

Professional Librarianship: always preparing for the future

Context Statement for the award of
Doctorate in Professional Studies by Public Works
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Abstract

The Context Statement is Part One of my submission for my thesis submitted in partial fulfilment of the requirements for the Degree of Doctorate in Professional Studies by Public Works. It is presented to be read in conjunction with Part Two of this submission, which contains publications which represent the public works. The Context Statement is written in line with the requirements of Middlesex University regulations for doctoral awards and the chapters are structured in relation to these requirements. The submitted works were not initially written for submission as part of a D. Prof.

The Context Statement has stimulated me to bring together a description of the reflective practice which has been inherent in the development of my public works, both those selected for special treatment in Chapter 2 and those described throughout the context statement. In chapter 1 I place my work in context, beginning with my interest in libraries which then became specialised in the library automation field. In section 2, as mentioned I introduce four public works which are in the case of the first three represented by publications. Chapter 3 is a justification for the Doctorate in Professional Studies by Public Works, outlining the place of reflection and reflective practices throughout the development of these public works. In Chapter 4 I return to the themes of International Librarianship, General Librarianship, Library Automation and Standardization which permeate my public works, before drawing my conclusions on the importance not only of reflection but of innovation in my public works.

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I could not have spent the time on this context statement, the thought behind it and the work that it describes without the full support of my wife, Marion Colledge and, over the years, my children Paul, Ruth and Mark Daniel who have borne well my absences abroad and my long hours of work at home and in the office to enable me to undertake these activities. The Public Works have in most cases been team efforts and I have to thank my colleagues who have worked hard to make implement these. Finally I would like to thank for their great support my mentor Dr Andrew Buxton and my supervisors, Dr Mehmet Ali Dikerdem and Dr Kate Maguire.

Glossary

BSI: British Standards Institution

CDS/ISIS: Computerised Documentation Service / Integrated Scientific Information Systems

FADINAP: Fertiliser and Development in Asia and the Pacific

IDS: Institute of Development Studies at the University of Sussex.

IFLA: International Federation of Library Associations and Institutions

ISIS: Integrated Scientific Information System

ISO: International Organization for Standardization

MARC: Machine Readable Cataloguing

MERLIN: Machine-Readable Library Information

MINISIS. Mini-computer based Integrated Scientific Information System

RFID: Radio Frequency Identification

UNESCO United Nations Education, Science and Culture Organization

UNIMARC: Universal MARC Format

UNISIST: UNESCO International System for Information in Science and Technology

WHO: World Health Organization

1. Overview

1.0 Introduction

This context statement explores my achievements in the library world over the years, how that world has changed and how my initiatives and my professional practice and identity have not only adapted to the changes but taken the changes as opportunities to learn and develop thinking about the function and value of the library today and what is needed for its future survival. It is a context statement because it puts into context the work that I have done over the years and the reflective practice I have developed to enable me to undertake this work with the success in which I describe it in the words which follow. It is not an outline of research of the kind which would be required for a Doctorate in Philosophy. I have not had time to break away from my work to undertake that kind of research. Rather it is a description of the development activities I have undertaken across a number of themes which I state at the end of this introduction.

The occupation of librarian is not generally seen as very prestigious. Many users of public libraries, for example, cannot distinguish between someone who is a professional librarian and someone who ‘stamps books’ at the library counter who is usually a library assistant though may in fact be a professional librarian standing in on the counter rota. Even worse, librarians themselves are often unsatisfied with their lot, or their status as they call it.

However, could the occupation of librarian be regarded as a profession? CILIP, the Chartered Institute of Library and Information Professionals regards it as such. Not only does it have the word ‘professionals’ in its name, it also has as one of its three missions “to enable its Members to achieve and maintain the highest professional standards in all aspects of delivering an information service, both for the professional and the public good.”¹ This definition is circular. The *Oxford English Dictionary*² defines profession as “An occupation in which a professed knowledge of some subject, field, or science is applied; a vocation or career, especially one that involves prolonged training and a formal qualification.” In line with this, librarianship requires a formal qualification and requires prolonged training particularly since so many technological changes have taken place in its domain since the advent of computing. I am a professional librarian and I am deeply involved with computing to keep the concept of library and its adaptive value for the future. I would like to continue doing this and sharing my ideas with others. Undertaking a critique of what I have already done seemed a sensible approach to supporting future initiatives. .

Critique can be defined in a number of ways. For me I have learned through this programme that it starts with some exploration of self and one’s motivations before one can proceed to extract learning from the achievements though asking the right questions. It has taken me a while to understand the challenges of standing back and having a critical view of that in which one is so deeply immersed. In fact in many ways librarianship is my life. One of the first things I realised through taking such a perspective was that I could

divide my career into four themes that identify my professional accomplishments and pioneering work in the profession of librarianship and my contributions to its technological transformations. The four themes are , International, Standardization, Technical and General Librarianship. But firstly, I discuss who am I and how did I come to be involved in libraries not only in the UK but all over the world.

1.1 The personal and professional contexts

1.1.1 Growing up with Libraries

I was always interested in reading and books, and particularly in information. The day I joined the Public Library at the age of 7, my mother helped me to select some Enid Blyton titles and as soon as I reached home I read them and had finished them before she had got the tea ready. I felt she was annoyed I had read them so quickly and needed to go back to the library so soon! So much for fiction! My first recollection of my interest in information was when the headmaster of the junior school whose infants' school I attended came to see us before we moved up from the infants' school to the junior school and the headmistress of the infants' school pointed me out as 'the boy who reads newspapers'. I remember also that I liked reading encyclopaedias. Similarly, at an early age I became interested in comparative philology which I later studied at university. This interest was fostered by the public library as I became interested in languages and their grammar by reading books in the 'Teach Yourself Languages' series in the languages section at my local public library. The other interest I nurtured via the library was an interest in computers which were in the late 1960s the preserve of scientists and, I thought, not likely to be a through reading books borrowed from the library career open to myself. We had a computer at school which could describe on screen the trajectory of a ball when thrown taking into account its weight and the speed at which it was thrown. But only the boys in Upper Sixth Science were allowed near it. Being in the humanities, I was thought, when I reached the Upper Sixth form and at the age of 16, to be qualified to be appointed as one of two sub-librarians. I was interested in the processes of lending and returns as much as in the books themselves and their contents. I considered spending time working in a library between school and university but although there had earlier been a 'gap-year' post for boys from my school in the town's public library which had rather appealed to me as something I would like to do in the future, the practice of taking someone on for a few months had been discontinued from the year when it would have applied to me. So I went to work in a company where I dealt with delivery discrepancies. The only use made of anything like computers was for producing invoices in multiple copies, but I never had chance to investigate this area there.

1.1.2 University influences: automation for libraries of the future

As an undergraduate studying Classics, Philosophy and Comparative Philology at Oxford University in the

late 1960s, I discovered that there was potential for using computers in libraries and I thought it would be interesting to be involved in pioneering this new technological development. I was lucky enough to be a student when the Bodleian Library's pre-1920 catalogue was being developed using computers and released as computerised printouts (as this was long before the Visual Display Unit was used by anyone but the staff who controlled the computers). Universities were beginning to experiment with library automation in 1970 as described by Peter Brown in issue no 2 of *Program*³. However, I believed that in universities the librarians (in the 1960s and 1970s) did not answer reference enquiries: it was the task of the students themselves to research their own answers. This at any rate was the case in Oxford. The librarians merely pointed out the location of books and periodicals on the shelves. So, in 1972, I did not seek a post in an academic library but entered public libraries, Camden Public Libraries as the service was then known, one of the foremost library authorities in the United Kingdom. One reason why I chose them for my library trainee post was that I had read an article about computerisation in Camden Libraries in an early edition of *Program*⁴. I had seen this in browsing the shelves at Sheffield University library where I had a vacation readers ticket as it was but 14 miles from my home. They held this then obscure journal as they taught and still do teach library science. I thought it would be interesting to be at the forefront of library automation. Nevertheless, no one could then be certain of the future of computers in libraries and my reasons for becoming a librarian were because I liked working with people and liked helping them to be better informed and as an assistant librarian in a public library there were and still are plenty of opportunities to help people look for and find information they need for business or pleasure.

Whilst working at Camden I became more interested in pursuing what had been my second choice of career at university, computing, a very different occupation then than it is now. That was because I realised (it was true at that time) that there was no career path for librarians to encompass the discipline of computing or, as we were beginning to say, library automation. I determined to try and create one for myself by receiving training in both librarianship and computing. I very much wanted to be in the forefront of library automation, an area of librarianship which was in a very primitive stage. Computers had been used for over 20 years in commerce but with very highly formatted and controlled data: space in computers was at a premium and often had to be stored off-line in magnetic tapes. Data was highly coded to save space and these codes had to be known for records to be retrieved. Systems for public view were often printed out on line printers where every character occupied the same amount of space as was the case with typewriters of the time (now represented in computers by the seldom used courier font). Library users did not search on-line databases but read printed catalogues produced from the computer databases. As there was plenty to learn about in this new discipline, I applied to the Civil Service trainee computer programmer scheme and was accepted and offered a post in the Police National Computer Unit which was operated jointly by the Metropolitan Police and the Home Office.

1.2 Dissemination from the start

At first I was a little disappointed that my work would be far removed from library automation but I need not have feared as the work involved developing computer programs in an information retrieval system which stored and retrieved not records of books but records in catalogues of criminals. A few months after having trained as a computer programmer in the Police National Computer Unit, I saw a post advertised in the British Library and was offered it. The project to which I was recruited to work in 1976 was called MERLIN (MachinE-Readable Library INformation). We needed maximum publicity for it. If it was accepted it would revolutionise library catalogues, and it needed publicity to be accepted, so in 1977 I wrote my first article⁵ in a refereed journal. Interestingly this first article was representative of three of the four themes which form the major part of my career, namely, international librarianship, library technology and library standardization. It was followed up by a further article in a librarians' newsletter⁶.

These papers were reports of the state-of-the-art as it stood then. I found writing papers on systems valuable as it gave one a reason to approach colleagues to investigate why the system was being developed the way it was. They were of course concerned that their view should go into any publication and were willing to provide extensive assistance in writing an article. It also helped me to reflect on my own work and that of the team. Much of my work was research. I had to investigate how librarians catalogued and how the users used the catalogues. In my article cited above I reported "If a computer is introduced into any process it should never become its master. The format of the catalogue entry has developed over 400 years and librarians are not going to throw this overboard to suit a computer."⁷ This reminds me of how I had to fight hard to get this principle adopted not so much from British Library management but more from systems analysts employed as consultants by the British Library. They thought much of what was in the catalogue record should be thrown out as they did not see the need for it, in many cases regarding it, I believe, as traditional practice which had no place in a modern automated environment. Of course traditional practices had evolved for a reason. Not using abbreviations of words in a title, for example, is something that makes searching easier as the searcher of the catalogue does not have to guess which abbreviations have been used. Indeed my paper was stating what I believed more strongly than what British Library management would have said they believed. Though the senior management were mostly of a traditional librarianship background they were not *au fait* with the technology to the extent that I was. If you say something enough times and in the right places it will be believed so I felt my article was contributing to this. I felt I had to attempt to span the two professions, librarianship and computing because I was well placed to do this. New trends were entering computing and the concept of relational databases was being formulated. Codd had developed some landmark rules for 'normalisation' to enable data to be stored and retrieved more efficiently in 'relational' databases.⁸ At the time it seemed to me that relational databases with their normalisation techniques were not suitable for library data which at many points is not capable of normalization. At many points in the catalogue record the cataloguing rules require data to be recorded as on the item. In most commercial

applications, data can be standardized to a much greater extent: the library catalogue is at the mercy of the publisher and authors who do not always use the same form of the name. Our application was innovative in using relational database technology, but the main problem with implementing the package was the processing time taken to rebuild the data in a format for the end-user to see, which was never solved before the project was moth-balled. I also felt that relational database technology was being used as a methodology for saving space, which was at a premium at that time in computing systems. Looking with the benefit of hindsight, and comparing the pioneering days with the present when processing power is not a problem and disk space is available almost without limit, it is interesting to see that relational database technology is still popular. Ways have been found to divide the record up into separate relations or tables which are not logical in the way that Codd would have normalized. Originally the relations were to be used as indexes, but the relational systems I have worked with, MINISIS and Horizon, both build indexes alongside the normalised relational structure.

