Recognition and Reward

5.5a Does your organisation differentiate between *recognition* and *reward* ?

YES NO

If YES, please briefly state how.

5.5b How is recognition / reward at your organisation usually bestowed ? (Please tick and add to the lists below).

Recognition :

- the individual
- on a team basis
- equally across the

Reward :

- the individual
- on a team basis
- equally across the

whole organisation

whole organisation

- OTHER (please state)

- OTHER (please state)

How would the above typically qualify for recognition / reward ?

In what form(s) is recognition/reward usually bestowed (please give typical examples) ?

5.5c Are employees encouraged to help design the recognition/reward approaches used ?

YES NO

5.5d Are the approaches used consciously designed to ensure that quality is re-enforced for the long-term, rather than for short-term financial gains and considerations.

YES NO

Section 6 - COMMUNICATION AND AWARENESS

6a This question is concerned with the main channels of communication provided between management and employees. Please describe :-

- (i) the principal ways management communicates with employees, the type of information provided, and the frequency :

(ii) the processes that have been established for employees to communicate with management :

(iii) the processes that have been established for management to communicate with each other :

(iii) the processes that have been established for employees to communicate with each other :

6b How are employees at all levels of the organisation made aware of organisational performance, and what measures and indicators are used for this purpose ?

6c Does your organisation evaluate the effectiveness of the communication processes ?

YES NO

6d Is '(i) employee awareness of organisational quality values' and '(ii) integration of organisational quality values' quantified by your organisation ?

(i) YES NO

(ii) YES NO

6e Is a mistake (regardless of its original cause - a 'good' decision or a 'poor' decision) generally perceived to be a threat or an opportunity by the employee(s) involved ?

Opportunity Threat

6f Does your organisation encourage employees to take 'good sound risks' ?

YES NO

Section 7 -THE FUTURE

7a Under each of the following headings, please briefly state *future organisational* goals / strategic plans / policies:

- for managing quality;

- for production lines and production methods;

- for service processes of delivery;

- for management methods / processes;

- for human resources;

- scope of the business, price and demand;

- culture change;

Section 8 - BENEFITS AND EFFECTS OF CHANGE

8a Has pursuit of TQM brought about any **major** changes in your organisation's operations, that would not have been likely to happen without the TQ effort?

YES NO

If YES, please give brief details.

8b Please concisely list the five most important '*internal effects of change*' that have resulted from your TQM programme.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

8c Please concisely list the five most important '*externally oriented effects of change*' that have resulted from your TQM programme.

- 1. _____
- 2. _____
- 3. _____
- 4. _____

5. _____

8d Please concisely list the five most important '*benefits*' that have resulted from your TQM programme.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Additional answering space if required.

APPENDIX 4.3.5 - Qualifier covering letter

[date text]

Name
Title/Position
Address 1
Address 2
Address 3

*Middlesex University
The Burroughs
London NW4 4 BT*

Dear [Name]

Thank you very much for agreeing to discuss and advise us on the content of the [first, second, third, fourth] round questionnaire of our Total Quality Management (TQM) Study.

Please find enclosed the draft questionnaire. The questionnaire is part of a study from which we hope to be able to develop a theory for TQM based purely on the views and practices of industry leaders in the field. As you may know, a great deal of uncertainty surrounds the TQM concept and we hope that our research will be able to resolve some of the misunderstandings.

I have also enclosed an outline of the objectives for the [second, third, fourth] round questionnaire(s) which I hope will allow you to see where the [first, second, third, fourth] round objectives fit within the overall study.

We would like you to help us to identify any important [issues] which we may have overseen in our [first, second, third, fourth] round preparation and future study objectives, and to critically appraise the questionnaire content and style.

We are aiming to finalise the questionnaire design and send it out to our study participants by [date text].

I look forward to our meeting on [date text].

Yours sincerely

David N Gallear
Research Officer, Middlesex University Business School

MIDDLESEX UNIVERSITY BUSINESS SCHOOL

Total Quality Management Delphi Study

Feedback Report 1

INTRODUCTION

The primary aim of the first round questionnaire was to gain an understanding of why organisations decide to adopt TQM. We believe that the comprehension of the reasons for the introduction of TQM influences the success of both the implementation phase and the ongoing momentum.

This document highlights the main finding of the first round questionnaire.

The Participant Group

An international group of 51 participants from a total of 46 organisations are taking part in the study. The majority are from the United Kingdom. The geographical location of participants is depicted in figure 1.

Figure 1.

Participants Geographical Location

(E=Europe; U.S.=North America; AUS=Australia; CAN=Canada)

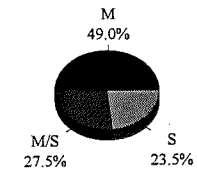


Both manufacturing and service organisations are well represented as shown in figure 2.

Figure 2.

Participating Organisations Business Orientation

(M=Manufacturing; S=Service; M/S=Manufacturing/Service)

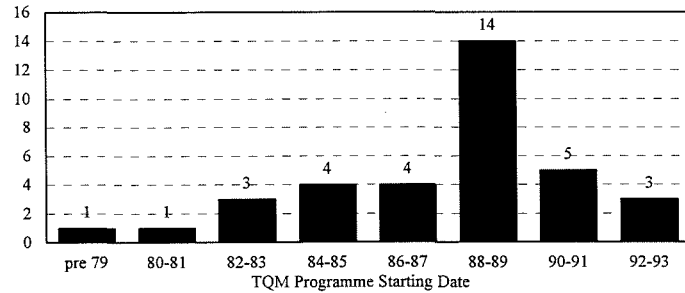


In 28% of organisations TQM has evolved on an ad hoc basis. Of the organisations that formally introduced TQM, the average experience is 6 years as shown in figure 3 overleaf.

The large organisations within the participating group were the first to adopt TQM. The first medium-sized organisation to formally introduce TQM did so in 1985, and the first small organisation did so in 1989.

Figure 3.

TQM Experience (Starting Dates for Programmes of Those Participants Who Formally Introduced TQM)



Why Total Quality Management ?

Figure 4 below shows that the two most frequently identified reasons for introducing TQM were **financial / economic survival** (identified by 71% of respondents (36)), and **focus for culture change** (identified by 69% of respondents (35)).

Figure 4.

Primary Reasons for Introducing TQM

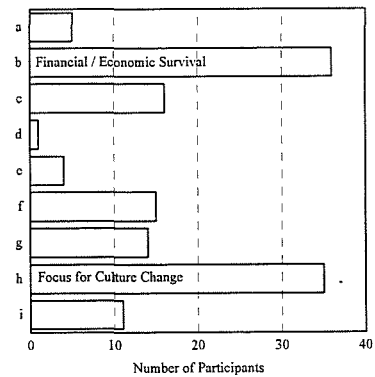
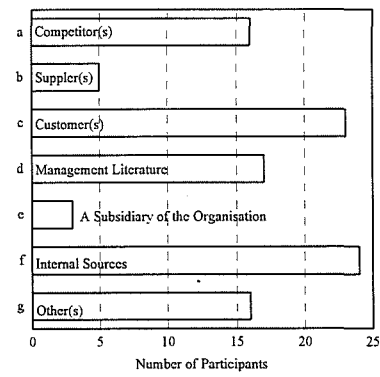


Figure 5.

Sources of identification of TQM merits



NB. A full listing of primary reasons (a) to (i) is given in the Appendix.

Organisations heard about TQM from their **customer(s)** (identified by 45% of respondents) and through **internal sources** (identified by 47% of respondents). This is shown in figure 5.

Of the 36 participants who identified **financial / economic survival** as a primary motivator for TQM, 15 identified the need through **customer(s)**. Of the 35 participants who identified **focus for culture change** as a primary motivator, 16 identified the need through **internal sources**. This observation backed up by all other responses to these two areas, suggests that for all the organisations taking part, the decision to adopt TQM was driven by an identified need to change, rather than being based on the hopes of another topical panacea.

This observation is further backed by the fact that 100% of respondents indicated that they are still confident that the reasons they adopted TQM were valid at the time, and more than 95% believed these reasons are still valid.

When organisation type was cross-referenced against the reasons for adopting TQM the distribution of organisation types who gave **financial / economic survival** as a primary reason was roughly the same as the distribution of the group as a whole (see figures 6a & 6b). However, for those organisations indicating **focus for culture change** as a primary reason, figure 6c below clearly shows a shift in the distribution, with manufacturing taking a much higher proportion.

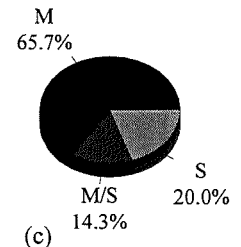
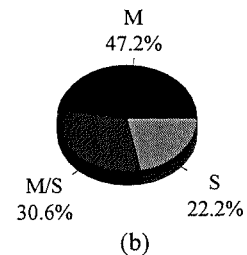
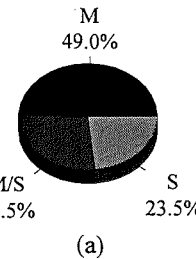
Figure 6.

a./ **Distribution of Organisation Types for Whole Participant Group.**

b./ **Distribution of Organisation Types Indicating 'Financial / Economic Survival' as a Primary Reason for Adopting TQM.**

c./ **Distribution of Organisation Types Indicating 'Focus for Culture Change' as a Primary Reason for Adopting TQM.**

(M=Manufacturing; S=Service; M/S=Manufacturing/Service)



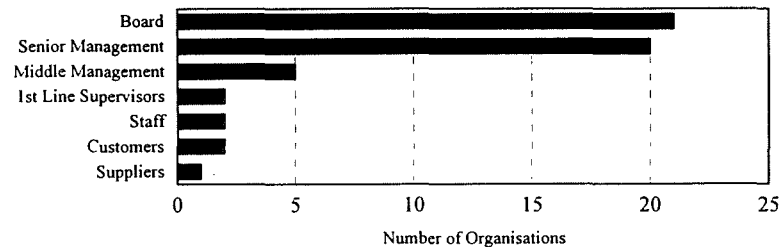
How the Decision to Adopt TQM was Reached

Figure 7 below shows the representation of organisation members involved in the decision to adopt TQM. In 21 of the 27 organisations that had formally introduced TQM, the main board consulted over the decision. In 15 of these 21 organisations, senior management was also involved in the discussion. This infers that the adoption of TQM was a strategic decision for most organisations. Indeed, 94% of respondents indicated that their Total Quality programme is linked with the overall corporate strategy.

In only 5 cases, middle management was consulted. Two organisations indicated that their customers were consulted before they adopted TQM, and one organisation indicated that their suppliers were consulted before they adopted TQM.

Figure 7.

Organisation Members Involved in the Decision to Adopt TQM



The issues that were considered and debated during the TQM adoption decision making phase were very wide ranging. The **cost of introducing TQM**, **the commitment required**, **the support resources required**, **the TQM implementation plan** and **the timescales involved** were the most frequently mentioned issues (see figure 8 below). Due to its importance to this study, this area is further explored in Section 1 of questionnaire round 2.

Figure 8.

Most Frequently Mentioned Areas of Debate When Considering Whether or Not to Adopt TQM

- ▶ Cost (10 respondents)
- ▶ Commitment required (10 respondents)
- ▶ Implementation plan (9 respondents)
- ▶ Support resources required (8 respondents)
- ▶ Timescales (6 respondents)

Organisational Characteristics Prior to TQM

Before their adoption of TQM 73% of organisations indicated they had **directive** culture, and 85% indicated that the prominent characteristic of their management style was **reactive**.

'Middle of the Road Management' (44% of responses) and 'Authorative-Compliance Management' (33% of responses) were by far the most popular management styles employed by the participating organisations prior to TQM. Only 6% of respondents indicated 'Team Management'.

From these observations we can conclude that these traits of organisational culture and management style do not hinder the introduction of total quality programmes.

