

Navigating the Pandemic:

A Study of Organizational Decisions on Knowledge Management

Introduction

Knowledge management (KM) has been considered as one of the strategic resources that plays a crucial role in enhancing organizational performance and competitive advantage (Giampaoli et al., 2017; Lönnqvist, 2017). Despite substantial spending on KM initiatives, the comprehensive and conclusive evidence regarding the effective implementation and adoption by the users is still elusive (Boughzala & Dudezert, 2011; Liu & Rao, 2015). In a recent literature review, Pour and colleagues (2020) proposed that various individual, technical, organizational, and environmental factors can influence the adoption and subsequent utilization of the KM systems in business firms. The environmental factors like state policies, advancements in information technology (IT), and importance of knowledge in the given industry are some factors that drive the adoption of KM systems (Pour et al., 2020). Interestingly, the environmental situation owing to the COVID-19 pandemic offers a unique context for knowledge generation, allocation, and application to navigate through the pandemic times. The context-specific nature of knowledge (Hayek, 1945) prompts us to explore the KM activities in which business firms are engaging to survive during the pandemic and to sustain beyond.

Business firms were confronted with exceptionally high levels of informational uncertainty owing to the presence of inconsistent information from multiple sources (Sharma et al., 2020). Many organizations are deliberating on innovation as a way to navigate the future, and evidence suggests that the KM practices can support and enhance innovation capability (Marianne & Danny, 2016). Past research indicates that emergency preparedness of organizations depends on multiple factors like relevant information, effective communication process, knowledge-sharing culture, and appropriate technology or system (Raman et al., 2009). In uncertain and difficult situations, knowledge becomes a critical resource because it aids in taking appropriate decisions and gaining competitive advantage (Drucker, 1993; Nonaka & Hirotaka, 1995; Grant, 1996).

This study aims to explore the decisions taken by business firms to survive during pandemic and sustain beyond. It attempts to exhibit not only the decisions taken by organizations related to KM but also the resources leveraged to make those decisions. The study involves a thematic analysis of data from interviews, supplemented with practitioner articles available in the public domain.

The findings are examined in conjunction with the existing literature. In addition, the paper delineates the contributions toward business research and concludes with implications for research and practice. This paper brings the much-needed initial evidence to understand the ways in which organizations respond to the pandemic scenario and proposes an integrated model for organisational navigation, which can be a framework for practitioners.

Theoretical Background

The primary purpose of KM is to discover and mobilize personal knowledge and convert them into organizational knowledge through sharing (Gao et al., 2008; Choi et al., 2020) and by involving the entire organization. Knowledge is created and mobilized through a dialectic process that provides space for interaction (Nonaka & Toyama, 2003), and several activities are carried out in the process. KM activities can be broadly grouped into knowledge creation and recording; knowledge sharing and diffusion; and knowledge application (Mahdi & Seno, 2019). Amongst the three activities, knowledge sharing becomes the central activity, as it enables conversion of the individual knowledge into organizational knowledge. However, knowledge sharing is not an easy process, as there are many strategic and operational level barriers (Jackson et al., 2013). KM as a system enables the process of value co-creation by connecting individuals of an organization across various levels (Goermar et al., 2020). KM has been appreciated as a novel way of integrating various functions in an organization, rather than considering it as a new process (Gao et al., 2008). KM has changed the way organizations have been thinking; from a function-specific thinking to an integrated perspective. Organizations have long adorned to a deterministic and linear style of thinking. Such thinking styles were adequate when we perceive future as an extended characterization of the present situation (Bratianu and Vasilache, 2009). However, the pandemic crisis has disrupted the present state such that a new way of strategic thinking is required to make sense about the world with uncertain future. As future dynamics along with uncertainty plays a key role in pandemic times, organizations steer away from the deterministic way of thinking to probabilistic and non-linear thinking styles (Bratianu and Bejinaru, 2021). Such thinking styles would aid in developing new knowledge structures that adapts to evolving future and uncertainties.

A key capability that the organization requires for improving its performance through KM is the ability to utilize the captured knowledge by the organizational actors (Zaim et al., 2019). This ability could be influenced by several factors (Pour et al., 2020), and it could be different for

different organizations. The environmental factors as mentioned in the extant literature are valid and relevant for a normal scenario. However, most organizations have gone through an uncertain scenario during the pandemic. Research suggests that a KM is required in organizations wherein the routine managerial practices might be insufficient to carry out the essential tasks (Lönnqvist, 2017) and changes in KM take place during any shift in the business process or through enforcement of a new way of thinking owing to the environmental factors (Ambos & Schlegelmilch, 2009). The COVID-19 pandemic situation is bringing new ways of thinking, which demands a relook at the various aspects related to KM.