1.3 Developing library automation standards

All this was taking place in 1976, nine years after a new standard had been developed which had enabled the automation of the pioneering but, with the benefit of hindsight, primitive activity developed by the Library of Congress to produce catalogue cards for any library in the world that wished to purchase them. This standard, known as the **Machine-Readable Cataloguing (MARC)** format⁹, was developed by the Library of Congress with input from the British Library in 1968. This standard, incidentally, pre-dated Codd as it was developed in 1966 and was indebted only to the catalogue card for its record structure. From the outset it was felt to be too closely aligned to the automation of the catalogue card rather than to the computerisation of the bibliographic record. I was the only person in a newly established team in the British Library to be a librarian and to have had cataloguing training at library school, and cataloguing experience in the London Borough of Camden. The article which emerged out of this work was on a new format being developed implementing logic and early information retrieval / cataloguing theory as opposed to trying to follow the format of the catalogue card.¹⁰ This meant (and I have again the benefit of hindsight in the terminology I use) that library automation was moving away from the linear world of the catalogue card to the hypertext world where links could connect in any direction. We were developing a model which was difficult to achieve in the world of linear databases but which later would be the norm for bibliographic data on the web with its hyperlinks invented by Tim Berners Lee.

The MARC format was, and still is, an international standard in the area of cataloguing, then an important area of technology in the emerging library automation discipline. It was my job as the only librarian in the team to develop a new format which we called MERMARC (MERLIN MARC). In the article which I mentioned, I also described the project and the software system that was being developed, to set up a union catalogue of which the British library's catalogue would be the hub. I was applying relational database theory

to the bibliographic record in the context of a library catalogue. As the only librarian in the team, I was leading the research into this new technology. This early research fed into research into other systems. Much later, other cataloguing projects began to introduce relational database methodologies. IFLA's study on the functional requirements of bibliographic records published in 1998 clearly states that "The methodology used in this study is based on an entity analysis technique that is used in the development of conceptual models for relational database systems."¹¹ But my paper was describing links between different entities. I did not use the term 'relational database' as I regarded it as jargon which would alienate the librarian who I hoped would read the article. I wrote: "One feature of the storage of data in a computer using the most recent database techniques is that larger records can be built up from smaller records. This is done by means of links that indicate that one item is related to another." My paper was intended to help others reflect on our cataloguing practices. It is interesting that current cataloguing theory has embraced wholeheartedly entity - attribute analysis, as seen in *Functional requirements of bibliographic records* as adopted by *Resource Description and Access*.¹²

1.4 Aiming to develop international standards

1.4.1 Politics of developing standards

In the meantime, influenced by the fact that I thought MERLIN was likely to be discontinued in the near future, I had joined in 1977 a newly created body, UNIBID (UNISIST International Centre for Bibliographic Descriptions), where it was our task to produce a similar standard to MARC but for the abstracting and indexing community¹³. As I reflected at the time, I was learning the hard way (hard because it impacted on my professional work) that technical developments often succeed or fail on account of the presence or absence of political backing which is usually as important as technical excellence.

1.4.2 Politics of international standardization

UNIBID worked on behalf of UNESCO and was part of UNESCO's UNISIST programme which was intended to develop a world information system, the intention being to use the facilities that primitive computing offered¹⁴. UNIBID was developing the *UNISIST Reference Manual for Machine Readable Bibliographic Descriptions* a manual which described a format what was to be to the abstract and indexing world what MARC was to the library world and what MERMARC had been going to be to the relational database world planned to be the future for library catalogues. During the course of my work I jointly edited the 2nd¹⁵ and 3rd¹⁶ editions attempting to introduce relational concepts into the format. But I learned then that even new techniques suffer from inertia. The *Reference manual* was new, only four years old, but already it was difficult to change anything because there were already users who would not have wanted to change their systems to align them with the changes I might have wanted to incorporate. Standards can stifle innovation. Simultaneously the Library of Congress was developing with the International Federation of

Library Associations and Institutions a new format based on MARC and designed to be an international format. This format, UNIMARC, **UNI**versal **MARC** format, developed in 1977, was intended to be a switching format between different national MARC formats.¹⁷ The Reference Manual format was developed by UNESCO on behalf of the secondary services world of scientific information represented by INSPEC, Chemical Society, Chemical Abstracts amongst others. There were two distinct fields here though to a layman it might be difficult to understand the reason for this. Libraries created and still create catalogues of books which might be sought by author, title or subject. Secondary services produce lists of articles usually retrieved by the names of the authors or by fairly specific subject terms. There was a fear particularly within UNESCO that this would lead to two polarised formats which would handicap developing countries. The Third World institutions did not have the funds to develop sophisticated computer systems with both formats. UNESCO called a symposium in 1978 to discuss the issue which I assisted in organising, and for which I wrote a paper and jointly edited the proceedings¹⁸. The outcome was a new format named the Common Communication Format for Bibliographic Data which I edited jointly after having worked on a comparison of data elements under contract to UNESCO.¹⁹

1.4.3 Diplomacy of international standardization

Working in this environment led to an understanding of the need for diplomacy even in the field of scientific research, in this case research into the best ways of selecting and storing data for cataloguing articles, books and periodicals in order to be able to disseminate it for many different purposes, repurposing it as we say today. I worked on the Common Communication Format²⁰ which was required to bring together opposing parties, those representing the national libraries and those representative of the abstract and indexing services. In some ways I felt it was like the emperor's new clothes as I, a very young person in the field, coming to the field with fresh eyes unencumbered by the politics of different factions, was able to explain that because the libraries catalogued books and periodicals and the abstracting and indexing services recorded journal articles, if common rules followed the libraries' practices for books and abstracting and indexing services practices for the journal articles then all would be well. I had to explain this tactfully and diplomatically since the opposing parties did not necessarily want agreement. Perhaps they had known that this was a solution but had not wanted to countenance it. All this took place through discussions at meetings over a number of years which took place in Ottawa, Geneva and Paris and it was my responsibility to be the rapporteur of the UNESCO Ad hoc Group on the Establishment of a Common Communication Format. The protagonists were being cajoled into developing a common format by UNESCO who particularly desired it because there were organisations in developing countries where they wanted to establish common databases containing both kinds of materials. In the end I was the person who did most of the detailed work while Professor Peter Simmons of the University of British Columbia led the activity.²¹

1.5 Politics of different and national interests in international standardization

UNIBID became a victim of the cuts after Mrs Thatcher came to power in 1979. During this period, senior staff responsible for cataloguing in the Library of Congress, the National Library of Canada and the British Library were of the opinion that UNIMARC needed strengthening in the face of what was perceived as the threat from the Common Communication Format so when the UNIBID Office was closed in 1982 the Library of Congress made a request to the Chief Executive of the British Library that I be transferred to working on the UNIMARC format from November 1982.

Personnel of national libraries and members of IFLA had been a little critical of the current documentation defining the UNIMARC format in respect of the ambiguity of its prescriptions, so in order to develop the documentation further it had been agreed that the format should be changed as little as possible and that a questionnaire would be sent round to the potential users of the format asking for detailed criticisms. This had been done and it was my job to collate these and improve the manual accordingly, with the result that I published in 1983 the UNIMARC Handbook²². This was a project of limited term and at the end UNESCO approached the British Library requesting that I be seconded to them as a consultant. The consultancy was to work on the Common Communication Format and implement a microcomputer library software package based on it. Known as IV+V, this was being developed in Graz in Austria at the Institut Fuer Maschinelle Dokumentation. So for 18 months from February 1984 to September 1985 I worked on this software which unfortunately was developed by mathematicians for mathematicians, or so it seemed to me, rather than for librarians. UNESCO sponsored this software in the hope that it would promote standards for the exchange of bibliographic data. It was another early relational database management system and it was my task to design data entry screens. Unfortunately the work was very cumbersome as it was necessary to draw the screens on squared paper and work out the coordinates of every square which indicated a different condition such as a block on the screen rather than a blank. The moral of this, I felt at the time, was that packages should be developed in cooperation with end users and not by mathematicians who were predominant in the computing profession at that time working in isolation. In the end, in 1986, a short time after my involvement with the project had finished, UNESCO abandoned the patronage of the software package in favour of the continued promotion of a software package that was being developed in-house for the IBM Personal Computer, based on an earlier mainframe package developed originally by ILO and later adopted by UNESCO. This package was known as CDS/ISIS (the original package being ISIS and CDS being the initials of the name of the division in UNESCO responsible for it, Computerised Documentation Service). I learned later, in 2003, through a chance meeting with the university librarian at the University of Graz, Eva Bertha, who had in 1985 been the librarian responsible for the introduction of IV+V that for some years IV+V remained in use there.

1.6 Aiming at international development: leadership as a consultant

Additionally during this period I undertook two field-work consultancies, one in Tanzania in 1984 where I investigated the special requirements needed for IV+V for use in a national library, the other in Brazil in early 1985 where I made recommendations for setting up a national format and the infrastructure for a national bibliographic standards office,²³ taking into the account the fact that Brazil had a strong Scientific and Technical Information sector which they required to be compatible with the cataloguing data being produced by the National Library.

After the finite time allocated to the work for UNESCO, in 1985 I took up a post at the Institute of Development Studies at the University of Sussex (IDS) where they needed a library automation specialist to introduce computerisation into their library processes. After a year of systems analysis and systems procurement, I introduced a different version of CDS/ISIS, one developed for Hewlett Packard 3000 microcomputers and known as MINISIS which was developed by a sister organisation of IDS, the Canadian International Development Research Centre and supported in the UK by a company called ASSYST whose only inroad it was into the library automation market.²⁴ I implemented for the catalogue record structure the UNIMARC format in order to test it in a real situation and to provide a source of examples of bibliographic records for documentation such as for any manuals on UNIMARC. However I did not work on UNIMARC at the international level for a year or two until the National Library of Portugal in 1987 asked me to be a consultant and help the management to promote and implement UNIMARC.

IDS was the UK focal point for EADI, the European Association of Development Institutes. EADI decided to set up a cooperative cataloguing system whereby the members would catalogue relevant literature and form a combined database which could be copied to disks which could be circulated between them. They needed to use a library automation package. A few microcomputer library software packages were already developed but at that time were expensive and I was very anxious to get my hands on CDS/ISIS as it seemed ideal in a situation where many institutions that wished to participate would not have funding to purchase a package especially on top of having to purchase a microcomputer which many institutions in developing countries did not yet possess. Because of my contacts in UNESCO, I was able to persuade the developer of the package, Mr Giampaolo Delbigio, to allow the consortium of institutions making up EADI to use the package. Eventually, when he was looking for distributors, IDS through myself became the UK distributor for the software.