Benefits

97% of participants indicated that benefits arising from the adoption of TQM exceeded their initial expectations.

Appendix

Listing of primary reasons for the introduction of TQM. (ref. Figure 4.)

Reason :

- (a) pressure / request from major customers to change your systems in line with theirs (ie. to integrate forwards).
- (b) financial / economic survival.
- (c) competitive changes made by your competitors.
- (d) change in balance of activities.
- (e) major revision / updating of plant / facilities provided the opportunity to simultaneously revise working practices and management processes.
- (f) loss of market share.
- (g) pressure from end customers to improve your overall performance.
- (h) focus for culture change.
- (i) other(s) (please specify).

MIDDLESEX UNIVERSITY BUSINESS SCHOOL

Total Quality Management Delphi Study Feedback Report 2

INTRODUCTION

The primary aim of the second round questionnaire was to establish what TQM encompasses, and how it integrates with the purpose and operations of the business.

This document highlights the main findings of the second round Delphi survey.

Responses to the second round questionnaire were received from 47 of the original 51 participants. These participants represented 43 of the original 46 organisations from around the world.

Ethos of Total Quality Management

The Delphi questionnaire described TQM in a series of statements. Figure 1 shows the top five statements chosen by the respondents. These five views go a long way to expressing both the perceived competitive requirements, and the role of TQM in the management process. The response clearly showed the holistic nature of TQM. TQM clearly addresses the values and missions of the business as well as its physical operations and activities.

Figure 2 shows the three highest scoring views of what is not TQM. As can be seen, the survey participants strongly agree that TQM cannot be regarded as a quick fix, rather it must be a continuous process.

Figure 1.

What is TQM : top five views.

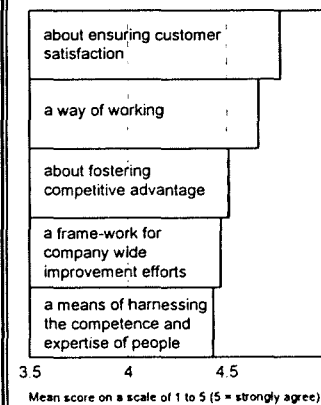
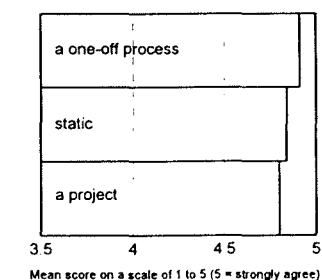


Figure 2.

What TQM is not : top three views.



The Elements of Total Quality Management

The first round questionnaire showed that reasons for adopting TQM were highly varied. It is envisioned that similarly, when analysing the third round questionnaire returns, we will find a wide-range of implementation strategies adopted. Despite this, TQM comprises a number of key elements. The second round questionnaire highlighted the following five key elements :- **Management Process; Market Focus; Process Focus; People Focus; and Communication & Measurement**, which the vast majority of participants regarded as important facets of their TQM programmes. For each of these main elements, Table 1 shows the salient five sub-element, as perceived by the respondents. By salient, we simply mean the five highest scoring sub-elements for each main element.

Table 1.

The Sub-Elements of TQM Rated as the Most Important.

MANAGEMENT PROCESS	MARKET FOCUS	PROCESS FOCUS	PEOPLE FOCUS	COMMUNICATION & MEASUREMENT
Role of senior management;	Knowing your customers;	Tools for identification of problems and solutions;	Team working;	Customer satisfaction tracking;
Trust;	Establishing customer needs, wants and expectations - market research;	Process improvement teams;	Employee involvement ;	Process performance evaluation;
Standards of performance;	Knowing your markets;	Ownership of the process;	Training;	Service performance evaluation;
Planning process;	Knowing your vendors	Definition of the process;	Motivation;	Philosophy of the business;
Management style.	Product development process.	Complaint management.	Recognition .	Complaint tracking.

Mean score on a scale of 1 to 5 (5 = very important)

Total Quality Management and Strategy

In today's competitive business climate, organisations choose internal and external strategies that determine their success or failure. The study showed that TQM plays a significant role in the formulation of strategy, and that it is an integrated component of the strategic decision making process.

Fourty-four of the forty-seven participants regard TQM itself, as a generic strategy underpinning / supporting other efforts of the business. TQM is strongly viewed (and used) as a strategic tool. It helps to co-ordinate strategy, by facilitating better and clearer strategic analysis and choice. The change in culture helps to foster closer integration.

As far as TQM's role as a strategic tool is concerned, the vast majority of participants agree that TQM addresses the following strategic issues :-

- management attitudes;
- development of process capability;
- ethos to accept change more readily;
- human resource management.

Steering Total Quality Management

There is no doubt that self-assessment is viewed as an extremely important element of the quality achievement process. Thirty-eight of the participating organisations have formal self-assessment processes, of which thirty are based on the framework propagated by one of the recognized quality awards. Figure 4 shows the distribution.

Figure 3.

Proportion of Survey Participants Practicing Self-Assessment.

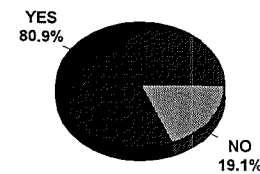


Figure 4.

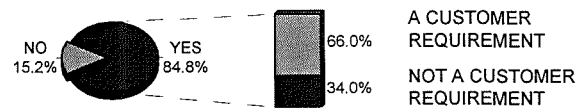
Frameworks Adopted for Self-Assessment.

Self-assessment framework used.	No. of organisations.
Malcolm Baldrige National Quality Award	17
European Quality Award	9
British Quality Award	1
Australian Quality Award	3
Developed purely 'in-house'	14

Figure 5 below shows the proportion of participants having a quality assurance certification. For those that do, it also shows whether or not attainment of this certification was a customer requirement.

Figure 5.

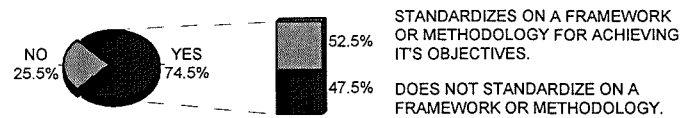
Proportion of Survey Participants Having a Quality Assurance Certification.



Maintaining control of the TQM process is catered for by the majority of the participating organisations, by having a permanent TQM steering committee/council, as shown in figure 6. A roughly even split separates those organisations that use a standard framework for the steering committee, from those that do not.

Figure 6.

Proportion of Survey Participants Having a Permanent TQM Steering Committee.



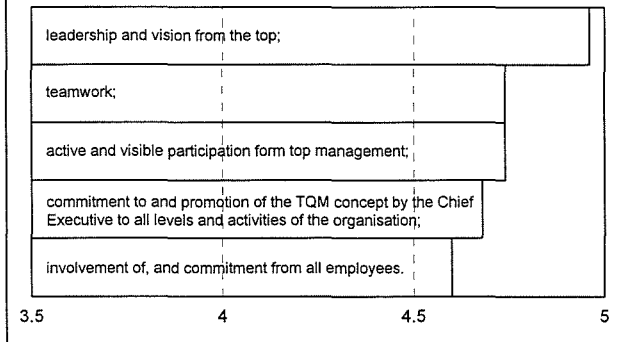
Cultural Implications of Total Quality Management

For the attainment of organisation wide quality, it is clear that top management's input to the process is paramount. Figure 7 shows the five most important 'necessary conditions' for organisation wide quality, identified by the participant group. Three directly pertain to top management.

It may also be noted that of all the five point-scaled TQM factors on the whole questionnaire, 'leadership and vision from the top' achieved the highest mean score of 4.96.

Figure 7.

The Five Highest Scoring 'Necessary Conditions' for the Attainment of Organisation Wide Quality.



CONCLUDING REMARKS

From the totality of responses to the second round questionnaire, a number of common themes emerged. Firstly, top management's commitment to any programme of continuous improvement is essential. As ascertained, TQM is not a one-off process. Rather, it is akin to a never-ending journey made up of many projects. No journey can be guaranteed to be successful without clear and consistent direction. This direction must be provided by top management.

The study has shown that TQM addresses both competitive priorities and key managerial issues. There are a number of common elements in a TQM programme.

Finally, the holistic nature of TQM has been demonstrated. The TQM 'concept' is viewed as a generic strategy. It influences the strategic choices of organisations and the process of making strategic decisions.

MIDDLESEX UNIVERSITY BUSINESS SCHOOL

Total Quality Management Delphi Study

Feedback Report 3

1. Introduction

The third round of the Total Quality Management (TQM) Delphi study was primarily concerned with gaining an understanding of what was actually involved in the implementation of TQM for the participating organisations. This builds on to the second round questionnaire which sought to determine what the participating organisations perceived TQM to be.

This feedback report is divided into seven sections. The third round questionnaire attempted not only to establish what some of the organisational activities of TQM are, but also attempted to quantify some of the key factors that contribute to implementing TQM successfully, and some of the obstacles or barriers to successful implementation. By learning where the inherent characteristics of TQM implementation either complement or clash with the prevailing characteristics of the organisation, we can better understand how future total quality initiatives should be prioritised and progressed. Sections 2 and 7 provide some insight into these areas.

2. TQM in Practice

The participating organisations were asked to describe in their own words the *really successful* aspects of their organisations TQM implementation. Although the aspects put forward across the sample were very wide-ranging, some common themes were discernable. Quantitative analysis showed that **teamwork** was the most frequently mentioned *really successful* aspect. The use of teams by the participating organisations is discussed in greater detail in sections 4 and 5 of this report. Table 1 below gives a breakdown and ranking of these *really successful* aspects.

Table 1 : Really Successful Aspect of TQM Implementation	No. of times mentioned by organisations
Teamwork	13
Organisational change/re-engineering with respect to attitude and/or organisational structure	11
Employee development / employee involvement	10
Customer / supplier relationship	7
Quality systems and self-assessment	6
Training	5

Increase in product quality	5
Customer satisfaction	4
Problem solving / resolution	2
Mission / strategy development	2

As the table shows, 'increase in product quality' and 'customer satisfaction' were mentioned by only five and four organisations respectively. Considering the average TQM experience of the participating organisations is 6 years, this infers that immediate payback from TQM implementation should not be expected. It is also interesting to note that 'mission/strategy development' was mentioned just twice, and that 'implementation plan development' was mentioned by only one organisation as a *really successful* aspect of TQM implementation.

Participants were also asked to highlight the *practices* or *organisational characteristics* that existed before the introduction of their TQM programme, that influenced the successes, or failures, of TQM implementation. Table 2 below summarises the findings.

Table 2	Organisational Characteristics	Practices
Successes	Desire to change (7)	Teamwork (5)
	Strong leadership (6)	
	Strong/Positive management style / Positive management attitude (10)	Market research / Competitive analysis (4)
	Involvement / empowerment of employees (5)	
Failures	Structural shortcomings (10)	
	Management commitment (3)	

N.B. Numbers in brackets indicate the number of organisations mentioning the respective entry

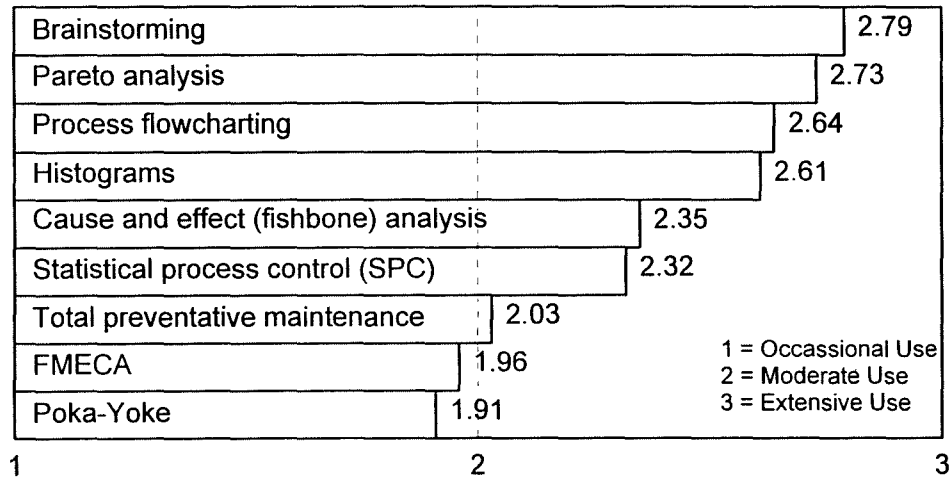
It is encouraging to note that elements pertaining to **management** feature more frequently under successes than they do under failures.