IDS was keen for staff to get involved in consultancies. Their economists earned income from the World Bank and other UN associated agencies at the kind of rates expected by economists but the library had never participated before I accepted an invitation. I had been a consultant for UNESCO preparing standards and done three consultancies in the field. I knew this gave one the chance to be a leader since one is alone in an environment and has to make one's own decisions. Then you could not communicate readily with the people

who sent you out except by sending the occasional telex or fax or by phoning which could be expensive. Now it is much easier as almost always you will have email. Between 1986 and 1991 I undertook consultancies for the Food and Agricultural Organization of the United Nations, the World Food Programme (also part of the UN), both negotiated by the economists with the contacts in those institutions, World Health Organization, International Labour Organization and the International Red Cross and Red Crescent. I also worked on an institutional rather than a personal consultancy for the United Nations Economic and Social Commission for Asia and the Pacific developing a fertiliser database using CDS/ISIS which took me to Pakistan in late 1990²⁵ and Viet Nam in 1991²⁶ as well as to India. I learned about the pitfalls of international development first hand. The institute I worked at in Pakistan had two directors, one appointed by FAO and one appointed by the local government one presumes. Other chaotic features resulted, such as the fact that the librarian who was a woman could not attend meetings for religious or cultural reasons so someone else was appointed with the title "Documentalist" who knew little about librarianship but attended meetings on behalf of the library. The librarian confided in me that the documentalist never spoke to her. The library had locked cabinets and open shelves. The open shelves contained reports and grey literature which the researchers found useful, if they could find the material themselves but they were not catalogued. The locked cabinets contained for the most part books remaindered by the US publishing industry mainly on accountancy and taxation which were of no use to anyone still less to the institute but looked expensive and valuable compared with the grey literature and occupied the librarian in cataloguing them. This experience has served me well when discussing with publishers or donors the kinds of materials that should be sent to libraries in developing countries and has enabled me to work better with librarians in developing countries through understanding better some of the conditions and cultures under which they labour. Additionally as I have mentioned being a consultant gives you the chance to make your own decisions.

Having participated in international consultancy work at IDS, I continued to receive occasional requests to do similar international work while I was employed at the Tate Gallery and at Middlesex University.

The British Council asked me to undertake a consultancy in 1996 to recommend the European Union the extent to which its foreign aid to academic libraries in Palestine should be divided up between furniture, computing, media and books. Later the same year, because of my experience with CDS/ISIS, I was invited by UNESCO in 1996 to visit the new Alexandria Library which was under development in Alexandria in Egypt to advise on a library automation system. The following year I joined a British Library delegation organised by the British Council to Kuwait and Saudi Arabia where I was responsible for addressing the audiences on Library Automation in Higher Education in the UK.

A further invitation I received which has had extensive results in the bibliographic world at large was an invitation to participate in IFLA workshops. IFLA Committee on Bibliography received funding from the US Council of Library Resources to hold a number of seminars which took place in various locations. These

were Rio de Janeiro, Kuala Lumpur, Vilnius, Mexico City, Tbilisi and the Crimea. I attended all but the one in Mexico City where the speakers were entirely Spanish speaking. I joined the team to promote the UNIMARC format using a database developed for CDS/ISIS by the National Library of Portugal. As mentioned above I was the consultant who introduced UNIMARC to the National Library of Portugal and from the outset had recommended a system whereby the National Library had a mainframe software package, GEAC, and libraries around the country contributed their own holdings to the central database using the “CDS/ISIS for Microcomputers” software package).²⁷ A version of this was developed in Lisbon for demonstration. I used this to demonstrate the concept of the UNIMARC exchange format. In the workshop at Tbilisi in Georgia which was attended by librarians from Georgia, Armenia and Azerbaijan, I met a contact with whom I have been working extensively since 2004, Dr Tigran Zargaryan from Yerevan State University in Yerevan, Armenia about whom more later.

1.7 Expanding experience to other sectors: opportunities for leadership

After IDS I joined the Tate Gallery Library and Archive in 1990, another national institution which again led to international activities as the Gallery co-operated with the Museum of Modern Art in New York and the Musée d’Art Moderne at the Centre Georges Pompidou in Paris. This was a three year post intended to establish a computerised catalogue in the library. I was attracted to the post because I had been working with a senior member of the archive profession, Michael Cook of Liverpool University, on a MARC format for archives and the Tate Gallery was interested in a common system for its newly merged library and archive department. Some time after my appointment, I was asked because of my experience in library standardization to be the technical adviser on a project management committee of a Museum Documentation Association project to develop a standard for museum documentation in the UK which led to the development of a standard known as Spectrum.²⁸ Museum and archive documentation and its computerisation were of great interest to me as they were new developments and as always I was interested in pioneering.

At the end of the three year appointment I took up a post at Middlesex University in 1994, the first time I had held a post in an institution without a national leadership role, though one that encouraged staff to work on international activities. Also, it was the first time I had a role in library automation in a system which was already established; previously I had always been responsible for the introduction and selection of a new system. Here I was leading only the library automation activity which had started earlier, and other people had leadership roles in other related areas such as computerised cataloguing and implementing new systems in the different campus libraries. Leadership in this case involved working tactfully with other longer established leaders, so the diplomacy required was not as had been the case earlier with leaders of international organizations and institutions but with one's peers, and with other members of staff at various levels who had been working for a decade with an earlier system. At Middlesex, a system called Horizon had

been selected before I arrived (though I had the task of implementing it) so I was definitely following on now from work done previously over 10 years.

- At Middlesex University I began as Systems Librarian, became after 8 years Head of Library Systems with the person designated as Systems Librarian working to me and after 12 years became Head of Systems and Bibliographical Services when I took over responsibility of Bibliographical Services (managing the acquisition and cataloguing of library materials) from the previous postholder. Middlesex University Information and Learning Resources Service was exceptional among university libraries in that it did not have a main central library but a number of main libraries of equal status. This made systems implementation more complex than in most higher education institutions. The main development activities over the years were:
- Implementation with the developer, Abel Packer of BIREME, of a version of WWWISIS for easy implementation on the web which became known as IAH (described by Buxton²⁹). This was pending the introduction of web access for Horizon which came later. The work done was also used as a model for a version of iAH implementing the MARC format.
- Introduction with Dawson Books (the main book supplier to the university library) of shelf-ready book purchasing including developing mechanisms and procedures for importing records from book suppliers into the library catalogue as the books arrived.
- Implementation of RFID as the first customer of the Horizon software package in the UK to do so³⁰.
- Less spectacular though equally important was the gradual development of the library catalogue, in line with systems and bibliographic standards developments.

1.8 Contributing to international activities at Middlesex University

Eventually I had the opportunity to be involved in a TEMPUS project which was followed by four further projects from the same source of funding. Librarians went from Middlesex University to lecture on the promotion and marketing of electronic journals and databases used in the library. In a later project I also brought into the project colleagues from the Centre for Learning and Quality Enhancement who supervised the VLE at Middlesex. It was a good opportunity to enable my colleagues to visit other countries, and for those who could not travel to meet colleagues from Serbia, Armenia, Georgia and Uzbekistan as well as Bosnia, Kosovo and Montenegro. These projects also brought money into the university. I discuss this further in Section 2.4 as one of my public works.

In the meantime, we bid successfully for a grant from NATO's Science for Peace and Security Programme to develop the network infrastructure in Armenia which built on the work funded by the EU TEMPUS project

to extend the possibilities for distance learning. This grant contributed €55,000 to the purchase of state-of-the-art networking equipment and was concluded in September 2009³¹.

One of the largest collections of early printed books and periodicals in the Republic of Armenia is located in the Fundamental Scientific Library (FSL). The rare book collection is in particularly poor condition and requires urgent action to protect them and prevent further damage. A grant was secured from the Endangered Archives Programme to digitise these and make them available in digital form to enable their dissemination as well as to act as a backup copy in case of damage to the originals. They will be stored locally in a Greenstone database.³²

Bidding for funding is one of the areas where those who are successful often become even more successful as time goes on, so the difficulty is getting initially on to the ladder. In the case of the TEMPUS projects, it is important to bear in mind the European Union rules for applicability of proposals. Each country has priorities and each region has priorities. The project where we were not successful was a regional project and it appeared to have been rejected by two of the countries which would have benefitted.

As a result of my success I was invited by the British Council in 2008 to address a meeting of UK higher education staff who were interested in participating in future TEMPUS projects. Unfortunately I was occupied on the proposed date with a meeting to conclude a TEMPUS project in which I had been involved in Syria.³³ However I was invited the following year by the British Council and was able to accept.

Many individuals are for various reasons unable to travel. They nevertheless can enjoy the benefits of meeting people from other cultures and seeing for themselves the interesting cultural problems when cultures meet or collide. I organised the TEMPUS projects to include visits to Middlesex University. Both sides benefitted. Middlesex library staff can reap benefits for their day-to-day work when seeing the expectations of foreign librarians when they deal with foreign students who have been through systems like those that their visitors manage. Conversely a deputy university librarian from Armenia commented with astonishment - after hearing a talk about electronic resources from a Middlesex University librarian- how enthusiastic were librarians at Middlesex. In Armenia, librarians are expected to sit at their desks and tell people what to do rather than show them how to do it, pointing to distant shelves or describing places to find computers. University computing staff in the near east do seem more proactive than librarians.

Having received on many occasions requests for visits to Middlesex from librarians in developing countries, I investigated in 2002 whether the Commonwealth Professional Fellowship Scheme could help and since then I have had a number of visiting Fellows through this. Under my guidance, they have written articles on their experience.^{34, 35} I have also written an article on this as a way of advertising the scheme, only required, in my case, when no personal contacts I had made had expressed any interest to apply for a fellowship.³⁶

2 Public Works

I have made a selection of public works which demonstrate different aspects of my impact in the library and information profession. At the core of my work has been my efforts as a translator or interpreter between traditional librarianship and automation, between librarians and users and between the UK and other countries. I have done this through improving systems, giving seminars and papers, writing papers and developing training courses. As with any public work, these do not stand alone they are interlinked and have an incremental development aspect. Because I enjoy disseminating the work I am doing, the works are represented by publications.

They are (in chronological order of my initial involvement):

2.1 Promoting and implementing UNESCO's freely available software package for libraries, CDS/ISIS in various institutions.

This resulted in the production of a manual: I was requested by UNESCO to produce this.

Buxton, Andrew & Hopkinson, Alan. *The CDS/ISIS for Windows handbook* (with Andrew Buxton). Paris: UNESCO, 2001. Available at:

http://www.unesco.org/isis/files/winisis/windows/doc/english/en_handbook.zip

2.2 Introducing RFID into the libraries at Middlesex University

This was also publicised by an article I wrote. Hopkinson, A. and Chandrakar, R. Introducing RFID at Middlesex University Learning Resources, *Program* **40** (1) (Jan 2006) 89-97

2.3 Developing the **UNIMARC Bibliographic Exchange Format**. Hopkinson, A. *UNIMARC Manual : Bibliographic Format*. 3rd ed. Munich, K.G. Saur, 2008.

2.4 TEMPUS projects: securing European funding for the fringe area of the European Community

2.1 Promoting and implementing UNESCO's freely available software package for libraries, CDS/ISIS in various institutions.

Buxton, Andrew & Hopkinson, Alan. *The CDS/ISIS for Windows handbook* (with Andrew Buxton). Paris: UNESCO, 2001. Available at:

http://www.unesco.org/isis/files/winisis/windows/doc/english/en_handbook.zip.³⁷

This manual which represents one of my public works was written jointly with Andrew Buxton who by then had succeeded me in the post of UK distributor of the CDS/ISIS software package. I wrote chapters 5, 6, 8, 9, 11, 12 and 13. I mentioned above how I became involved in working with CDS/ISIS, a software package developed by UNESCO and made available by them free-of-charge. Librarians are always keen to

disseminate information and usually work in an environment where the publications have to be purchased but the information in them is made available free-of-charge. However the software they need to use is normally not available free-of-charge, a fact which inhibited libraries and information services in developing countries with small budgets and, having little or no access to foreign currency, no possibility to purchase the systems used in the industrialised world. That was the case until UNESCO developed this package and made it available free-of-charge. CDS/ISIS for microcomputers was promoted in developing countries and through the organizations in the United Nations family. The package was developed by people working in UNESCO who were technically very competent and also good at training, but they did not enough time to work on all but the minimum of documentation. I have already introduced the subject of CDS/ISIS in section 1.5 when I was discussing the politics that can influence technical decisions and decisions to adopt a particular technology which may not be founded on scientific or technical principles. This led on to my discussing in section 1.6 my involvement with the package and its promotion when writing about my involvement with international activities. I cannot say that I developed CDS/ISIS but I have spent many years, since 1985 right up to the present day (2012), interpreting it to users and potential users. Moreover I have been listened to by the developers of the system and have contributed ideas for its development. I always promote exchange formats in any aspect of cataloguing automation in which I am involved. Exchange formats contain many years' worth of reflection on data element definition, and if an implementer uses an exchange format it obviates the need to reinvent the wheel: "Use data elements already available instead of trying to invent your own", is my motto when helping institutions to set up their databases in CDS/ISIS. UNIMARC, the CCF and MARC21 are all formats replete with data elements and their definitions and will make the task easier for a librarian setting up a new database on CDS/ISIS. I have learned by experience that ignoring exchange formats can lead to non-standard data in the future which will be more difficult to align with others systems if desiring to exchange records or merge databases. Customers may plead with me to offer something simplified but I will only do that if there is no chance of their wishing to cooperate with other databases or catalogues in the future.

I have therefore many times requested to the developers to incorporate features to improve the implementation of standard exchange formats on CDS/ISIS. I help users to define desired outputs from the system. I write a column in most issues of the quarterly *Information Development* and answer readers enquiries. This naturally gives me the opportunity to think analytically to solve their problems, which they often report to me by email, hoping I will address them, directly or in my column. Out of this work came the manual co-authored by Andrew Buxton which was actually jointly conceived by myself and the developers in UNESCO to answer needs that the official manual which gave just the bare bones of how to use the package did not address. Buxton succeeded me as Information Systems Manager at the Institute of Development Studies and as distributor of CDS/ISIS in the UK. We shared the writing of the book between us but the book represents only part of my public work. It represents the area of the work I have done in

interpreting the package to users. It was and still is made available free of charge as it was written under contract to UNESCO though adapted from an earlier version for earlier software running under DOS. Surprisingly it was not reviewed but that could be because there is no publisher behind it pushing sales. It was translated into French, Russian and Spanish. It is a manual intended to supplement the official documentation. This is only a small part of my output on CDS/ISIS. I had also written earlier with Andrew Buxton a handbook for users of CDS/ISIS for DOS³⁸. As time went on, catalogues developed on CDS/ISIS were moved to a new version of ISIS for the Web (WWWISIS). This was developed by BIREME¹ in cooperation with UNESCO and piloted at Middlesex University. It was called IAH which I was told meant Interface Alan Hopkinson, since I worked with the Director of BIREME and former head of BIREME's software development team, Abel Packer who visited Middlesex University for a week in 1997 to help me specify an interface which would be compatible to data formatted according to the MARC format. This implementation of the system was, until 2010, used for the Middlesex University emergency backup catalogue.³⁹ At the time the library systems package named Horizon that I implemented and managed at Middlesex did not have a web interface though many of its rival systems did; so with the help of BIREME and a small amount of funding from the Middlesex University library budget, I produced my own web interface to the system. This was in itself pioneering. In the 1990s, one bought a system and expected it to do everything one wanted, or if it did not there was nothing one could do other than change to a different system with, in the case of a library systems package, all the attendant upheaval of getting to understand a new system for staff and students alike. Standards like SQL, Standard Query Language, which can operate on SQL compliant databases ensure the possibility of building different interfaces to a database, so today it is commonplace to write or purchase alternative software to what one's major system supplier offers. Although our database was SQL compliant our contract did not allow us to develop a new interface using SQL tools so WWWISIS relied on a copy of the database in MARC format being provided at frequent intervals. Unlike in Horizon, the circulation status of items (on loan, reserved, missing or in the library) was not available but until Horizon was provided with a web-based catalogue, WWWISIS was the only view of the catalogue data available to the outside world in the days when many other systems vendors were supplying a web interface as part of their basic system. When Horizon eventually did get a module for the web, in 1999, WWWISIS was still used at times when the main system was not available, for example due to planned upgrades or unplanned systems failures.

As a result of having been involved in CDS/ISIS for the Web, I was invited by a charity which supports libraries and information in the health sector in developing countries, PHI (Partnership in Health Information), to spend a week at the teaching hospital library in Makerere University Library in Kampala, Uganda, 2006, refreshing the staff's knowledge on the software and assisting them to improve their

¹ Biblioteca REgional de MEdicina – Regional Library for Medicine. They have worked in cooperation with UNESCO for many years

cataloguing practices. This resulted in a presentation at the Online Information Meeting 2008.⁴⁰ I also gave a week's seminar in Windhoek in 2007 for the National Library of Namibia, the National Archive and the University of Namibia while on my way to attend the IFLA Conference in Durban that year.⁴¹ I wrote an article commemorating CDS/ISIS in *Information Development* in 1995⁴² and an article entitled "CDS/ISIS: UNESCO's Information Retrieval Package for microcomputers and the VAX minicomputer" in *Encyclopedia of Library and Information Science* the following year.⁴³ A much later article in *Information Development* brought all this together alongside a discussion on a general account of library automation in developing countries.⁴⁴

One area that has interested me over the years is the interface between exchange formats and systems which is covered in chapter 13.2 and 13.3 of the manual and which was completely my own work in the jointly authored manual. It is an area that has to concern systems vendors as well as library systems managers. It requires a knowledge of IT as well as of library cataloguing. It is bound up with the history of the MARC formats which use the record structure which became the International Standard ISO 2709.⁴⁵ This format is a record structure which looks very strange to those introduced to data processing today. However, it is a very precise structure and programs which import MARC records (most library automation systems do this) expect correctly formatted records and may crash if presented with a record that deviates only slightly from the standard. Many software packages do not correctly validate MARC records on output. Horizon, the library management and cataloguing system in use at Middlesex University has such a fault. It can produce records with non-numeric tags since it does not validate the tags. These records cause CDS/ISIS to crash. Additionally CDS/ISIS does not produce the record label correctly so records from CDS/ISIS often cause other systems to crash on import of such a record. I have written extensively on this issue and attempted to get UNESCO to improve the CDS/ISIS package but to no avail.⁴⁶ In 2007, UNESCO passed on the development of a future equivalent package to BIREME. The package is known as ABCD⁴⁷ and I have been involved with translation of the Spanish in which the menus of the software are written into English. A small package like this can be a useful tool in training librarians without formal IT training or knowledge in bibliographic database creation and data entry and information retrieval and since it is free-of-charge I have been able to use it in developing countries for training purposes.

The work on this software package is critical to my mission in supporting not only library automation in developing countries but also the use of those standards which I have developed or worked on in that area. Although time has moved on and many universities in developing countries have been able to purchase commercial systems (India itself has some home-grown commercial library management systems), CDS/ISIS and its successor ABCD are still very much used especially in the least developed countries or in small organizations. I get two or three emails a month asking me questions about the system and usually I can refer enquirers to the manual for the solution.

2.2 Introducing RFID into the libraries at Middlesex University

Middlesex University was until 2010 based on many campuses and each campus housed a library which was run with a certain degree of autonomy (in 1999 there were 12 campus libraries and in 2012 only two). There was however only one library management system. This system could force standardisation on the distinct libraries and it could be used as a tool to force standardisation across the campuses. This gave myself as library systems manager a certain degree of power, naturally accompanied by responsibility, which was supplemented by the fact that the library systems management team ran the regular meetings that managed circulation (lending and returns as well as reservations). Occasionally a standard is mooted in the library world which has wider interest, often going beyond the interests of the library profession and impinging on the commercial sector's concerns. My seat as UK representative on the ISO international committee for computing applications in libraries and archives gave me an early view of RFID. Radio-frequency identification involves placing a tag in books which is a transmitter. This transmitter is detected by security gates in libraries and has data on it which can be changed ('written to') by computers in libraries used for issuing books, whether those used by the librarians to issue books or by the library user him or herself in the case of library self service machines. Danish Standards were the first national standards body to establish a committee to make standards for RFID in libraries and had developed a standard for using RFID to replace barcodes which were at the turn of the millennium the favoured way of identifying library materials. In 2002, staff of Danish Standards gave a presentation at the ISO committee that I have attended annually since 1987 which oversees this area of technology suggesting that the standard they had developed might, if the committee were enthusiastic, become an international standard. The following year, 2003, I noted RFID advertised and promoted at the annual IFLA Congress in Berlin and suggested we should implement it in the library at Middlesex University. A demonstration was offered by the only supplier capable of satisfying our requirements at which all staff with an interest in library circulation were present and staff liked what they saw so we implemented it. For librarians, understanding the technology helps but is not essential. More important at Middlesex University was persuading my colleagues that RFID would bring benefits. Middlesex was to be one of the first implementations in the UK. Normally I avoided innovating as we were a very complex library with many campuses and different loan requirements and traditions on the different campuses. Moreover we did not have a central library, the different campuses being for the most part of equal status. All available commercial systems had been developed for a single site library or a multiple site library with one central library and separate branches. Normally, innovating in library systems was in my opinion best left to other less complex universities. However, I felt that implementing RFID would bring such advantages it should not be missed. We had struggled for years to get self-issue using barcodes to be sufficiently easy to use for students to prefer to use the self issue machines rather than go to the counter for staff to issue the books for them. Implementing RFID would be a challenge because of the newness of the technology. Fortunately the director of the University Library was enthusiastic and it coincided with a new

library building at the Hendon campus which though no one would have guessed it at the time turned out eventually to be the main one, where the university eventually came to be concentrated. It was necessary to get the support of other staff since teams of library assistants supplemented by teenagers in their school holidays had to take every book off the shelves and stick in an RFID chip. There were many problems, teething troubles caused by a new system which had been implemented previously only by half a dozen libraries in the UK. None of these were customers of the suppliers of our library system or of the suppliers of our RFID hardware who were chosen for us by our library system supplier as they supplied US institutions: we had no choice. The intention was that equipment used for library users for 'self-service' as well as the RFID readers on the counter and the security gates which detect books being taken through in an unauthorised way would be much more reliable way than the previous electro-magnetic system.