The participants were asked what their organisations regard as the most important ingredient in gaining staff commitment to change. Table 3 shows those ingredients most frequently mentioned. Yet again, senior management's guiding and active role pre-dominates. As one organisation put it, "spending time developing a good plan by top management and then deploying it well, to the point where individuals can 'see' where they fit in and how their personal contribution makes a difference (we are yet to excel at this)".

Table 3: Most important ingredients in gaining staff commitment to change	No. of times mentioned by organisations
Consistent demonstration (i.e. visibility) of longterm involvement and commitment by senior management; i.e. good leadership.	12
Involvement;	8
Recognition of the need for and importance of change;	3
Training;	3
Trust;	2

Figure 1 below shows the eight total quality 'management and problem solving tools and techniques' used most extensively by the participating organisations. (The ratings were point-scaled from '1 = occasionally', through '2 = moderately', and '3 = extensively'. Numbers adjacent to each entry are 'means'.)

Figure 1 : Management and problem solving tools and techniques



As we would expect, the simple but effective tools of brainstorming, pareto analysis and process flowcharting have wide-spread use. Surprisingly however, 'Quality costing (mean = 1.64)' and 'Benchmarking (mean = 1.79)' exercises are techniques that are still only used moderately by leading Total Quality organisations.

3. Implementation Strategy and Plan

This section details findings relating to the strategy and plan for implementing TQM in the participating organisations. Previously (round 2), 75% of the participating organisations indicated that maintaining control of the TQM process was catered for by having a permanent TQM 'Steering Committee'.

Round 3 showed that there was an even 50/50 split between organisations whose Steering Committee's role was different during implementation to its long term role, and those organisations where its role did not change. Where it did differ, the initial role was mainly '*education / training*' related (design, delivery, and resourcing/controlling), or '*communication*' related. The longer term role on the other hand, relates primarily to giving direction to the TQM programmes by monitoring and guiding the actions of improvement projects, and selecting and recommending best practices. The Steering Committee passes over ownership of the day-to-day Total Quality activities to those participating in them. For many organisations the steering committee actually ceases to function, or rather is disbanded as quality becomes an integrated part of management responsibility.

Only half of the organisations in the study drew up a **comprehensive** implementation plan before attempting to introduce the total quality concept. In most organisations (26), development of the implementation plan (whether a comprehensive plan or not) was a team effort. Similarly, setting concrete timescales against the achievement of implementation initiatives was also only done by just over half of the participating organisations. In addition, implementation took longer than expected in the majority of organisations.

Just under half of the organisations (19) used a framework developed internally to aid drawing up the implementation plan. Approximately another quarter (9) used a framework developed externally, the remaining quarter (9) used no framework at all.

Participants were asked to rate the framework they used for suitability along four dimensions : *comprehensiveness; ease of use; flexibility; and overall suitability*. (The ratings were point-scaled from '1 = positively unsuitable', through '2 = not very suitable', and '3 = suitable', to '4 = very suitable'. Numbers in brackets that follow are 'means'.) Those frameworks developed internally were rated by the participants as 'suitable' for *comprehensiveness* (3.35), *ease of use* (3.00), and *flexibility* (3.35).

For *overall suitability*, internally developed frameworks were rated higher than externally developed. Externally developed frameworks were only rated higher than internally developed frameworks along the *ease of use* (3.33) dimension.

Participants were asked to outline the broad content of their implementation plans. Due to the fact that preliminary analysis showed that the broad implementation plans forwarded by the participants are so diverse, it would be inappropriate and immaterial to discuss them here. This does however indicate that there is no 'defined / proforma / universal' way of going about Total Quality organisational change. This area of non-consensus will be further investigated for inclusion in the final report.

However, for the purpose of deciding implementation priorities, four different approaches could be discerned from the participant group :-

Table 4 : Four approaches for deciding implementation priorities.	
A	Priorities decided for each initiative based on its relationship to the needs of the business as set out in : business goals; business plan; or, with reference to the strategic plan.
B	Use of Baldrige model to prioritise.

C	Organically. e.g. :- (i) intuitively deciding what is best way forward for the business at any given time; (ii) considering the needs of all employees by talking to them.
D	Cost / return considerations. e.g. cost of implementation; timescales for payback; reduction in cost.

The organisations were asked how individual responsibility for different implementation initiatives on the implementation plan was decided. Functional managers taking responsibility - sponsoring/championing initiatives relating to their operating area/specialism - was the most frequently mentioned (10 times). Otherwise responsibility was decided and passed down the organisation by CEO / main board (5 times), or senior quality group / steering committee (4 times); or initiatives became the appropriate line management responsibility (4 times).

4. Continuous Improvement Team-Working

In the Round 2 questionnaire, teamwork was identified as *the* most important element under a TQM programme's "people focus", and as previously mentioned in this report (section 1), was the most frequently mentioned *really successful* aspect of the participants' TQM implementation.

The vast majority of organisations use 'continuous improvement teams (CITs)'. Encouragingly, more organisations operated CITs *cross-functionally*, as opposed to *within function*, however the 67% to 33% split (as shown in figure 2) was somewhat surprising. A greater balance in favour of the former was expected. This suggests that a large number of Total Quality organisations still operate within a functional organisational structure.

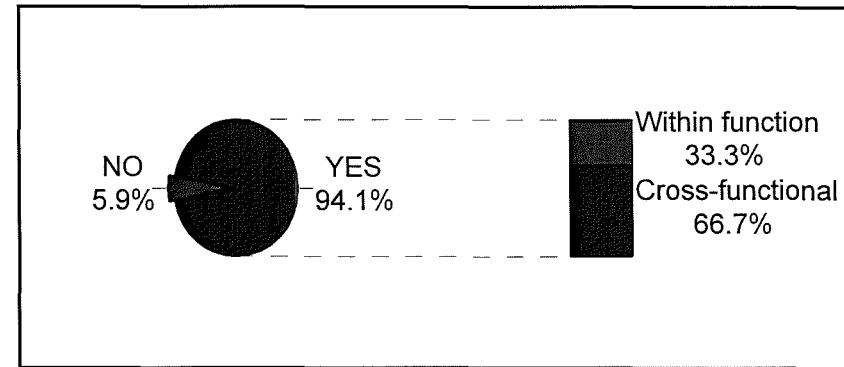


Figure 2

The majority of CIT users draw team personnel from different levels in the organisation. That is to say, senior management, line managers and shop floor/service delivery employees operate alongside each other in CITs. Figure 3 below shows the origin of organisation personnel that typically makes up a CIT.

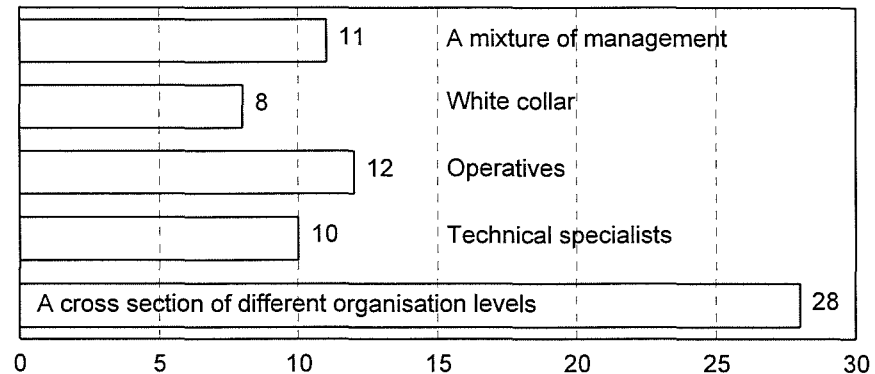


Figure 3

In general organisations favoured 6-9 employees per team. Figure 4 shows the overall distribution. Clearly large teams (>=10 employees) are not advisable. Frequency of CITs was one area where the participant group showed little consensus, as figure 5 below shows.

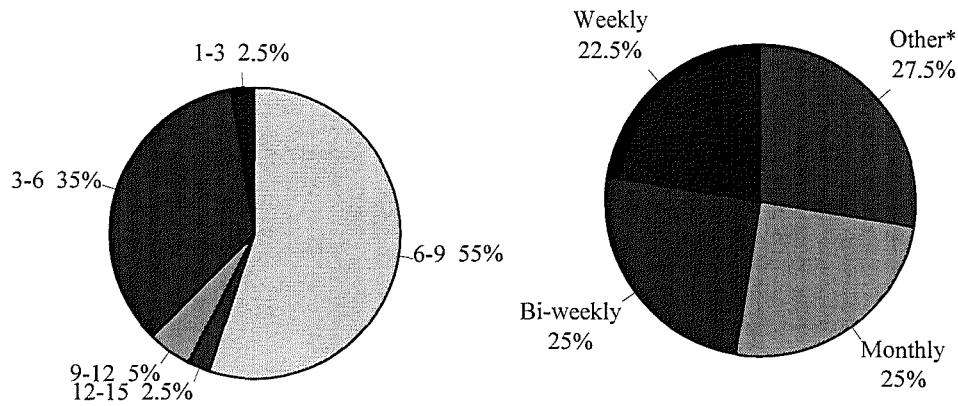


Figure 4 - Usual Number of employees per CIT

Figure 5 - Frequency of CIT meetings

Participants were also asked how CITs are formed. Table 5 indicates that management often has responsibility for deciding who in the organisation should be on the team, otherwise it is done by an appointed team leader. However, as indicated by table 6, team membership is not necessarily enforced, rather potential members are asked to be on the team, or volunteer.

Table 5 - Who decides who is to be on team.	
Team leader;	15
Management;	16
Other.	7

Table 6 - 'Team members are :-	
told to be on team;	8
asked to be on team;	24
voluntarily on team.'	15

N.B. The numbers adjacent to each entry indicates the number of organisations mentioning the respective entry.

Figure 6 below shows the span of activities that take place during CIT meetings. As would be expected, problem identification; problem analysis; and, recommendation for problem solution are the most frequent activities. The figure also shows that the majority of CIT users also make a decision on the recommendation for the problem solution during CIT meetings. This is encouraging and arguably indicates that process ownership and empowerment is being practised as well as preached in Total Quality organisations.

Various strategies are employed by the participating organisations' to promote team building in general. Teamwork training programmes and team recognition/reward/awards were the two most prominent. Employee visits to customers, employee visits to suppliers, newsletters, and simply building in time to allow teams to operate are examples put forward of other such strategies used.