To help me reflect on the work we had been doing on the implementation of RFID, I wrote an article on our experience. I wrote it with Rajesh Chandrakar who was working at Middlesex University under the Commonwealth Professional Fellowship scheme. His role in the authorship of the article was preparing the article including the illustrations for submission to the publisher in the correct format. This paper was written in the early days of the use of RFID in libraries and published in *Program: Electronic Library & Information Systems*⁴⁸, one of the leading library automation journals. It achieved the top five of online accesses in *Program* in the year 2009, three years after it was published when there was most probably a peak in interest in other libraries in implementing RFID. Our installation at Middlesex University was used extensively as a reference site by librarians looking to implement RFID in their own libraries. They were pointed to us by our supplier, a company called D-Tech who was an agent for Bibliotheca in Switzerland whose product this RFID solution is. I was able to fill visitors in, not only on the technical aspects of RFID but also on information about the standards development and predictions on future directions based on innovations possible through developments to the standard being proposed by the ISO Committee. Describing our installation to visitors and answering their questions was a very good way of reflecting on our implementation. For example, time had progressed RFID technologies and there were different received ways of implementing RFID five years after we had implemented. Some installations were retaining their previous electromagnetic security systems alongside the new RFID tagging which they used for stock control and not for security. Equipment developments had made this possible. We had not had the opportunity to do this which could have saved us the effort of tagging journal issues which would have continued to be detected by the earlier electromagnetic methods. I also pointed any visitors to my article in *Program* which most librarians can access freely. It was one of the first papers entered in the Middlesex University Research Repository and was in 2010 in the top ten of articles downloaded from the repository. Later I was asked to present a paper on RFID in India at a conference on digital libraries which rather surprised me as I did not regard RFID as part of a digital library scenario, rather as a tool to enhance the efficiency of library circulation.⁴⁹

The implementation of RFID was a complex project as it involved all areas of the library and impacted on students and should have been led by a project leader. The university later set up a Programme Management Team to manage any new projects which were funded with special funds from the centre rather than by the departments themselves. Had this been in place then it would have probably run more smoothly. A further complexity was that there were technical issues involved: it used a new technology and there were teething troubles; a new technology brings with it requirements to understand it, up to a point but not to despair if one cannot understand beyond that point. In addition to all these there was the matter of the building not having been handed over from the architect and many decision such as location of equipment were made via the architect which resulted in the non-implementation of a sorter which was not implemented for a further 6 years. In effect library management though approving the project did not appoint any individual to be in overall charge so there were many people at an equal level all with their own views and I had to negotiate with each individually. So one person managed the tagging of the books; I oversaw the communications with the suppliers and that technical issues were resolved using the supplier and members of my team as appropriate. Discussions on the location of the equipment were done by senior management team who were not communicating with myself beyond informing me of the decisions so that I could change plans and communicate with the suppliers. It appeared at the time that the university was suffering from weak project management so it was no surprise to me that projects allocated central funds (as this had been) for some time thereafter in the university were led by a central product management team rather than by the local implementors.

Also as a result of this innovative work and my work with ISO, I was asked to give a report on standardization progress in 2007 at a conference in Queen Elizabeth Hall sponsored by CILIP⁵⁰. I am also on a committee which is looking to revise the standards that assist interoperability between library systems and circulation hardware, known as SIP.

2.3 Hopkinson, A. *UNIMARC Manual : Bibliographic Format*. 3rd ed. Munich, K.G. Saur, 2008

The *UNIMARC Manual* is only one aspect of my public work on UNIMARC, albeit a very important one. The other aspect is the format itself of which the manual is one representation. In any case, when producing a manual the document is never likely to be all one's own work. In the case of the *UNIMARC manual*,⁵¹ the manual describing the UNIMARC format, I am editor and chairman of the Committee that produces it and have a greater influence than most on the design of the format and the document. In section 1.3, I described the MARC formats which are a variety of national and international standards based on an identical record structure but with different systems of codes to identify the data elements which are for the most part identical whichever the format, because ultimately the records in these formats are used for producing catalogues and bibliographies. The common record structure is implemented in nearly all library management systems as the structure for importing records from external sources such as national libraries or the booksellers that sell to libraries books accompanied by a set of records representing them for inclusion in

the libraries' catalogues. UNIMARC follows this record structure but has its own identifiers for the elements of a bibliographic record. The contents of the manual are very much governed by the cataloguing rules which the format described in the document implements. In many ways the committee itself is the editor but the publisher prefers a named person as editor, hence the editorship of the published document is attributed to myself.⁵² I was instrumental in designing in 1982 the layout of the original interpretative manual on which this manual of which I was the editor from 2002 was based. This was not the first UNIMARC manual but it was reconstructed by myself in order to make sense of it as a manual giving advice and interpretation rather than just the bare bones of the standard which might well leave questions in its application unanswered. The original document was much barer with very little explanation other than definitions of data elements. In working on the original interpretative manual I learned the difference between a standard document as exemplified by the original manual and an interpretative manual. The problem is that in interpreting a format in a manual an editor may extend the definition of the standard in the interpretation of the format. This, the editor may not be authorised to do but in my experience because of the constraints of time on the editor and on stakeholders who might check the draft before it is published, it was something I had to do. Between 1984 and 2002 I had very little if nothing to do with the development of the format, but during the course of that period, from 1986, I was involved in designing systems to implement the format, providing for the software package MINISIS for my own employing institution, IDS, an implementation of the UNIMARC format commissioned by IDRC, the developers of MINISIS. I also implemented this at the National Library of India under contract to the British Council. Computer systems generally do not have a long life and MINISIS was decommissioned in both IDS and the National Library of India in the late 1990s. MINISIS was developed as a system for small libraries in developing countries which did not have the resources to produce good quality cataloguing. I successfully used UNIMARC to implement a system which satisfied IDS and the National Library of India in respect of following good cataloguing standards as described by Majumder.⁵³ So, my work on the development side of UNIMARC came to fruition when after a gap of 15 years in 2002 I was asked to be a consultant editor of the bibliographic format manual.⁵⁴ In itself, this work of editing a manual, which describes the rules behind a bibliographic exchange format and interprets them, is not a task that many people are able to undertake, since it sits at the conjunction of two disciplines, high level cataloguing as practiced mainly in national libraries and library automation, both at a greater level of sophistication than most libraries require since it has to serve the requirements of national libraries which in many countries are expected to serve as a beacon for other libraries to follow. Additionally, I was appointed after two years on the Committee to be the Chairman, and this and the role of editor have required me to coordinate the work of a group and adjudicate on differing opinions. It also necessitated me to be aware of the state of the art in bibliographic standards since there are a great number of references to other standards (as found for example in Appendix M of *UNIMARC Manual*) which refer to appropriate bibliographic standards for the further definition of the data elements.

UNIMARC is still maintained by IFLA but is not used in the United Kingdom or in the USA. Originally IFLA expected it to be adopted as an international format but in the year 2000, the Library of Congress declared its own format (Library of Congress MARC, later renamed US MARC) to be an international format and renamed it MARC21. The document is written in English for which reason I have retained my involvement, and then it is translated into other languages such as Portuguese, Italian and French.

Editing the *UNIMARC Manual* includes managing a system for proposals for change to all the formats, Bibliographic, Authorities, Holdings and Classification. Users of UNIMARC around the world may contact the members of the Permanent UNIMARC Committee with suggestions for changes to the format which are then coordinated by the editor who numbers them, formats them in a standard way and circulates them to the members of the Committee. Twice a year the Committee meets and discusses these. They are then added to the document which is published around every three years. From 2008 a mechanism was established to provide updates on-line.

Chairing the Permanent UNIMARC Committee gives the post-holder the opportunity to plan the annual workshop that takes place at the annual IFLA Congress. Previous chairs have, like myself, been systems and cataloguing oriented. I have seen my role to be reflecting the fact that I am an experienced manager of systems and one who has gone through formal procedures of selecting and procuring systems. Therefore I have promoted contact with library systems suppliers and bibliographic record suppliers and their participation in the session at the annual workshop. Successful papers from systems developers at the workshop have been given in 2005 by Mike Taylor of IndexData, London, and Adam Dickmeiss of Index Data, Copenhagen, Denmark)⁵⁵. I also wrote as guest editor the introduction to *International Cataloguing and Bibliographic Control's* special issue in 2007 on UNIMARC and UNICODE⁵⁶ for which I commissioned an article entitled *Unicode: OPACS and Portals - One Vendor's Experience* by Stephen Abrams and a colleague, staff of SirsiDynix, a major library system supplier and supplier of Middlesex University's Horizon system.⁵⁷

Another sub-theme which I have promoted is using library systems for cataloguing archives. One reason why I took up my post at the Tate Gallery was to participate in archive automation which at the time seemed more interesting because it was still under development. I developed with one of the leading specialists in cataloguing of archives, Michael Cook of Liverpool University, a MARC format for archives and I have persuaded members of the Permanent UNIMARC Committee working in institutions that hold archives to assist in the development of procedures for recording archives in machine-readable form.

Working with MARC formats has been intellectually rewarding. They were, as mentioned earlier, developed in 1968, just as I was starting my bachelor's course at university and I have worked with formats throughout my career. I have managed a library system doing a job that many people do without detailed knowledge of formats but my expertise has been respected and indeed sought after at various times by our systems supplier

and indeed by suppliers of other systems in addition to the director of BIREME in Brazil who developed WWWISIS and its implementation IAH as mentioned above, which implemented MARC formats in library automation targeting Latin America where systems had not universally implemented MARC as they had in North America and Europe. MARC formats have been politicised and are controversial in that there are rival formats as described extensively in *Exchanging bibliographic data*.⁵⁸ Looking back on my career and the world I have been inhabiting, the set of MARC formats, including MARC21 and UNIMARC which are alternatives to each other, have brought great benefits preparing, one can say with hindsight, libraries which have complicated informal data in their catalogues for the world of the web. Unlike other fields of computing, the standards that underpin library IT have not changed since 1968. They have hardly evolved at all, though ancillary standards have been prepared to ensure a compatible implementation of XML.⁵⁹ The UNIMARC standard was developed with additional features in the 1980s intended to which have been used extensively in Russia. These have never been implemented in the US-dominated MARC21 format. This is because the format was already working in a less efficient way and there was not the will to change. Again, as mentioned above, the UK and US had different formats from the outset and many communities continued the dichotomy, with for example Catalonia adopting the UK version and the rest of Spain adopting the US version. The world has moved towards having two formats instead of many and many national libraries followed the British Library and adopted the US format which as I mentioned above became labelled as MARC21 (MARC for the 21st century). This is rather a misnomer as the US format is not the more modern as being the first it tends to be the least developed in most aspects. However, all formats are having to change to embrace the new cataloguing code Resource Description and Access which was introduced from 2012. The current work on cataloguing rules is taking into account entity-attribute analysis of the data, ensuring it is more suitable than the original 'flat' cataloguing records for the world of linked relationships, and has derived many of its methodologies from the relational database technology which the MERLIN team and I, as I mentioned in section 1.3, had attempted to implement almost 40 years earlier.

2.4 TEMPUS projects: securing European funding for the fringe area of the European Community

TEMPUS is a programme funded by the European Union's EuropeAid programme but administered by the Directorate General of Education and Culture to enable Higher Education institutions in the European Union to collaborate in projects with institutions in the area round the European Union, for example north Africa, the Caucasus, the Balkan countries outside the EU and those countries formerly in the Soviet Union including Russia. This was first brought to my attention around 1997 when Middlesex University was invited as the company's local academic library by a software company situated in the London Borough of Barnet, near the university, to join a consortium, bidding to do a project to computerise one of the national libraries in Russia under this programme. I was selected to be the lead person in Middlesex University, but we were not successful; the project went to a consortium including the National Library of Scotland and the British Council who on the face of it would have better credentials when running a project in a foreign national

library. Later, the rules changed and the projects under TEMPUS were led only by the Higher Education sector as a means to increasing cooperation between universities in different European Union countries, so the balance turned in Middlesex University's favour.