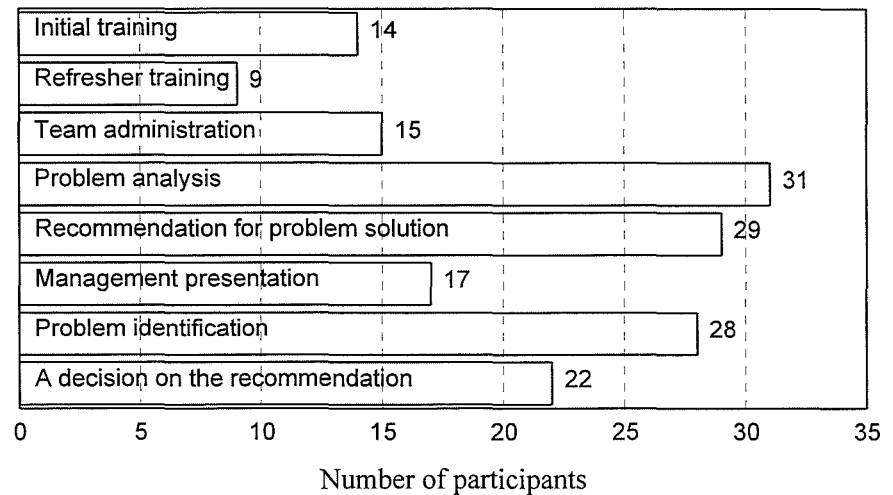


Figure 6 - CIT meeting activities

5. Process Management

The third round questionnaire indicated that process teams are also very important. For the achievement of everyday tasks for the vast majority of participating organisations (72%), employees organise themselves into *cells or process teams* (not to be confused with CITs) with team leaders who are multi-skilled to aid team training and for relieving absentees. These organisations also encourage team members to learn the skills spectrum of all group members.

In all participating organisations employees are encouraged to inspect/appraise their own work. All organisations also apply preventative techniques to encourage task achievement to be done right first time.

Participants were asked to give brief details relating to how these teams are set up. Many differing approaches were put forward and consensus in this area cannot be claimed with any degree of confidence. However the following more common approaches were discernable :-

- (i) Natural work teams / Self-directed work teams;
- (ii) Customer driven cell structure / Organised by internal customer / Multi-skilled teams with specific products and customers to look after;
- (iii) Specially related to lines within manufacturing areas;
- (iv) Organically - individuals concerned at all levels meet and agree the appropriate cell structure, recommend it, implement it, and operate it;
- (v) Project teams.

Some of the reasons for, and benefits of operating in this 'cell / process team' manner that were sighted by some of the participants are listed below :-

- (i) 'Because it is the most efficient known way of working at the moment';
- (ii) 'They are set up that way because it gives great flexibility and opportunities to re-train in new skills';
- (iii) More flexible;
- (iv) Increased job satisfaction;
- (v) Improvement ideas;
- (vi) Reduced costs;
- (vii) Eliminates duplication, double handling etc;
- (viii) More focus on errors.
- (ix) To establish each operator as responsible for their own quality performance.
- (x) Small teams work more efficiently, and relate to their objectives better.
- (xi) 'This was a distinct effort to push responsibility and accountability downwards and eliminate supervisory management levels'.

6. Performance Measurement for Total Quality

The majority of the participating organisations (84%) now view performance measurement as a competitive tool. Even more so, participants (94%) view performance measurement as an integrated part of the TQM concept.

As would be expected 'financial measures' do still hold their place in the performance measurement system. For half of the participants, emphasis on finance as a performance measurement indicator has not changed, however, operationally, the emphasis with respect to finance is changing from the use of market ratios etc, to measures of competitiveness such as **relative market share and position; sales growth; and, measures of customer base.**

Measures of 'innovation / effectiveness' do not figure as prominently. Neither do measures of 'flexibility', reflecting the organisation's ability to adjust to changing market requirements and customer needs. However, the vast majority of participating organisations do now highly incorporate :- quality; customer satisfaction; timeliness; and, employee satisfaction into their performance measurement system.

The participants also indicated that organisations now seem to have made the realisation that just as their marketplace and customer satisfaction requirements are dynamic, so must their performance measurement system be dynamic. Over 80% of organisations periodically review their performance measurement system, modifying it to focus on value drivers.

7. General

Just over 80% of participating organisations indicated that fear of change was present and hence an obstacle to be overcome in order to successfully implement TQM. This fear was roughly evenly dispersed throughout all organisation levels (operators; white collar workers; lower management; middle management; top management), with middle management having slightly the highest representation.

Participants were also asked to identify elements that had a positive impact on driving out or alleviating these fears at the different organisation levels. Throughout the participant group as a whole, 32 different elements were identified. Again, these elements were roughly evenly dispersed across all organisation levels. That is to say there were very few elements that clustered around a particular organisation level. Five key approaches to removing/alleviating fear were discerned from the 32 elements :-

- (i) Education and understanding - understanding the need for change; realisation of benefits

- from change.
- (ii) Improving communications, information flows and information availability within the organisation.
 - (iii) Involvement, training and teamwork.
 - (iv) Clarifying and communicating the TQ vision and Organisation's vision - heightening the belief amongst employees that the organisation can change.
 - (v) Heightening awareness of operational and business results.

- Financial / economic constraints (3);
- Middle management alienization (3).

(N.B. Numbers in brackets indicate the number of organisations mentioning the respective aspect).

The participating organisations identified four aspects of TQM implementation that in hindsight they would have done differently :-

- (i) More senior management commitment and involvement (9), more leadership and focus (2);
- (ii) More measurement and clearer direction (6);
- (iii) Better communication between involved parties, and better communication of the concept (5);
- (iv) More training and quicker training (4).

(N.B. Numbers in brackets indicate the number of organisations mentioning the respective aspect).

As the numbers in brackets show, these aspects are by no means a reflection of the views of the majority of the participant sample. The overall response to this question was sparse. However, two pertinent observations should be made.

Firstly, taking into account previous results we observe that whilst 'Senior Management Involvement and Commitment' has been rated so highly by the participating organisations as a pre-requisite for successful TQM, the necessary and exacting requirements of this task are obviously still not fully understood.

Secondly, and closely related to the first observation, the front-end preparation by senior management should not be underestimated.

These observations are substantiated by the '*major problems that delayed implementation plans*' proposed by the participants, and listed below.

- Clarity and alignment of objectives and measurement (3);
- Getting effective team-working (2);
- Management turnover / change (4);
- Keeping momentum going (2);
- Manpower shedding (2);

APPENDIX 5.4.5 - Sample section of pre-TQM management style analysis worksheet

Delphi round 1 pre-TQM management style analysis worksheet				
Case No.	DIM' (A)	DIM' (B)	DIM' (C)	Supporting explanation:
	DIR		IMP	<p>The management reporting mechanisms were vast and some-one somewhere in the chain, more often than not, set up the 'brick wall'. Employees had no ownership and were not made responsible for their standards of workmanship.</p> <p>Members of the shopfloor didn't bother to initiate changes and be innovative - middle management didn't like it i.e. 'the plant will be run the way I want it running' rather than using /listening to the experience of those who had been there a lot longer.</p> <p>Appointments to talk to senior management had to be made - you couldn't drop in for a chat.</p> <p>The result of all this being people did what they were told, didn't argue, never learnt anything new.</p> <p>(NB. We were no worse than other companies in our style of management at the time).</p>
	DIR	REA	MRM	<p>Prior to the implementation of quality methods the principal emphasis was to maximise production. People were viewed as an important ingredient for what could be produced. There was a significant difference between the way that 'staff' and 'wages' personnel were treated. First line supervisors felt that they were the "meat in the sandwich" and often had little authority to deal with important issues.</p>
	DIR	REA	MRM	<p>Field senior managers seen to a degree as being not up to it by HQ. Ineffective communication.</p> <p>Credibility gaps between different levels in the organisation.</p> <p>Strong budget focus but 'game playing' was rife, i.e. honest budget approach does not pay.</p> <p>Threat centred/failure oriented. Little emphasis on recognising success.</p> <p>Senior management exhortation without definition.</p> <p>Tendency to operate in crisis mode.</p> <p>Management via confrontation and unreasonableness.</p> <p>Hierarchical, bureaucratic - in-tray driven.</p> <p>No effective feedback etc.</p>
	DIR	REA	ACM	<p>Fear, motivation was a primary characteristic at all levels through the organisation -starting at top.</p> <p>Rigid functional structures leading to little inter-departmental / functional co-operation.</p> <p>Lack of common vision/mission or constancy of purpose led to frequent changes of direction and many new initiatives.</p> <p>NB. background to all of this was the previously perceived need to impose 'strong' management to assert undisciplined IR relations.</p>
<p>Key: DIM (A): PAS=passive; DIR=directive; PTP=participative. DIM (B): PRO=proactive; REA=reactive. DIM (C): MRM=middle of the road; ACM=authoritative-compliance; IMP=impoverished management; TEA=team management.</p>				

APPENDIX 5.4.9.1 - Sample section of present day (TQM) quality practice analysis worksheet

Delphi round 2 present day (TQM) quality practice analysis worksheet						
Case	size	class	FORMAL	INFORMAL	PREVENTATIVE	DETECTIVE
	L	M/S	Quality Assurance. Planning Processes. Product Quality reviews with customers and suppliers.	Daily local reviews of plans and performance. Involvement of employees in team decisions. Building and maintaining a positive work environment.	Planning for the future. Involving employees in decision that will benefit from their knowledge. Continuing to improve all aspects of product and service.	Evaluating future requirements.
	L	M	TQ Training; Process improvement (TQS); Employee performance; State of the Nation communication meetings; Quality improvement teams; Benchmarking visits; ISO9000 implementation; Variability reduction (DI-9000); Supplier certification; Gainsharing.	"Walk the talk". Management by walking around. Open door policy. Employee education assistance.	Participation in team meetings. Regular staff meetings. Quality ownership. SR Manager customer advocate programme.	Key and supporting metrics. Operation reviews. Voice of the customer. Customer/employee surveys. Employee skip level meetings.
	L	S	Training; the four quality principles; inclusion of improvement projects into business unit plans; a formal problem solving process; quality suggestion system; formal project teams; performance review processes; applications for awards in quality; having quality and international best practice consultants; new self-assessment process.	Self-assessment in one division. Communications meeting. Quality teams. Informal quality audits. Articles in internal magazines. Quality reports included in normal reporting.	Measurements. Customer satisfaction monitors. Complaint handling procedures. Service monitors. Quality teams. Self-assessment. Quality suggestion scheme.	Quality consultants. Complaint handling. Customer satisfaction measures. Evaluation / self-assessment.

APPENDIX 7.1 - Reference of key terms

The key terms discussed are: *strategy*; *levels of strategy*; *strategy formation process*; *strategic decisions and strategic issues* and *generic strategy*.

BASIC UNDERSTANDING OF WORD STRATEGY:

"Strategy" has become a very popular term since the mid-1970s (Buzzell and Gale (1987)). According to Baden-Fuller (1995), the strategy field was originally created by a few great figures such as Sloan, Barnard, Andrews and Chandler, who were concerned with documenting and understanding the complex causal factors influencing an individual firm's performance, and its capacity to change that performance. He pointed out that since then, the field has undergone rapid and substantial development, and has emerged as an intellectual discipline in its own right. Numerous definitions of strategy have been proposed in the literature (Chandler Jr (1962), Hofer and Schendel (1978), Ansoff (1984), Andrews (1987), Buzzell and Gale (1987), Pearce and Robinson (1988), Digman (1990), Grant (1991), Quinn (in Mintzberg and Quinn (1996)). Nonetheless, Hofer and Schendel (1986) showed how despite much attention, and the existence of a few common themes, there was major disagreement about its meaning. In their book, Johnson and Scholes (1989) chose to avoid defining strategy, instead choosing to describe strategy in terms of the characteristics usually associated with it. Grant (1991) observed that during the 1980s, the principal developments in strategy analysis focused upon the link between strategy and the external environment, for example, Michael Porter's analysis of industry structure and competitive positioning, and the empirical studies undertaken by the PIMS project, but that by contrast, the link between strategy and the firm's resources and skills suffered comparative neglect until the late 1980s.

Buzzell and Gale (1987) pointed to the thousands of words that have been written about how strategy should be defined. They noted for example, that to some a strategy includes a statement of objectives, whereas others hold that objectives are separate, and strategy is the means of attaining them [Buzzell and Gale (1987), Mintzberg and Quinn (1996)]. There seem to be agreement, that this point of debate, what Hofer and Schendel (1986) refer to as *the breadth of the concept of strategy*, is where the main divisions lie.

For the purposes of clarity and consistency throughout this investigation, a review of the literature led the author to broadly define strategy. Predominately, four findings from the author's review influenced the preparation of this broad definition. Firstly, unlike strategy, there appeared to be little disagreement about the meaning of goals and of objectives²⁹⁷. The author thus adopted the view that whilst goals and objectives are closely related to strategy, and therefore should not be treated as separate / isolated discussion topics, they are fundamentally different. Goals and objectives are also kept separate from strategy here for the simple reason that they are extensively referred to throughout the investigation. Secondly, bolstering the case for the first finding, Cumming's (1993) observation, quoting Gideon Louw's assertion that:

'strategy implies that a rational choice has been made'.

Clearly, a rational choice must be based on the pursuit of something - goal/objectives. Thirdly, as summed up by Hofer and Schendel's (1986) statement:

'the basic characteristics of the match an organization achieves with its environment is called its strategy',

that the strategic choices made must reflect the interactions that will consequently occur. Although not explicitly stated, the 'environment' referred to by Hofer and Schendel (1986) is the organisation's opportunities and risks, and the 'match' referred to is with the organisation's resources and competencies. Fourthly, while the disagreements amongst the academic writers referred to previously quickly became apparent to the author during the academic literature review, a specific review of cases in industrial strategy definition and formulation (i.e. in practice) showed the opposite. There were no critical characteristic differences amongst the organisations studied, rather there was broad agreement with the broad definition

²⁹⁷it is generally accepted that goals are distant open-ended attributes that are not achievable because they are not bounded, whereas objectives are explicit targets that can be realised and are necessary but not sufficient for the satisfaction of goals (adapted from Hofer and Schendel (1986)).

proposed here. For this reason, a definition of strategy was not forced upon the participants. This may have introduced bias into the investigation and/or inadvertently misdirected the participants perceptions and responses.

Hence, in the authors' view, and for the purpose of clarity and consistency throughout this investigation, strategy was defined broadly as:

the key resource deployment decisions and environment interaction choices adopted by an organisation in pursuit of its desired broad goal(s) and the supporting competitive advantage(s).

It must be stressed however, that this definition was meant to do nothing more than express the essence of strategy. It was not intended to be a rigid definition.

LEVELS OF STRATEGY:

There seemed to be broad agreement in the literature that there are three main interrelated levels of strategy within an organisation. These are *corporate*, *business*, and *operational* (sometimes called *functional*). Hofer and Schendel (1986) distinguished between *corporate* and *business* strategy as follows:

corporate strategy addresses the question 'what set of businesses should we compete in ?',

while *business strategy* addresses the question 'how should we compete in the XYZ business ?'

Operational (functional) strategy appeared to be the least clearly delineated. This is especially the case with escalating organisational size, structure and complexity. However, it is sufficient to note at this point that the principal focuses of strategy at the *operational (functional)* level are on the maximization of resource productivity and synergy, as constrained by the *corporate* and *business* strategy (Hofer and Schendel (1986)).

BASIC UNDERSTANDING OF THE STRATEGY FORMATION PROCESS:

The preceding discussion supports Ghobadian's (1993) assertion that strategy is a deliberate search for a plan of action that will develop and compound a businesses competitive advantage. A deliberate search implies a structured approach. Hofer and Schendel (1986) pointed out that several research studies²⁹⁸ have provided hard evidence backing academics and consultants long-standing arguments that formalized approaches to strategy formulation result in superior performance in terms of sales, profits and return on assets. Importantly however, they also pointed out that formal strategic planning should not always be expected to produce superior results, because it is really the quality of the organisation's strategy that will determine its performance, not the processes by which that strategy is formed.

Butz Jr (1995) iterated Drucker's (1980) observation that formal strategic planning evolved during a period of growth when markets and technology were highly predictable. He went on to observe that these early efforts, which were simply long range forecasts, became more sophisticated in response to accelerating change. The dependence on intuition and making predictions based on past performance became increasingly less satisfactory because of the fluidity, complexity, and unpredictability of the business environment (Trotter (1984)).

The classic approaches to strategy that evolved were based on a two step approach - formulation (i.e. strategy definition) followed by implementation (i.e. action). The assumption was that implementation would automatically follow once the strategic decisions had been made. The flaws identified in this *sequential rational* approach were challenged, in particular by Mintzberg and Quinn (1991) who argued that:

'in reality formulation and implementation are intertwined as complex interactive processes in which politics, values, organisational culture and management styles determine or constrain particular strategy decisions'.

²⁹⁸for a concise review of the studies by Thune and House (1970), Herold (1972), Eastlack and McDonald (1970), Ansoff et al (1971) and Karger and Malik (1975), see Hofer and Schendel (1986) pages 7-11.

Their argument led Mintzberg to coin, what has now generally become accepted by the strategy research community as most realistic, the phrase *strategy formation*. Again, a review of the literature [Hofer and Schendel (1986), Johnson and Scholes (1989), Porter (1980) and Stacey (1993)] and a number of company cases identified a number of typical core inter-related functions of the strategy formation process:

- to develop organisational goals and objectives;
- to help identify major strategic issues;
- to assist in the allocation of strategic resources;
- to coordinate and integrate complex business organisations;
- to help forecast the future performance of the organisation;

DEFINITION OF WHAT IS MEANT BY (I) A STRATEGIC DECISION AND (II) A STRATEGIC ISSUE:

Quinn, (in Mintzberg and Quinn (1996)) provided a more than adequate definition of a strategic decision. This was, '*those decisions that determine the overall direction of an enterprise and its ultimate viability in light of the predictable, the unpredictable, and the unknowable changes that may occur in its most important surrounding environments They dictate both the resources the enterprise will have accessible for its tasks and the principal patterns in which these resources will be allocated*'. This definition coincided with the definition of strategy previously developed and proposed by the author.

It is clear from this definition, that strategic decisions have far-reaching effects - on sales, capacity, finances, the competition, the environment, risk, rate of change, and so forth (Schonberger (1992)). One of the strategy formulation processes' most important functions is to identify the key strategic issues that will face the organisation in the future, especially since increasing rates of environmental change have decreased the response time available to the organisation - a problem that is compounded by increased competition and limited organisational resources (Hofer and Schendel (1986)). Simply put, a strategic issue²⁹⁹ is a key issue that an organisation will face in the pursuit of its strategy, in either the near-term or the long-term future.

BASIC UNDERSTANDING OF MEANING OF GENERIC STRATEGY:

The term *generic* was brought to prominence in the corporate strategy debate by Michael Porter. If something is described as *generic* it is said to be characteristic of a genus or class. A *generic strategy* therefore can be defined as a general strategy that is not specific or special, but which exhibits (has) certain prevalent characteristics. Johnson and Scholes (1989) refer to a *generic strategy* as the basis on which an organisation will compete and/or sustain a superior level of performance (*vis-a-vis* competition).

Porter's (1980) work identified three generic strategies which an organisation can follow: overall cost leadership; differentiation and focus³⁰⁰. Porter (1980) described the purpose of these 'internally consistent generic strategies' as *creating a defensible position in the long run and outperforming competitors in an industry*. According to Johnson and Scholes (1989) the purpose of defining the generic strategy of an organisation is *to ensure that deliberate choices are made about the type of competitive advantage it seeks to attain and the scope within which this will be done*.

²⁹⁹ see Mintzberg & Quinn, *The Strategy Process*, 1996, p. 96, for a list of typical strategic issues.

³⁰⁰ overall cost leadership: competitive advantage through continued attention to the organisations cost structure vis-a-vis the competition's (Johnson and Scholes (1989)); differentiation: competitive advantage through differentiating the product or service offering of the organisation, creating something that is perceived by customers industry wide as being unique (Porter (1980)); focus: competitive advantage through serving a particular target buyer group very well (Porter (1980)).

APPENDIX 7.3.1 - Map (I) of apparent principal causal relationships

TQM's organisational role(s) (at the strategic level):	TQM's conceptual strategic role(s):
(a) <i>ensuring constancy of purpose;</i>	→ <i>helps to avoid uncontrolled drift from business objectives; → provides a link between strategy and tactic;</i>
<i>a set of core values;</i>	← <i>a focus for strategy;</i> (b)
(c) <i>about ensuring customer satisfaction; about fostering competitive advantage;</i>	→ <i>facilitates better and clearer strategic analysis and choice;</i>
<i>a framework for company-wide improvement efforts;</i>	← <i>helps to coordinate strategy;</i> (d)

INTERPRETATION: → (the former, LHS) is supported by (the latter, RHS); ← (the latter, RHS) is supported by (the former, LHS)

APPENDIX 7.4 - Map (II) of apparent principal causal relationships

TQM's organisational role(s) (at the strategic level):	Strategic issue(s) directly addressed by TQM:	TQM's conceptual strategic role(s):
	<i>management attitudes; ↔ ethos; to accept change more readily;</i>	← <i>CONCEPTUAL FOCUS (ALL);</i> (a)
(b) <i>a process for long term survival; about fostering competitive advantage;</i>	→ <i>development of process capability;</i>	
(c) <i>an enabling device;</i>	← <i>development of process capability;</i>	
	<i>human resources management;</i>	← <i>facilitates better and clearer strategic analysis and choice; helps to coordinate strategy; helps avoid uncontrolled drift from business objectives;</i> (d)
	<i>communication;</i>	← <i>CONCEPTUAL FOCUS (ALL);</i> (e)
	<i>planning processes;</i>	← <i>helps to coordinate strategy;</i> (f)
	<i>senior management attitudes towards performance evaluation criteria;</i>	← <i>helps to achieve strategic fit;</i> (g)

INTERPRETATION: → (the former, LHS) is supported by (the latter, RHS); ← (the latter, RHS) is supported by (the former, LHS)

APPENDIX 10.5a - Inter-relationship record matrix

		CF	EF			IC			PM	DL	SF			PAM				PR			EM		
		ecs	dof	mmp	cpo	shrc	icall	fb	msbut	l&vft	ww	sf1st	epfoi	dci	cce	ioa	eirpc	prev	dsme	ehcec	psd	dkri	tsfr
CF	ecs		/	/	/	/	w	w	w	/	/	w	/	/	w	w	w	/	/	/	/		
EF	dof	/					/			/	w		/	/	w		w	/	/				
	mmp	/				/	w	/	/	/	/	/	/	/	w	/	/	/	/	/	w		
	cpo	/				/	w	w		/			/						/		w		
IC	shrc	/		/					w		/		/	/	w	w	w	w	/	/	w	w	
	icall	/		w					w		/		/				w		w	/	w		
	fb	/	w	/	w				w		/	/	/	w	/	w	w	/	/	w	w	w	w
PM	msbut	/		w	w	/	/	/			w	w	/	w		w	w	w	/	/	/	w	
DL	l&vft	/	/	/	/	/	/	/	w		w	w		/			w	w	/	/	/		
SF	ww	/	/		/	w		w	w						w	w	w	w	/	w		w	
	sf1st	/				w			w	w					w	w		w					
	epfoi	/	/		/			w	w	w									w	w			
PAM	dci	/	/	w	w	/	/	w	w		/								w	/			w
	cce	/	/							w	/		/										
	ioa	/	w	w		/	w	/		w	/	/	/						w	w	w	/	
	eirpc	/	w	w			w	w			/	/	/						w				w

	prev	/	w		/			w	/				/						w			w	w
PR	dsmef	/	w	w	w	↗	/	/	w		/		w	w	w		w	/					
	ehcec	/	/	/	/	/	w	w	w	w	w	w	w	/			/	/					w
	psd	/	/	w	w	w	w	w	/		/	w	/				w					w	/
EM	dkrri	/	w	w	w	/		↗	/	/	/	/		w	/	/	/	/	/	/	/		
	tsfr	/	w	w	w	/		↗	/	w	↗	/	/	/	/		/	/	/	↗	↗		

KEY:-

"CF" = CUSTOMER FOCUS; "EF" = EXTERNAL FOCUS; "IC" = INTERNAL COLLABORATION; "PM" = PARTICIPATIVE MANAGEMENT; "DL" = DYNAMIC/ENERGETIC LEADERSHIP; "SF" = STRATEGIC FRAMEWORK; "PAM" = PROCESS ARCHITECTURE AND MANAGEMENT; "PR" = PEOPLE REALISATION; "EM" = EXPLICIT MEASUREMENT.