I became involved in TEMPUS for a second time when the opportunity came to me via the Middlesex University School of Computing Science (later the School of Engineering and Information Science and in 2012 incorporated into a new School of Science and Technology) through a computing lecturer of Serbian origin to participate in a project to modernise the libraries at universities in Serbia. The project was led by Humboldt University in East Berlin and at the first meeting of the project team I used the same skills I had used in the UNESCO meetings on the common format, where it was the aim of the participants from Serbia to rejoin the COBISS consortium of which they had been members before the Balkans war of the 1990s. At that first project meeting, some members of the project team (which included, as well as Middlesex University, German and Austrian university libraries) felt it would be more appropriate for the Serbian libraries to join the international consortium OCLC, but this seemed to me much less sensible. Why join an international consortium when there is a perfectly good local consortium with connections to the international one which has expertise in the local peculiarities, in this case in mixed databases in Latin and Cyrillic? I persuaded by means of knowledge of the topic and diplomacy the project management group to put all efforts into cooperating with the local cooperative cataloguing system, COBISS. Unfortunately the minutes of the meeting of 20-23 June 2002 are not detailed enough to record any discussion on the suitability of COBISS.⁶⁰ However, OCLC was never mentioned thereafter and all efforts were put into working to strengthen links between the Serbia libraries and COBISS. I was responsible for the planning of the website which is still available.⁶¹

As a result of a poster session given on the project in Serbia in 2003 at the annual IFLA Conference which that year was held in Berlin, I began to work with Dr Tigran Zargaryan who visited the poster session (as mentioned in section 1.6 I had met him in Tbilisi) who was initially at the Yerevan State University and later moved to be the Director of the National Academy of Sciences Library. We bid together successfully for four projects and for one in which we did not succeed.

The first TEMPUS project which I led was entitled *Building Digital Educational Services and Content Creation Centre in Yerevan State University Library* for which a sum of €194,000 was granted. After a number of visits to and from Armenia, Middlesex University and Hannover State Technical University Library, a Virtual Learning Environment (VLE) using Open Source Software (Moodle) was established within the library and lecturers trained in using it. Librarians went from Middlesex University to lecture on the promotion and marketing of electronic journals and databases used in the library. The VLE was also a node for distance learning courses. The project was completed with a conference at which distance learning was an important theme - though the project had only at its margins facilitated distance learning but it had

enabled it with funding for equipment. The conference was entitled *International Conference "Information Technologies in Education in the 21st Century"* at which I gave a paper on Open Source software in Higher Education and edited the proceedings.⁶² The main conclusion drawn during the project, though not explicitly stated during its lifetime for political reasons (to ensure the continued participation of the library management), was that change in the methodologies of managing the university library required more commitment from library staff. One necessary way for this commitment to be engendered was in training librarians in modern library science. They had been trained in the Soviet era when computing was nothing to do with librarianship and they had a tendency to feel that it was colleagues who were specialists in information technology and computing who should be dealing with electronic resources, regardless of the fact that librarians should be the experts in the content of these resources and in helping the library users to make the most of these. So, for example, in that environment, if a periodical was discontinued in print form and became digital only, the librarians would cease to be involved in that journal. In the meantime Dr Tigran Zargaryan was appointed the Director of the Armenian National Academy of Sciences Fundamental Scientific Library. From his new base where there is a department which trains professionals in their own fields, we decided to set up a new master's course in Library and Information Science. The reasons for a new course as alluded to above have been well documented in papers and poster sessions I have given⁶³. We decided therefore to bid for a further project which we called New Masters in Library and Information Science (NMPLIS) in which we were successful, and this project began in 2009 and was funded to the tune of €660,000 for activities over three years. It was based on a project which had been undertaken some years ago entitled 'Restructuring Business Education Teaching with Innovative Curricula Development in Kazakhstan' led by Robert Gordon University Business School⁶⁴ who joined as a partner in NMPLIS. Because it was European Union policy to prefer projects which had partners from more than one recipient country, partners were included from Georgia and Uzbekistan as well as from Armenia. My role was to manage the project, ensuring it was conducted within budget and ensure that all partners participate to the extent agreed in the initial bid. In 2011 I started working on a further project in a consortium led by the Institute of Information Technology in Limerick, Ireland, to develop a framework for information literacy in the western Balkans (Albania, Bosnia, Kosovo and Montenegro). I led Middlesex University's input into this and brought in lecturers from Schools of Arts and Humanities and Science and Technology with particular expertise in Information Literacy.

These projects require a combination of knowledge of the subjects involved and being informed on the background of the target country institutions involved. As one undertakes more of these projects one becomes more experienced in avoiding problems. For example if there are, as part of a project, visits to the UK it may be difficult to prevent senior people who are not necessarily the appropriate person in their institution from going. When writing the project, it must be very clear if it is librarians who should go on a study tour and not university rectors / vice-chancellors or deans. Nevertheless if a project is to result in

change it may be beneficial to have senior managers in the universities in the target countries participating in it in the project management meetings. It is useful to see how other institutions manage their projects and different European countries run these projects differently when it comes to financial aspects. The funding can be divided between the partners in an appropriate portion, or it can be 'spent' directly from the institution managing the project. Experience leads me to prefer the latter to get better financial security since institutions in different European countries have different accounting practices which have to be aligned with the stringent requirements that the European Union has in financial accounting.

As the grantholder, I was also responsible for project management which has been achieved by 7 meetings and constant communication between partners. I was also responsible for the financial accounting. Since I had to collect receipts from participants and pay on them, then recover the money from the European Union, I found it hugely advantageous to be able to read Cyrillic characters, for example to identify names of railway tickets and items on receipts. Although these seem minor details in the grand scheme of things, they are important in European Union bureaucracy if spending is to be justified correctly.

3. Justification for the Doctorate in Professional Studies by Public Works

In this chapter I discuss various situations where I believe my ability to reflect on institutions with which I have been involved has made it possible for me to work more effectively in scenarios where I have had a leadership role.

3.1 Reflection helps the outcomes

Certain activities cannot be done without reflection. My initial major work on systems development was in the MERLIN project. My work in relational databases which I described in section 1.2 when I was describing my role in explaining the new technology to librarians had begun at the Police National Computer Unit in 1976. It continued afterwards in the British Library on the MERLIN team and was followed by work on IV+V and MINISIS and then on Horizon, and helped me to understand the problems of implementing normalisation in bibliographic databases. It is not possible to work on systems development at this level without reflection. Reflection is an iterative process: one develops an idea and reflects on it in the broadest sense, trying to predict all possible outcomes. Then one improves on the idea based on the considerations produced by the reflection and one reflects on the consequences of the new idea. Bibliographic data is not easy to control because so much depends on the terminology used by the publisher and variable length fields are better than fixed length fields at recording this data. However, there is a very large community of libraries worldwide using bibliographic data and there used to be many conservative forces at play who do not want change because everything has always been the way it is. Reflecting on the issues did not go down well. However, economic situations in libraries became tighter and from the 1990s changes to practices were considered in a way they had never been considered before. I have been able to contribute effectively to activities involving the analysis of bibliographical data including IFLA's FRBR initiative, to which I have contributed through my chairmanship of the Permanent UNIMARC Committee which oversees UNIMARC which implements cataloguing codes through defined data elements in a bibliographic machine-readable record. My contributions were based on the reflection I had developed through being in the forefront of the analysis of bibliographic data through my leadership of UNIMARC and the earlier work on MERLIN that I have mentioned above.

Successful systems development involving one system over an extended period of time is another area where those involved in development have to reflect. As customers of a software development company, a library systems manager will not have direct influence in the development plans of the company though he or she can lobby to have particular features included. One example would be a feature to prevent a user making a reservation for a book if it is on the shelves in the library where the user is situated. This on the grounds that the user can retrieve the book from the shelves by visiting the library, so there is no reason for a member of staff to fetch it for the reader. Middlesex University successfully lobbied for this feature. A system will usually become more fit-for-purpose as time goes on and adjustments are made to it in new versions.

Occasionally there will be a glitch when a new version of software does not work as well as the previous and has to be abandoned with the restoration of the previous version as redevelopment commences again. When a new version of software is implemented, it must first have been tested. Middlesex University Learning Resources under my guidance participated on a number of occasions between 1997 and 2010 in beta-testing of the Horizon commercial software package. Additionally we have occasionally implemented new versions and discovered that facilities we had before have been deleted. We have asked ourselves would this have happened on those occasions if we had been involved in beta-testing? Along with my team, I have considered these issues and decided that we must wherever possible participate in the beta-testing. This involves using the new version in a realistic environment and ensuring that the features of library circulation such as reservations and renewals by different categories of borrowers and from different campuses works in the new version at least as well as it had done before. Again, when we have had a reduction in functionality we have reflected upon whether the functions that have been deleted cannot be implemented by means of a workaround. Systems testing improves professional practice through reflection as one must consider carefully why procedures are followed the way they are.

Development of standards requires the same reflective activities; indeed the chairman of a standards development committee needs to encourage reflective practice amongst the members of a team (the committee composed of representatives of different companies or user interest groups) and in certain key individuals. I have also had time to reflect on the dynamics that help and hinder such a team, through my chairmanship of the British Standards Committee on Computing Applications in Information and Documentation, which position leads to representing the UK on the equivalent ISO Committee, and also through my chairmanship of the UNIMARC Committee. When the RFID in Libraries standard was being developed there came a point at which there was an impasse between those who wanted one format (variable length fields) and those who wanted another (fixed length fields) in the data encoded on the RFID tag or chip. The solution was (since both parties were entrenched since they were already using the respective encoding methodologies in developed systems) to allow both and thereby have alternatives within the standard. Not the ideal solution but a reasonable compromise in the circumstances. The group had to reflect upon the different scenarios and come up with a possible solution. Better to have a compromise than no standard at all. It is interesting that problems are easier to solve in the current standards-making environment than they were in the traditional environment. The traditional environment for developing standards was that a document would be prepared by one individual and circulated by post. Others would comment to the editor who would make some changes, and the document with a few uncontroversial revisions and comments would be discussed at a meeting. Now there is a constant commenting by email reducing the necessity for face-to-face meetings. Some committees use Web 2.0 technologies to exchange information but this can sometimes be confusing as use of multiple tools can make it difficult to see who is proposing or supporting what and not everyone may have access to or use consistently the different tools. However, the agreement to

have alternatives in the RFID standard mentioned above was made at a meeting which had been called when there was clearly an impasse, so there is still a role for face-to-face meetings. Standards-making committees still need some individuals who are aware of the regulations imposed by ISO to ensure that standards-making is fair, and that all interests are taken into account. As the chairman of the British Standards Committee on Computer Applications in Information and Documentation, I have to ensure that my members are aware of these when they make technical proposals. The development of the UNIMARC standard is still undertaken in a more traditional way with proposals being submitted with time for each member to discuss them with his constituents before taking them all to a meeting (which takes place twice a year). As the chairman I could consider changing this but many of the members are working in a traditional environment and it does not seem appropriate yet. Moreover the group consists of individuals speaking many different languages and it is important to find out through face-to-face meetings what is really being understood particularly as cataloguing codes depend heavily on specialist language in the same way as does legislation. It is sometimes the job of the chair to prod members of the group to see if they really understand and are really happy with what has been agreed and ensure that they have understood what is being proposed.

Standards-making has very much a political component; the strongest side wishes to win its argument or have its own standard, and there may be many equally valid but contradictory solutions where the one which is adopted is the solution of the strongest institution or country. I discussed these issues in *Exchanging bibliographic data*³⁴ and *International standards for global information*⁴⁸. Of course there is not much that can be done if there is a political obstacle but reflection can nevertheless assist in trying to avoid similar situations in the future.