CODING SYSTEM:-

- "↗" indicates a "strong causal influence" from the nominal definition in column 2 to the nominal definition in row 2.
- "/" indicates a "significant (but not strong) causal influence" from the nominal definition in column 2 to the nominal definition in row 2.
- "w" indicates a "weak but nevertheless existent causal influence" from the nominal definition in column 2 to the nominal definition in row 2.

APPENDIX 10.5b - Inter-relationship summary matrix

	CF	EF	IC	PM	DL	SF	PAM	PR	EM
CF		↗	s	s	↗	↗	s	↗	
EF	↗		↗	s	↗	↗	s	↗	
IC	↗					↗	s	s	
PM	↗		↗					↗	
DL	↗	↗	↗					↗	
SF	↗								
PAM	↗		s			↗			
PR	↗		s				s		
EM	↗	↗	↗	↗	s	↗	↗	↗	

KEY:-

"CF" = CUSTOMER FOCUS; "EF" = EXTERNAL FOCUS; "IC" = INTERNAL COLLABORATION; "PM" = PARTICIPATIVE MANAGEMENT; "DL" = DYNAMIC/ENERGETIC LEADERSHIP; "SF" = STRATEGIC FRAMEWORK; "PAM" = PROCESS ARCHITECTURE AND MANAGEMENT; "PR" = PEOPLE REALISATION; "EM" = EXPLICIT MEASUREMENT.

CODING SYSTEM:-

"↗" indicates a "strong causal influence" from the nominal definition in column 1 to the nominal definition in row 1.
 "↘" indicates a "significant (but not strong) causal influence" from the nominal definition in column 1 to the nominal definition in row 1.
 "s" indicates a "weak but nevertheless existent causal influence" from the nominal definition in column 1 to the nominal definition in row 1.

APPENDIX 11.4 - Profiles of the fourth round Delphi questionnaire evidence for the seven proposed TQM concepts tested

CUSTOMER FOCUS	SUMMARY OF RESPONSE	INSURING CUSTOMER SATISFACTION				
		customer satisfaction tracking	establishing client (market and customer) demographics, needs, wants	appropriate partnerships between organisation and customers	service performance evaluation	
organisation attempts to measure the perceptions and needs of unserved Customers (i.e. customers they would like to have)	70%	2		1		
competitor analysis is conducted to see how the organisation performs relative to it's competitors in determining customer's future requirements and expectations	48%	2				2
competitor analysis is conducted to see how the organisation performs relative to it's competitors in determining customer's current requirements and expectations	77%	2				2
mechanisms / processes for training needs identification address experience	yes (most)	2				
mechanisms / processes for education needs identification address attitudinal requirements	yes (most)	2				
organisation has a defined set of criteria against which it assesses it's suppliers	yes ('all')	2				
organisation's view is that education and training is a key element of it's ability to maintain quality	100%	2				
mechanisms / processes for education needs identification address knowledge requirements	yes (most)	2				
mechanisms / processes for education needs identification address skills requirements	yes (most)	2				
recognition/reward approaches used are consciously designed to ensure that quality is re-inforced for the long-term, rather than for short-term financial gains and considerations	79%	2				
mechanisms / processes for education needs identification address experience	yes (most)	2				
organisation (seeks to) quantify employee awareness of organisational quality values	61%	2				
mechanisms / processes for training needs identification address knowledge requirements	yes (most)	2				
organisation (seeks to) quantify the integration of organisational quality values	61%	2				
mechanisms / processes for training needs identification address attitudinal requirements	yes (most)	2				
organisation evaluates the effectiveness of the communication processes	75%	2				
organisation has mechanisms in place to make employees at all levels aware of organisational performance	yes (maj)	2				
mechanisms / processes for training needs identification address skills requirements	yes (most)	2				
organisation measures customer satisfaction	91%	1	1			
organisation has mechanisms in place for evaluating and improving the effectiveness of the processes to collect and disseminate customer requirements	57%	1		2		2
organisation follows up with customers on products, services, and recent transactions to seek feedback / improve relationships	91%	1	1	1	1	1
organisation has a routine methodology for determining customer's current requirements and expectations	100%	1	1	1	1	
organisation maintains a customer compliment database	47%	1	1	1		
organisation actively takes steps to ascertain customer's perceptions of the organisation	100%	1	1	1		
organisation has a routine methodology for determining customer's future requirements and expectations	77%	1	1			
organisation actively attempts to determine the relative importance of these features to customers	91%	1			2	2
organisation actively attempts to determine specific product and service features	95%	1			2	2
organisation's policy is to review the performance of the customer service it delivers	96%	1			2	1
organisation designs specific sets of customer satisfaction measures for different groupings of customers	33%	1			1	2
organisation takes steps to ensure that customers have easy access to the appropriate person(s) in the organisation for matters of assistance	yes (most)	1			1	
organisation sets priorities for improvement projects based upon analysis of customer complaints	76%	1				
when resolving customer complaints, organisation offers customer things over and above the obligatory complaint resolution e.g. a goodwill gift	46%	1				
organisation attempts to quantify customer satisfaction relative to that for competitors	81%	1				
organisation sets standards for responding to customer complaints	76%	1				
organisation has a defined process or methodology for disseminating customer's requirements and expectations	81%	1				
organisation's policy is to attempt to exceed it's customer's requirements	77%	1				
quality measures form a part of regular management information at the junior management level	90%		2			
quality measures form a part of regular management information at the middle management level	91%		2			
quality measures form a part of regular management information at the senior management level	90%		2			
organisation maintains a customer complaint database	100%		1			2
organisation encourages customers to visit the organisation (CHECK - low degree of customer contact)	50%				1	
organisation has a defined process for handling customer complaints	100%					2

INTERNAL COLLABORATION

	SUMMARY OF RESPONSE	shared responsibility championed by the active and visible involvement and commitment from all employees	feedback within the organisation	building and maintaining a human environment that allows all members of employee involvement	formation of team-planned cross-functional structure	cross-functional coordination	learning	decentralised management structure	decentralisation and integration of essential support functions
organisation has processes / mechanisms in place for identifying education needs	yes (most)	2	2	2					
organisation has processes / mechanisms in place for identifying training needs	yes (most)	2	2	2					
organisation encourages employee involvement in the design of recognition/reward approaches	60%	2	2	1	1				
organisation bestows reward on an individual basis	85%	2	2	2					
organisation bestows recognition on an individual basis	85%	2	2	2					
organisation has mechanisms in place to make employees at all levels aware of organisational performance	yes (maj)	2	1	1	1	1	1	2	
organisation has a defined process or methodology for disseminating customer's requirements and expectations	81%	2	1	1					
quality measures form a part of regular management information at the junior management level	90%	2	1						
quality measures form a part of regular management information at the middle management level	91%	2	1						
quality measures form a part of regular management information at the senior management level	90%	2	1						
organisation has specific ways in which employees are empowered to act, take initiative and accept responsibility	yes (most)	1	1	1	1				
organisation bestows recognition on a team basis	85%	1	1	1					
organisation bestows recognition equally across the whole organisation	45%	1	1	1					
organisation bestows reward on a team basis	49%	1	1	1					
organisation bestows reward equally across the whole organisation	50%	1	1	1					
organisation (seeks to) quantify employee awareness of organisational quality values	61%	1	1	1					
organisation (seeks to) quantify the integration of organisational quality values	61%	1	1	1					
organisation (has) mechanisms to promote ongoing employee contribution to quality improvement	yes (most)	1	1	2					
organisation encourages employees to take 'good sound risks'	82%	1	1	1					
employees take an active part in identifying their education needs	yes (maj)	1	1	1					
organisation has mechanisms/ processes for planning employee education	yes (maj)	1	1	1					
employees take an active part in identifying their training needs	yes (maj)	1	1	1					
organisation has mechanisms/ processes for planning employee training	yes (maj)	1	1	1					
conformance to quality is a required part of an individual's tasks	95%	1		2					
contribution to quality improvement efforts forms a part of the procedure for reviewing an individual's performance	80%	1							
organisation uses upward evaluation	56%	1							
organisation actively measures the level of employee satisfaction	95%	2	1	1	2				
organisation has indicators that it uses to evaluate the extent and effectiveness of employee involvement	57%	2	1						
organisation evaluates the effectiveness of the communication processes	75%		2	1			1		
organisation relates to the concept of the "internal customer"	91%	2	1				1		
organisation seeks to assess the effectiveness of education and training	90%	2	1						
organisation has processes in place to enable management to communicate with each other	yes (maj)	1	1	1		1	1	1	
organisation has processes in place to enable employees to communicate with each other	yes (maj)	1	1	1		1	1	1	
organisation has mechanisms / processes in place to enable management to communicate with employees	yes (maj)	1	1	1		1	1	1	
organisation has processes in place to enable employees to communicate with management	yes (maj)	1	1	1		1	1	1	
organisation's view is that education and training is a key element of its ability to maintain quality	100%								
organisation makes consulting services available to employees	90%			2					
organisation makes recreational facilities available to employees	65%			2					
organisation makes cultural facilities available to employees	53%			2					
organisation defines quantitative human resource plans and sets human resource priorities in the long term	85%			2					
organisation provides employees with the opportunity to gain qualifications	100%			2					
organisation provides non-work related education opportunities to employees	55%			2					
organisation takes steps to ensure that customers have easy access to the appropriate person(s) in the organisation for matters of assistance	yes (most)			2					
organisation encourages customers to visit the organisation (CHECK - low degree of customer contact)	50%			2					
goals are set for achievement of employee satisfaction	55%			1	2				
organisation has effective mechanisms for education and training delivery	yes (maj)			1					
organisation monitors absenteeism	95%			1					
organisation defines qualitative human resource plans and sets human resource priorities in the long term	85%			1					
quality education / training programmes are well planned	75%			1					
mistakes - irrespective of their original cause - are generally perceived to be an opportunity by the employee(s) involved	63%			1					
recognition/reward approaches used are consciously designed to ensure that quality is re-inforced for the long-term, rather than for short-term financial gains and considerations	79%			1					
organisation monitors grievances	75%			1					
organisation monitors staff turnover	100%			1					
organisation actively seeks to measure the acceptance of and commitment to its values	71%			1					
organisation uses information on absenteeism, staff turnover and grievances as input for overall organisational planning	90%			1					
career path planning is an integral part of an individual employee's review process	80%			1					
organisation has mechanisms through which employee-related data can be evaluated in order to improve the development and effectiveness of the entire workforce	yes (maj)			1					

DYNAMIC/ENERGETIC LEADERSHIP

	SUMMARY OF RESPONSE	Leadership and vision from the top commitment to and promotion of the TQM concept by the Chief Executive instilling an organisational culture that can deliver sustainable competitive advantage of the business			
organisation has processes / mechanisms in place for identifying training needs	yes (most)	2	2	1	2
organisation has mechanisms in place to make employees at all levels aware of organisational performance	yes (maj)	2	2	1	2
organisation has processes / mechanisms in place for identifying education needs	yes (most)	2	2	1	2
organisation's view is that education and training is a key element of it's ability to maintain quality	100%	2	2	1	1
organisation encourages employee involvement in the design of recognition/reward approaches	60%	2	1	2	1
organisation bestows reward on a team basis	40%	2	1	2	1
organisation bestows recognition on a team basis	85%	2	1	2	1
organisation bestows reward equally across the whole organisation	50%	2	1	2	1
organisation bestows recognition equally across the whole organisation	45%	2	1	2	1
organisation (takes steps to) evaluate and improve it's human resource planning processes	yes (most)	2	2		
organisation attempts to measure the perceptions and needs of unserved customers (i.e. customers they would like to have)	70%	2	2		
organisation's policy is to attempt to exceed it's customer's requirements	77%	2	1	2	
organisation defines quantitative human resource plans and sets human resource priorities in the long term (MAY HAVE TO TAKE OUT QUAL/QUAN)	85%	2			
organisation defines qualitative human resource plans and sets human resource priorities in the long term (MAY HAVE TO TAKE OUT QUAL/QUAN)	85%	1	2	2	
recognition/reward approaches used are consciously designed to ensure that quality is re-inforced for the long-term, rather than for short-term financial gains and considerations	79%	1	2	1	1
organisation has a formal supplier recognition scheme	46%	1	2	2	
organisation's policy is to set major quality goals at the corporate level	86%	1	2		
organisation's policy is to insist that functional/departmental plans include quality improvement programmes / projects	76%	1	2		
organisation provides employees with the opportunity to gain qualifications	100%	1	1	2	1
goals are set for achievement of employee satisfaction	55%	1	1	1	2
organisation actively seeks to measure the acceptance of and commitment to it's values	71%	1	1	1	2
human resource issues are an item on the corporate planning agenda	91%	1	1	1	2
organisation (seeks to) quantify employee awareness of organisational quality values	61%	1	1	1	2
organisation (seeks to) quantify the integration of organisational quality values	61%	1	1	1	2
organisation actively measures the level of employee satisfaction	95%	1	1	1	2
organisation has mechanisms through which employee-related data can be evaluated in order to improve the development and effectiveness of the entire workforce	yes (maj)	1	1		2
mechanisms / processes for training needs identification address knowledge requirements	yes (most)	2	1	1	
mechanisms / processes for training needs identification address experience	yes (most)	2	1	1	
mechanisms / processes for training needs identification address attitudinal requirements	yes (most)	2	1	1	
mechanisms / processes for training needs identification address skills requirements	yes (most)	2	1	1	
mechanisms / processes for education needs identification address experience	yes (most)	2	1	1	
mechanisms / processes for education needs identification address attitudinal requirements	yes (most)	2	1	1	
mechanisms / processes for education needs identification address skills requirements	yes (most)	2	1	1	
organisation provides non-work related education opportunities to employees	55%	2	1	1	
mechanisms / processes for education needs identification address knowledge requirements	yes (most)	2	1	1	
organisation bestows reward on an individual basis	85%	2			
organisation bestows reward on an individual basis	85%	2			
organisation uses information on absenteeism, staff turnover and grievances as input for overall organisational planning	90%	2			
career path planning is an integral part of an individual employee's review process	80%	1	1		
organisation uses upward evaluation	56%	1	1	2	
organisation evaluates the effectiveness of the communication processes	75%		2	2	
organisation has mechanisms/ processes for planning employee education	yes (maj)		2	2	
organisation has mechanisms/ processes for planning employee training	yes (maj)		2	2	
organisation encourages customers to visit the organisation (CHECK - low degree of customer contact)	50%		2	2	
organisation sets priorities for improvement projects based upon analysis of customer complaints	76%		2	2	
organisation has a routine methodology for determining customer's current requirements and expectations	100%		2		
conformance to quality is a required part of an individual's tasks	95%		2		
contribution to quality improvement efforts forms a part of the procedure for reviewing an individual's performance	80%		2		
organisation makes consulting services available to employees	90%		2		
organisation has mechanisms in place for evaluating and improving the effectiveness of the processes to collect and disseminate customer requirements	57%		2		
organisation has a routine methodology for determining customer's future requirements and expectations	77%		2		
organisation has a defined process or methodology for disseminating customer's requirements and expectations	81%		2		
organisation makes recreational facilities available to employees	65%		2		
organisation makes cultural facilities available to employees	53%		2		
organisation's policy is to review the performance of the customer service it delivers	96%		2		
organisation relates to the concept of the "internal customer"	91%		1	2	
organisation has indicators that it uses to evaluate the extent and effectiveness of employee involvement	57%		1	2	
organisation has specific ways in which employees are empowered to act, take initiative and accept responsibility	yes (most)		1	2	
employees take an active part in identifying their education needs	yes (maj)		1	1	
employees take an active part in identifying their training needs	yes (maj)		1	1	
mistakes - irrespective of their original cause - are generally perceived to be an opportunity by the employee(s) involved	63%		1	1	
organisation encourages employees to take 'good sound risks'	82%		1	1	
organisation has effective mechanisms for education and training delivery	yes (maj)		1		
quality education / training programmes are well planned	75%		1		
organisation (has) mechanisms to promote ongoing employee contribution to quality improvement	yes (most)		1		
competitor analysis is conducted to see how the organisation performs relative to it's competitors in determining customer's future requirements and expectations	48%		1		
organisation involves suppliers (extensively) in it's improvement activities	36%		1		
organisation follows up with customers on products, services, and recent transactions to seek feedback / improve relationships	91%		1		
competitor analysis is conducted to see how the organisation performs relative to it's competitors in determining customer's current requirements and expectations	77%		1		
organisation attempts to quantify customer satisfaction relative to that for competitors	81%		1		
organisation actively improves the effectiveness of business planning processes	72%		1		
organisation takes steps to ensure that customers have easy access to the appropriate person(s) in the organisation for matters of assistance	yes (most)		1		
organisation actively evaluates the effectiveness of business planning processes	76%		1		
organisation actively reviews the effectiveness of business planning processes	76%		1		
organisation actively takes steps to ascertain customer's perceptions of the organisation	100%		1		
organisation (extensively) assists it's suppliers to improve the quality of their products and services	50%		1		
organisation has processes in place to enable management to communicate with each other	yes (maj)			2	
organisation has mechanisms / processes in place to enable management to communicate with employees	yes (maj)			2	
organisation has processes in place to enable employees to communicate with management	yes (maj)			2	
organisation has processes in place to enable employees to communicate with each other	yes (maj)			2	
organisation maintains a customer compliment database	47%			2	
organisation monitors staff turnover	100%			1	
organisation monitors absenteeism	95%			1	
organisation monitors grievances	75%			1	

PEOPLE REALISATION

	SUMMARY OF RESPONSE	1	2	3	4	5	6	7	8	9	10
		drive to stimulate motivation and the elimination of fear	encourage and harnessing the competence, expertise	people selection and development	addressing the strategic issue of people effectiveness	people acknowledgement and appreciation through recognition, rewards	conscious investment in training and development of all employees skills	periodic assessments of effectiveness of training	employee performance evaluation	job flexibility	quality of the work environment and working life
organisation bestows reward on an individual basis	85%	2	2	2	1			2			
organisation bestows recognition on an individual basis	85%	2	2	2	1			2			
organisation provides non-work related education opportunities to employees	55%	2	1	1	2		2				2
organisation has processes in place to enable employees to communicate with management	yes (maj)	2	1	2							
organisation has processes in place to enable management to communicate with each other	yes (maj)	2	1	2							
organisation has processes in place to enable employees to communicate with each other	yes (maj)	2	1	2							
organisation uses information on absenteeism, staff turnover and grievances as input for overall organisational planning	90%	2	2	1							1
organisation monitors staff turnover	100%	2	2	1				2			1
organisation monitors grievances	75%	2	2	1				2			1
organisation monitors absenteeism	95%	2	2	1				2			1
organisation makes recreational facilities available to employees	65%	2	2	1							1
organisation makes counselling services available to employees	90%	2	2	1							1
organisation makes cultural facilities available to employees	53%	2	2	1							1
organisation (seeks to) quantify employee awareness of organisational quality values	61%	2	2	1							
organisation (seeks to) quantify the integration of organisational quality values	61%	2	2	1							
goals are set for achievement of employee satisfaction	65%	1	2	2	1				2		
organisation actively measures the level of employee satisfaction	95%	1	2	2	1				2		
organisation provides employees with the opportunity to gain qualifications	100%	1	1	1	1		2				2
organisation has processes / mechanisms in place for identifying training needs	yes (most)	1	1	1	1		1		1		
organisation has mechanisms/processes for planning employee training	yes (maj)	1	1	1	1		1				2
mechanisms / processes for education needs identification address knowledge requirements	yes (most)	1	1	1	1				2		1
mechanisms / processes for training needs identification address attitudinal requirements	yes (most)	1	1	1	1				2		1
mechanisms / processes for training needs identification address skills requirements	yes (most)	1	1	1	1				2		1
mechanisms / processes for training needs identification address knowledge requirements	yes (most)	1	1	1	1				2		1
mechanisms / processes for education needs identification address experience	yes (most)	1	1	1	1				2		1
mechanisms / processes for training needs identification address experience	yes (most)	1	1	1	1				2		1
mechanisms / processes for education needs identification address attitudinal requirements	yes (most)	1	1	1	1				2		1
mechanisms / processes for education needs identification address skills requirements	yes (most)	1	1	1	1				2		1
organisation has mechanisms/processes for planning employee education	yes (maj)	1	1	1	1						2
organisation has mechanisms through which employee-related data can be evaluated in order to improve the development and effectiveness of the entire workforce	yes (maj)	1	1	1	1						1
organisation has processes / mechanisms in place for identifying education needs	yes (most)	1	1	1	1						
career path planning is an integral part of an individual employee's review process	80%	1	1	1							
organisation encourages employee involvement in the design of recognition/reward approaches	60%	1	1	2	1						1
organisation bestows recognition equally across the whole organisation	45%	1	1	1	1				2		2
organisation bestows reward on a team basis	40%	1	1	1	1				2		2
organisation bestows reward equally across the whole organisation	50%	1	1	1	1				2		2
organisation bestows recognition on a team basis	85%	1	1	1	1				2		2
organisation seeks to assess the effectiveness of education and training	90%	1	1	1	1			1	2		
organisation has specific ways in which employees are empowered to act, take initiative and accept responsibility	yes (most)	1	1	1							2
employees take an active part in identifying their education needs	yes (maj)	1	1	1							1
employees take an active part in identifying their training needs	yes (maj)	1	1	1							1
organisation (has) mechanisms to promote ongoing employee contribution to quality improvement	yes (most)	1	1	1							
organisation encourages employees to take 'good sound risks'	82%	1	1	1							
quality education / training programmes are well planned	75%	1	1	1			2				
organisation has mechanisms in place to make employees at all levels aware of organisational performance	yes (maj)	1									
human resource issues are an item on the corporate planning agenda	91%		2	2	1						1
organisation evaluates the effectiveness of the communication processes	75%		2	2							
organisation has indicators that it uses to evaluate the extent and effectiveness of employee involvement	57%	1	2	1			2				1
contribution to quality improvement efforts forms a part of the procedure for reviewing an individual's performance	80%	1	1	1	2						1
recognition/reward approaches used are consciously designed to ensure that quality is re-inforced for the long-term, rather than for short-term financial gains and considerations	79%		1	1							
organisation takes steps to ensure that customers have easy access to the appropriate person(s) in the organisation for matters of assistance	yes (most)	1									
mistakes - irrespective of their original cause - are generally perceived to be an opportunity by the employee(s) involved	63%		1								
organisation has mechanisms / processes in place to enable management to communicate with employees	yes (maj)	1									
organisation defines qualitative human resource plans and sets human resource priorities in the short term (MAY HAVE TO TAKE OUT QUAL/QUAN)	86%		2	2							
organisation defines qualitative human resource plans and sets human resource priorities in the long term (MAY HAVE TO TAKE OUT QUAL/QUAN)	85%		2	2							
organisation has effective mechanisms for education and training delivery	yes (maj)		1	1			2				
organisation defines qualitative human resource plans and sets human resource priorities in the long term (MAY HAVE TO TAKE OUT QUAL/QUAN)	85%		1	1							1
organisation defines qualitative human resource plans and sets human resource priorities in the short term (MAY HAVE TO TAKE OUT QUAL/QUAN)	86%		1	1							
organisation's view is that education and training is a key element of it's ability to maintain quality	100%		2		1						
organisation (takes steps to) evaluate and improve it's human resource planning processes	yes (most)				1						1
organisation actively seeks to measure the acceptance of and commitment to it's values	71%				1						
organisation relates to the concept of the "internal customer"	91%				1						