3.2 Diplomacy

International Standards are developed under the auspices of the International Organization for Standardization (ISO) based in Geneva and with the status of a member body of the United Nations family of organizations. ISO is a consortium of member bodies, the national standards bodies of most of the countries of the world. Usually a new standard is developed within one country that has seen the need for it and to encourage international systems interoperability or international trade, that country wants to see its standard adopted as the international standard. In the area of information and documentation the ISO Committee and Sub-Committees meet on an annual basis and consist of one voting member from each country with observers. Votes for the acceptance of a standard or a request to develop a new one (usually adopting as just mentioned one country's standard) are done by email in a formalized procedure. There are working groups which do not vote but develop the detail of standards.

International standards work, given the structures outlined above, requires a particular kind of tact and includes the requirement to put forward the interests of the world and not only the UK under certain circumstances. At one decisive meeting of the working group on RFID, I realised that there was a stalemate

because some members came from countries where they had already adopted an RFID tag with fixed fields, whilst others wanted to adopt variable fields. The result was one standard with two alternatives which I was instrumental in promoting and in persuading stakeholders that this was a feasible solution. Since an RFID tag can be wiped and reformatted using one data model or another in fixed or variable length form and these can be done dynamically from records in a bibliographic database which includes an identifier for every item in the library, it is not problematic if an institution changes from one system to another. This is a pragmatic solution, and I have always believed in being pragmatic where possible.

3.3 Reflection on management issues

Technical activities always require management and planning skills within the technical workforce because managers need to understand technical issues and their management implications to be related to and feed into management decisions affecting the technical department, the relationship between the technical department and the institution, and the institution itself. From time to time, there is in the computing press a discussion on whether or not every company should have its IT director on its board. My experience and professional practice have taught me that the same is required of a department as well. Every board needs its IT director on it and this should be an individual with real IT experience, rather than management experience without real IT experience and this added to the oversight of IT in the department or institution.

4. Impact

My areas of interest and competence are probably broader than most librarians' which is illustrated by the diverse themes which I discuss in this context statement. As a result the detailed technical work in the different areas is independent in each area from the other areas. But I have learned from each, aspects of management such as diplomacy and politics. Here I discuss the impact I have had under the four themes of International Library Development, General Librarianship, Library Automation and Standardization.

a) International Library Development

I have had a long involvement with international library development projects. My initial international work was on standards, funded by UNESCO so it was not surprising that I was invited to undertake a number of consultancies to implement and promote the standards I was involved in developing. Thus, I attended a workshop in Nepal in 1984 promoting in the region the use of standards in bibliographic databases. What I learned then, which has been most useful since, is how critically important it is to understand bureaucracies with which one is working. At the workshop, I described the importance of recruiting a librarian who was familiar with computer systems and systems issues. A senior civil servant from Pakistan said it was impossible to recruit such a person in his country: there was no cadre of system librarian, only computer programmer and librarian. There was no arguing with this statement!

As time went on and I moved from one institution to another I was still able to retain my interest in this area. Because my contract at the Tate Gallery was a fixed-term contract, I was able to take time off without pay and do consultancies paid externally. I must have been one of the few staff of the Tate Gallery to go to Pakistan and Vietnam for business reasons in the days when the Tate was very much concerned only with western art. As a matter of interest, this has very much changed in the last decade as the world has globalized and artists in an oriental tradition study in art schools in Europe and America and artists themselves paint within and across different traditions. My work in libraries has similarly benefitted as the world has globalized and all societies want to be involved in developing their libraries and embracing electronic information. My work in those two countries involved setting up data entry offices for an international fertiliser database called FADINAP (Fertiliser and Development in Asia and the Pacific) under the auspices of ESCAP, the UN Economic and Social Commission for Asia and the Pacific based in Bangkok, which more recently has been transferred from being a system where people exchange floppy disks full of information to being a database on the internet which is still maintained⁶⁵.

The most recent activity of this type of work has been a consultancy to train health librarians to enter bibliographic details of journal articles in a health database at the Albert Cook Memorial Library, the library of the teaching hospital at Makerere University. I visited this library and Makerere University Central

Library for a period of three days, which was too short but the maximum period of leave that I was permitted to take.

I presented a paper at the annual Online Information exhibition in 2007 on my visit to the Albert Cook Library in July 2006 as part of the Albert Cook Partnership with Surrey and Sussex Healthcare Libraries. I described the training I delivered in UNESCO's information retrieval packages (CDS/ISIS and WWWISIS) and the set up of this with the team in Uganda for the Albert Cook Library. This database is input into an international database of health literature *African Index Medicus*.⁶⁶ It is important to write positively in literature intended to promote these projects though on the ground the situation may have problems which need to be addressed such as project management issues. One has to adopt a wide-ranging professional view of a situation when one is in the middle of it and often act quickly if one is in the situation for a limited amount of time. The Albert Cook Library collects a large number of African journals as well as ones from outside the continent. Its aim is to provide records of the African articles particularly the Ugandan ones to the AIM database. Unfortunately staff who had been working on this had left the library, in one case through death, and there was no longer any leadership. Additionally there was the need to send systematically to the AIM database the records created. Finally there were problems with the access to the internet via Makerere University which involved visiting the University Computing Centre. A person coming in from the outside can often influence a situation better than the permanent staff. In any case no staff member in the library at the time was competent to argue with the IT centre about what was needed to assure access from the outside world to the database. This illustrates the fact that to be effective in the digital era, libraries need more librarians with a knowledge of information technology. This theme has revealed itself in many different developing country situations in which I have found myself and I will discuss some of these next. Incidentally this situation is resolving itself as librarians entering the profession today are much more information-technology aware as they have been exposed to computers from their school days. It is certainly true today in the industrialised world but it seems also to be the case in developing countries judging from the views of contacts such as the Commonwealth Professional Fellows whom I invited to Middlesex University, annually between 2005 and 2012.⁶⁷

Another strand of support for international development has been different if only because it has been undertaken with a high level of funding: participation in European Union TEMPUS projects. In Serbia, there was a good level of competence in English language, a good understanding of the concept of systems librarian, trained librarians who knew the situation outside the country. The project was successful and resulted in a further bid for a similar project in 2009. This initial project was led by Humboldt University which being not only German and formerly East German was as it turned out an excellent environment wherein to learn about managing European Union projects since their bureaucratic practices seemed to be closer to those of the European Union than did our own. European Union projects require a certain level of

bureaucratic understanding because they require clerical activities of justification which are not familiar to UK accounting practices.

In an international project clearly travel will be an important constituent and this is no less the case in TEMPUS, as apparent from this quotation for an EU website. “In the framework of its external relations policies, the EU has been implementing for many years now two very successful education programmes. The one is the Trans-European Mobility Scheme for University Studies (Tempus) that supports the modernisation of higher education, creates opportunities for cooperation among actors in the field and enhances understanding. The second is Erasmus Mundus⁶⁸ that promotes cooperation between higher education institutions through encouraging partnerships, mobility and exchanges of students, researchers and academic staff.”⁶⁹ The rules for justifying funding spent on travel require the retention of every boarding card. On the other hand spending on accommodation and incidental expenses does not require justification but payment may be made up to a particular ceiling. This system is called per diem and is common outside of the UK. When managing European projects it is essential to know the regulations and to know how to reconcile them with the regulations of one’s own institution. Bureaucracy is not the only aspect of managing projects with European partners and those from outside such as in TEMPUS projects. In bidding for TEMPUS projects and I have actually been director of two, one is aware of the importance of project management in a trans-institutional, trans-cultural environment. The existence and acceptance of communication by email (as opposed to memoranda on paper) speeds up communication. Additionally one has to be sensitive to different cultures in institutions. In many countries, institutions are much more hierarchical than they are in western Europe. It was interesting to see how the initial Serbian project had resisted this. In the text it would say ‘3 Serbian librarians to travel to EU libraries’. This was in anticipation that senior management in the universities might wish to be the participants in the part of the project to familiarise Serbian librarians with library practices in western Europe to the overall detriment of the project and its stated aims. However, I have been involved in projects where it was felt that librarians were too low level to participate in many aspects of the project even those that did not involve travelling. I have also been aware of projects where participants were from international offices of universities when the meetings required decisions to be made on technical detail which was far beyond the competence or the authority of the actual participants. I have learned from my experience in the projects which I have directed and managed, though it has occasionally been an uphill struggle, to ensure that the right people are involved in different facets of a project and, for this, cultural awareness has been essential. My own personal work in this project in Serbia was recognised when at the final management meeting of the project ‘New Library Services in the Western Balkans’ the project leader made special mention of my role in this and the previous project.

It is valuable while talking about culture to mention sensitivity to foreign languages as a useful attribute to diplomacy. I resist the temptation to say 'Good Morning' in the language of whatever country I am in before I begin a presentation. Having studied Latin and Comparative Philology at University, I can read and

understand much in the Romance languages in the field of library automation. It has been useful to be able to read Armenian (I have learned the sounds represented by the letters in its unique alphabet) so that I can have an idea what each receipt is for in the projects I have managed involving Armenia. Having studied comparative philology I try, when having discussions in the projects I am involved in to speak in simple sentences using words that are known in many languages and avoiding the use of more complex words. So I would say 'go' left and not 'head' left, I would use 'arrive at' and not 'reach' in Romance language speaking countries. Nevertheless I was not prepared for the situation in a TEMPUS project in the Balkans where I thought that Bosnians, Croatians, Montenegrins and Serbs would have one translation (Serbo Croat) and the Albanians and Kosovars another (Albanian). The conclusion was that in the case of Kosovo and Albania one translation would do but in the case of Bosnia every university would do its own translation! However it turned out later that that was the 'official' view and partner universities were prepared to work with two translations and regard any changes that they wished to make as customisation.

The literature in educational theory and practice abounds in advice in this area. Gina Wisker remarks in *The Good Supervisor* how, though greater ease of travel makes us come into contact more with other cultures, we need to share good practice to facilitate real interaction as opposed to some form of travel and technology hype.⁷⁰ Of course at the same time it is necessary to avoid cultural arrogance on the part of the European Union partners. If a library project were being undertaken in the United Kingdom, it is unlikely a vice-chancellor would wish to participate personally in the project. If a project is being undertaken in a developing country involving large external funding and consequent prestige, the rector of a university may wish to participate and, if not invited, may turn against the project and not give it the necessary internal support it needs. I believe that I have been able to achieve the correct balance in the projects which I have been directing. This calls to mind another issue in international engagement which I discussed recently with Stephen Roberts of University of West London when I met with him to discuss their participation in a possible forthcoming TEMPUS project. He felt that international engagement in universities used to mean getting involved in projects helping organizations in developing countries which needed our expertise. Now it means opening campuses abroad to gain foreign students. Certainly I am not alone at Middlesex in having difficulty in getting senior management interested in attending meetings I have laid on for foreign visitors participating in projects I was running. My projects may lead to the furtherance of knowledge but I have not been able to convince senior management that they will lead to the recruitment of a greater number of students.

b) General Librarianship

I joined the library profession because I wanted to help people with information and knowledge. Even after I ceased to be an assistant reference librarian in Camden Public Libraries and specialised in library automation and its management, I have always interacted with librarianship in general in many areas of my day to day job. By virtue of the nature of its material, librarianship is international and these days requires a certain

level of technical knowledge and competence to enable access to the materials of which it is the guardian. Nothing is more basic to resource discovery and access than classification and it is in this field that I hold an important office, that of Chairman of the Universal Decimal Classification Consortium that looks after the Universal Decimal Classification scheme. This was, as mentioned earlier, developed in Belgium using French language but these days it is multi-lingual with the main version in English. However, most users of the UDC are not aware of the international nature of the scheme. For them UDC is purely an English language scheme and that is sufficient. Because it is developed in the UK with international input, it does not have the problems of the use of American English terminology from which the Library of Congress subject headings and the Dewey Decimal Classification scheme suffer. Additionally UDC is international because many different language versions have been translated. They may be developed officially or unofficially, but the majority have been developed unofficially, by enthusiasts or libraries with a specific need, rather than by a National Library or other organization responsible for language in that country. A UDC summary was mounted on the internet starting in 2009 for as many languages as possible⁷¹ and I have successfully recruited people experts to produce language versions in Armenian and Georgian and am looking to add others using contacts I have gained in other areas of my professional activities. My main role in the UDC Consortium is to manage the budget on behalf of the partners who publish the various language versions and oversee the operations. This requires devising the business plan and allocating funds available to do the work which needs to be done in order to further the usefulness of the classification scheme and make it more attractive to potential purchasers.

c) Library automation

Throughout my career I have worked in state-of-the-art areas of library automation. I began with MERLIN which exposed some of the problems of implementing catalogues on relation databases as detailed in the articles I published and mentioned above in section 1.2. Benefitting from experience learned there, I implemented an international format, UNIMARC, on an early relational database system, MINISIS. I worked later with DYNIX's Horizon, another relational database management system, and represented the UK Horizon User Group at the US Customers of DYNIX. I write a quarterly column on CDS/ISIS and have published manuals on the package. Though CDS/ISIS is not state of the art, it contributes to international development because of its extensive use throughout the UN and in developing countries. In my column I have discussed implementing relational databases on CDS/ISIS⁷². This thread of my career, library automation, has involved me in continuous research and development, not necessarily doing it by myself or through my staff but keeping an eye on what was happening in the outside world. It has also meant keeping abreast of management trends. In the early days, 1970-1990, the system was usually merely a catalogue and was placed on one computer with terminals physically wired to it. Later, from 1990 it was on a microcomputer with an internal network with internet access to the outside world, initially through telnet and later through HTML. More recently it has become possible to transfer the catalogue to other databases as we

did when we wanted to give access from the internet and Horizon had not yet been implemented with web access. Later from 2010 Discovery Systems began to be a rival to the catalogue on its traditional software system. My impact has been extensive through work done such as the CDS/ISIS developments including the manuals and other publications, and the development of bibliographic exchange formats and the editing of the *UNIMARC manual*.

d) Standardization

For a decade, I have been the chair of the UK committee that looks after standards in the area of library, archives and museums documentation and have overseen the UK input into the ISO Committee work. In this context I have overseen UK input into the RFID for Libraries standard. This has been the area of most activity in the ISO Committee. I have also published on MARC and contributed to the development of an XML version of MARC which I could do being both chairman of the Permanent UNIMARC Committee and a member of the ISO Committee that has oversight of library standards for interoperability (ISO TC 46 SC 4). I continue to oversee the development of UNIMARC and contribute to the evolution of UNIMARC taking into account relational database concepts which have been introduced with the acceptance of the new replacement for *Anglo American Cataloguing Rules*, the new *Resource Description and Access*.

5. Finale

I have discussed my work under four themes. There are few people who are fortunate enough to be able to be involved in depth in such different areas of librarianship and in my case it has been recognised by the Chartered Institute of Library and Information Professionals, CILIP, of which I am already a Fellow awarding me an Honorary Fellowship in 2012: I was awarded the Honorary Fellowship in recognition of my wide-ranging contribution to the profession. A common theme running implicitly through my context statement is that I am in a profession which delights in and prides itself in helping people. As I explained in section 1.2, I enjoyed writing about the work I was doing on the MERLIN project to make the news of the work available to a wider audience, using terminology that would be understood by the intended audience which was librarians particularly cataloguers. Before undertaking this professional doctorate I had never reflected on this but I now realise I adopted the role of translator, translating concepts using the terminology of different disciplines as appropriate depending on my audience. Indeed it may be that the interests fostered in Chesterfield Public Library at the age of 12, which led to my enthusiasm to study comparative philology and the discipline itself, a different form of translating/interpreting have made me more effective in international activities. This is probably why I am often asked back to continue the work.

I have long felt that advancing development should be honoured in the same way as research, with the award of a degree ideally a doctorate. But I did not go into the D. Prof. with this in mind. I attended an eight-week middle management course alongside a member of the Institute of Work Based Learning academic staff who told us that the project we were expected to undertake on this course could count towards a professional degree. Around the same time a senior colleague who saw a letter addressed to me (erroneously) as “Dr Hopkinson” asked me if I had a doctorate, leading me to believe that perhaps I did merit one. I had to explain that people in India, the source of the letter, apply the title 'doctor' more readily than do we in the United Kingdom. At that time I did not know whether I would be able to go straight to the Doctorate. I felt also that my work as a librarian could be enhanced by undertaking a course which included research methodologies. However I had an interview with Middlesex University Institute of Work Based Learning staff who determined that I would be capable of undertaking a Professional Doctorate by Public Works.

Unbeknown to me at the time, it would also fit in with another mission I had, which was to write up the history of various strands of library science in which I had personally involved and where I probably had certain insights: in section 2.3 I described the history of MARC in Exchanging bibliographic data.⁷³ One of my interests in writing this was to provide the history of MARC for posterity.

Innovation is also something that has appealed to me. My work in the development of early relational database systems and in MARC records, in introducing RFID technology into Middlesex University library have involved me in being in innovative teams and being editor of UNIMARC and chairman of the British Standards Committee that supports innovation in RFID have given me powerful leadership role in these

areas. My reflection in these areas has benefitted a wide audience. On the other hand I have needed the wisdom to know when not to innovate, as for example as I mentioned in section 2.2 when in Middlesex University I decided not to be first in the field to implement new upgrades as our library system was more complex than most other academic libraries' systems.

I have chosen many different stages on which to perform. I have occasionally wondered whether it was not a good idea to spread ones activities thinly over a wide area, but as I have demonstrated it has in my case led to success in many areas and taking advantage of the synergy generated by a commitment to many different though related areas.

Appendices

Appendix 1. Acronyms

BSI: British Standards Institution

CILIP: Chartered Institute of Library and Information Professionals

FADINAP: Fertiliser and Development in Asia and the Pacific

IDS: Institute of Development Studies at the University of Sussex.

IFLA: International Federation of Library Associations and Institutions

ISIS: Integrated Scientific Information System

ISO: International Organization for Standardization

MARC: Machine Readable Cataloguing

MINISIS. Mini-computer based Integrated Scientific Information System

RFID: Radio Frequency Identifiers

UNIMARC: Universal MARC Format

Appendix 2: Education, Posts, Professional Associations and Committee Membership

Education

1961-1967	Chesterfield Grammar School
1968 (Jan-Aug)	Gap Year working at Robinsons of Chesterfield as Transport Clerk
1968-1972	Balliol College Oxford University, Literae Humaniores (Latin and Greek Language and Literature and Philosophy)
1974 (Jan-Dec)	Diploma in Library Studies, University of London External studied at North London Polytechnic

Posts

1972-1975	London Borough of Camden Public Libraries. Trainee Assistant Librarian
1975 (Jan-Nov)	Home Office Police National Computer Unit. Executive Officer (Computer Programmer)
1975-1977	British Library, Executive Officer (Analyst / Programmer)
1977-1982	British Library: UNISIST International Centre for Bibliographic Descriptions (UNIBID). Senior Scientific Officer
1982 (Apr-Sept)	British Library: Reference Division, Higher Executive Officer. Cataloguing Manager
1982-1985	British Library. Bibliographic Services Division. UNIMARC Project Officer
1985-1990	Institute of Development Studies at the University of Sussex. Information Systems Manager
1990-1994	Tate Gallery. Systems Development Officer
1994-2011	Middlesex University. Head of Library Systems, later
2011-	Middlesex University. Consultant

Professional Associations

1972	Member, Philological Society (by election)
1990	Fellow, Chartered Institute of Library and Information Professionals, Member from 1986, Honorary Fellow from 2012
2001	Fellow, British Computer Society (Member from 1984)

Committee membership, etc.

1981-1991	Rapporteur UNESCO Working Group on Methods, Norms and Standards in Information (and Sub-Group on Formats and Databases)
1984-	Member British Standards Institution Information and Documentation Committee (representing British Computer Society)
1985-	Chairman, ISIS Plus, the UK CDS/ISIS User Group
1987-1989	Member European Association of Development Research and Training Institutions, Working Group on Documentation and Working Party on setting up a Bibliographic Network
1989-	Committee Member and webmaster UK Friends of the Alexandrian Library

1992	Member, ARLIS/UK & Ireland
1992-1994	Steering Committee Member and Technical Adviser for SPECTRUM Museum Documentation Association. UK Museums Standards Initiative
1995	Chairman British Standards Institution Computer Applications in Information and Documentation
1995-1999	Member and Chair University of Oxford Refugee Studies Programme Documentation Centre Advisory Committee
1997-1999	Middlesex University representative M25 Link Project Technical Committee
1998	Consultant for Serials Holdings Study UKOLN
1998-	Member representing BSI on ISO Committee on Technical Interoperability in Information and Documentation
1999-2003	External Examiner on MA in Librarianship, University College London
2002-2004	SCONUL Representative SUNCAT
2003	Member Permanent UNIMARC Committee, 2005- Chairman
2004-2007	Grantholder European Union TEMPUS Project to introduce a VLE into Yerevan State University, Armenia
2006-	Chairman UDC Consortium
2008-	Member BIC/CILIP Committee on RFID in Libraries
2009-2013	Grantholder European Union TEMPUS Project to improve library and information science education in Armenia, Georgia and Uzbekistan
2012-	IFLA member, Committee on Standards

Consultancies

Consultancies funded by: British Council, European Union TEMPUS, Food and Agriculture Organization of the United Nations, Infologistix, International Development Research Centre (Canada), International Federation of Library Associations and Institutions UBCIM Programme, National Computing Centre, Soros Foundation, UK Overseas Development Administration (now Department for International Development), UKOLN, United Nations Economic and Social Commission for Asia and the Pacific, World Food Programme, World Health Organization

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- The use made of the UNISIST Reference Manual : a brief history in *Towards a common bibliographic exchange format?* 49- 51 (see below)
- New technology and exchange formats. *Journal of Information Science* **7** (1983) 137-147
- A nemzetközileg hozzáférhető adatbázisok rekordjainak szerkesztése intelligens terminalokon. *TMT* **30**(10) (1983) 396-404
- International access to bibliographic data : MARC and MARC- related activities. *Journal of Documentation* **40**(1) (March 1984) 13-24
- The UNESCO Common Communication Format. *Annals of library science and documentation* **32**(1-2) (1985) 1-6
- Standardising data exchange : the UNESCO Common Communication Format in *Proceedings of the International On-Line Meeting, London, December 1985* 295-304
- Developing the Common Communication Format. *Information Development* **2**(2) (April 1986) 99-104
- CDS-ISIS microcomputer version: an evaluation. In *Databases and networking in development seminar, Brighton, 4-6 Sept. 1986: proceedings*. Bergen: DERAP publications, 1986. 124-128. (with Alice Watson)
- UNESCO's efforts to promote the exchange of bibliographic data : the Common Communication Format. *State librarian* (November 1986) 35-38
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