APPENDIX 11.4.3a - Summary of elements of the roles of quality steering groups

<i>Steering group role:</i>	<i>Elements of role:</i>
PLANNING (27%)	<ul style="list-style-type: none">• defining quality strategy (strategic planning)• setting company direction for quality• future policy development• providing consultancy in a guidance capacity• prioritising proposals for improvement projects and improvement activity• maintaining quality policy• identifying and defining key measures
ORGANISING (10%)	<ul style="list-style-type: none">• coordinating functional reporting• organising and coordinating training and communication activities• organising teamwork activities• funding, and resource allocation
DIRECTING (2%)	<ul style="list-style-type: none">• supervising activities of lower level groups
CONTROLLING (18%)	<ul style="list-style-type: none">• milestone monitoring• reviewing key measurable data• reviewing progress against defined targets• monitoring and reviewing various internal audits• verifying the planning performed by other groups within organisation
FACILITATING (26%)	<ul style="list-style-type: none">• coaching management• providing role model leadership (e.g. management by walking around)• assisting functional areas in reaching their quality goals• developing appropriate tools• benchmarking and disseminating best practices• encouraging formation of improvement groups (sponsoring, coaching, stimulating)• communicating successes• providing recognition / managing recognition processes• provision of knowledge about quality management systems / standards• providing feedback on status of implementation and deployment• facilitating quality deployment
EDUCATION / TRAINING (9%)	<ul style="list-style-type: none">• providing training in continuous improvement techniques• skills needs identification• providing permanent learning resources

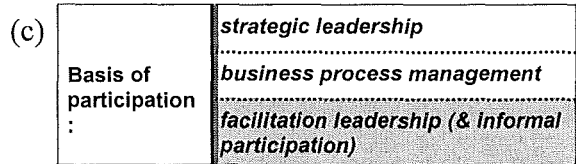
APPENDIX 11.4.3b - Breakdown of examples of top management participation in on-going total quality initiatives

(a) Basis of participation :	<i>strategic leadership</i>
	<i>business process management</i>
	<i>facilitation leadership (& informal participation)</i>

(b) Basis of participation :	<i>strategic leadership</i>
	<i>business process management</i>
	<i>facilitation leadership (& informal participation)</i>

Identification of organisational strategies and direction.	TQ teams looking at issues relevant to their position. e.g. growth, performance improvement, HR strategies.
Quality council.	Meeting with customers, listening to customer calls, and reviewing and using customer feedback;
TQM Steering group.	Reviewing daily process measures
Steering committee members.	Hosting all-employee meetings to review company quality and operational performance
General TQ policy.	Review of Quality initiatives
TQM Group headed up by Quality Staff Mgr.	Review of Supplier development
Change process / corporate core values.	Review of Competency development.
Restructuring, moving to integrate TQM.	Specific Improvement teams (where appropriate).
Steering committee.	Business process management initiatives.
Leadership / deployment	Business safety objective (accident reduction).
'It is embedded now in our culture and we all, on the main board, drive quality using the Baldrige model.'	Non financial performance (i.e.. punctuality and reliability of product).
Deployment.	Voice of the Customer (VOC) programme (2 top mgrs).
Drives the whole process through leadership team meetings.	Activity Based Management Programme (1 top mgr).
Develop vision / mission.	2 top mgrs participated in recent visit by 30 major customers.
Strategic Planning.	Monthly review of key metrics.
Quality is an agenda item for the executive team.	SHEA initiatives.
Policy deployment.	Feed-back of business / Q results.
A Divisional MD is leading the introduction of HOSHIN and chairs the Continual Improvement Steering Group.	Quarterly review.
Personal leadership of Quality Steering Groups.	Improvement group project presentations.
Regular QC meetings - Q strategy focus.	Problem solving.
Chair BU/functional Steering Groups.	Continuous improvement.
Quality councils	Customer surveys.
Goal deployment.	Quality systems audits.
The Steering Group Committee	Complaints analysis.

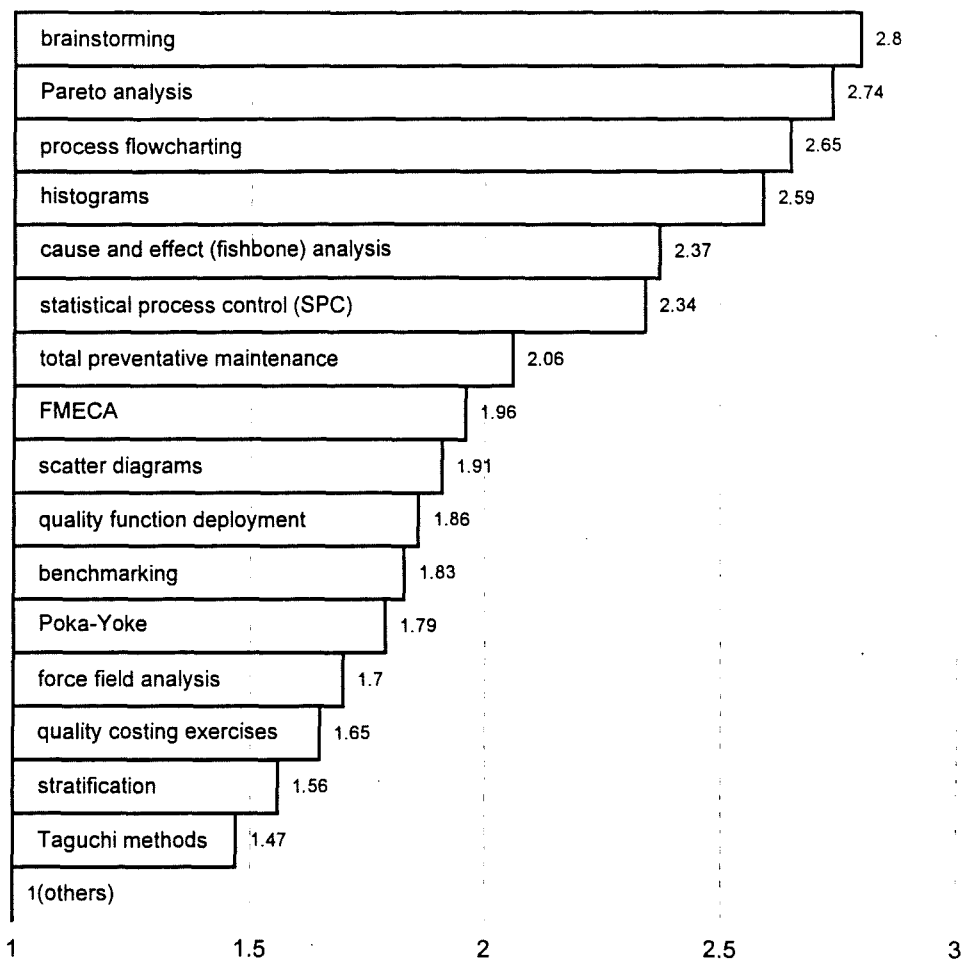
Business process re-engineering (BPR).	On-site reviews.
Circle & team meetings.	Self-assessment.
Circle & team meetings.	Customer partnerships.
Improving customer contacts, satisfactions, needs and wants.	Business Process Management.
Meeting consistently with customers.	Goal deployment.
Deployment / Round table with employees.	Measurement and display.
Baldrige assessment and planning.	Self-assessment (assessors)
'It is embedded now in our culture and we all, on the main board, drive quality using the Baldrige model.'	Assessment of all personnel.
Deployment.	Self-assessment.
Specific project focus on key improvement issues.	Review of quality/key measurables.
progress is reviewed and new initiatives introduced	Key customer visits.
We are initiating a self-assessment process which will include all senior executives in assessing business units twice a year.	Key supplier visits.
Senior mgnt are involved in some teams. They initiate the planning process and communicate the output to employees.	Customer care - monitoring of overdue orders, customers credits and customer complaints.
Monthly 'European management committee' sessions (top team).	Elimination of waste.
Top team lead roadshows.	Non-value add activities.
European wide attainment of ISO9000.	Performance measurement against set targets.
Business Excellence	Continual review of the effectiveness of the working systems and control mechanisms introduced.
Op's Reviews.	Policy / Activity reviews
Business improvement.	Supplier / Dealer seminars
The Chairman is personally involved in New Product development and advanced process improvements.	Customer Satisfaction Committees.
The Deputy Chairman leads a cost reduction exercise in manufacturing.	Business Process Re-engineering.
Self assessment reviews.	A member of the Main Board of Directors attends every Product Group meeting, which are held regularly between businesses with common processes.
Upward appraisals	MRP II.
Added value time measurement.	Regulatory Compliance.
Review of self-assessment at business unit / functional level.	
Regular upward appraisal.	
Leadership / sponsorship of key improvement initiatives.	



Recognition and encouragement for quality improvements and processes.

Organisational design and employee development.	Foster teamwork, continuous improvement, customer focus.
Reward and recognition.	
Recognising employee contributions to the business personally through our reward and recognition programs	Top mgnt is first to learn new techniques and then teaches these internally.
Hosting Meeting of the Minds, meetings with small groups of employees to discuss the strategic direction of our business and the role the values play in our success	Top management' are committed to the 4 principles and are expected to be role models for all employees.
Competency development.	Training and development programmes re-enforcing TQM principles as the 'way we manage' are attended by senior management. They act as mentors for less formal senior management using a formal process.
Communications activities.	Lectures to Scandinavian Institute of Directors.
Support, in person, for discrete quality process projects.	Recognition events.
TQ training planning.	Total Quality leader training
2 top mgrs participated in training in "Quality Tools" (i.e.. specifically designed to hear the voice of our customers).	MBWA structured programmes.
2 top mgrs gave presentations to number of Quality Organisations, Conferences and Universities on TQM.	"Bomb-burst" reviews - one hour of each quarterly half day Business review in each of the BU's/ functions is devoted to <u>structured</u> MBWA.
They lead the business !	Regular 'Recognition' events.
People development.	Training.
External representation with Q+Environ' bodies.	Training - conducting its own lectures etc for shopfloor.
Top management is continuously benchmarking itself against the best.	Communication - videos / letter / briefing.
Continuing development, improvement, and personal development.	TQM3 Training
Recognition systems.	Spreading 'Best Practice'.
Suggestion scheme.	The chairman participates in every Group Quality Training Seminar which are attended by individuals form every business.
Annual 'roadshows' / seminars.	Investors in People.
Communication.	
Awarding (Quality awards of countries, chairman's award for Europe).	
Communication.	
'It is embedded now in our culture and we (main board), drive quality using the Baldrige model.'	
Participate / sponsor / personally conduct training.	
Positively re-enforce desired behaviours of others.	
share vision / mission.	
Act as 'role model' of behaviour.	

APPENDIX 11.4.4.1 - Extent of use of management problem solving tools and techniques in the benchmark sample



Mean scores on three-point Likert scale

(Three point scale used: 1 = Occasional Use; 2 = Moderate Use; 3 = Extensive Use)