Bring changes in the KM is a challenging task. Nonetheless, organizations may be forced to do so because KM is a key element in managing the organization as well as the changes accompanying it (Lönnqvist, 2017). The current pandemic situation has generated a similar situation that demands much more than routine activities. The changes in the business environment are forcing several organizations to bring changes to their KM, which requires several key decisions to be made on KM. These decisions have the potential to alter the landscape of organisation and hence it is important to explore two essential questions; (1) What are the different knowledge management related decisions taken by organizations during the pandemic? (2) How do organizations leverage both the internal and external resources for KM related decision-making?

Methodology

Literature suggests that an open-ended inquiry using the qualitative data is the most appropriate in the nascent state of the theory development (Edmondson & McManus, 2007), and while the research question is contextually embedded (Eisenhardt et al., 2016; Johns, 2017). Research on KM and KMS is not nascent, but research on KM and KMS related to decision-making in the context of a pandemic is nascent. Hence, an inductive inquiry using the qualitative data was considered most appropriate.

The first part of the data collection involved interviews with senior human resource managers. The interviews were conducted to understand the decisions taken and the resources leveraged for those decisions. For conducting interviews, a general interview guide approach was followed, which helped in collecting similar information from many individuals (Patton, 1990). Such an approach helps to maintain focus and ensures a systematic data collection within a limited time frame. The

focus of the questions was to collect unbiased and factual information; and hence, the questions were worded as singular and neutral (Patton, 1990). The interviews were taken using a structured questionnaire administered using the email/google form. To check the veracity of statements made by the respondent (Fontana & Frey, 1994), we crosschecked the data collected during the interviews by speaking to the respondents. To increase the richness of data and to expand the scope of data collection to a global level, data from articles published in globally renowned sources like practitioner magazines and websites of business consulting firms were also included. Reflection-type questions were designed to avoid respondent reactivity to give what the researcher wants (Onwuegbuzie & Leech, 2006). To ensure the findings are not biased by the subjectivity of the researcher, the responses were purposefully analysed by keeping an audit trail and being thoughtful of the unexpected responses (Scales, 2013). Further, the interview responses were recursively analysed and triangulated across multiple respondents. To ensure transferability, firms of varying size and from different industry were considered. Further to establish credibility, methodological triangulation (Yin, 2013) was followed by using more than one data collection method. Besides the use of unsupervised machine learning model aids in extracting themes that are highly coherent with less human bias (Hagen, 2018). Hence, we believe our data collection based on both interviews and articles would have adequately addressed sample bias.

Data Sources

The study involves two parts of data collection. The first part constitutes of interview data, while the second part constitutes of articles. To increase the generalizability of the findings, a wider cross-section of organizations and industry sectors were selected. This includes organizations belonging to different industry sector, age and size. Accordingly, both domestic and multinational firms from the diverse industry sectors, i.e., manufacturing, services, and e-commerce were selected. The variation in the size of the firms were also considered, i.e., from small firms with 120 employees to large firms with 400000 employees. The interview respondents were human resource leaders of the selected organizations. A summary of the interview respondents is given in Table (1).

Insert Table (1) about here

A focused search for articles was conducted and the titles were screened for a mix of keywords like human resources, people management, response to the pandemic and KM. The magazines include People Matter and Forbes, and the websites include Boston Consulting Group, Ernest & Young, and a Global Industry Analyst. A total of eight articles published during the peak COVID time, i.e., from April to May 2020 were selected. The final set of articles used as data are presented in table given as appendix (1).

Data Analysis

The interviews were subjected to thematic analysis, which had three stages, namely, data reduction, data display, and drawing conclusion (Miles & Huberman, 1984; Miles et al., 2013). Provisional coding, Invivo Coding, and Pattern coding were used sequentially in the three stages of data analysis (Saldana, 2013). The outcome of provisional coding is represented as preliminary code in the data table. Similarly, the outcome of invivo coding is represented as themes, and the outcome of pattern coding is represented as aggregates in the data table. The thematic analysis was done by dividing the decisions under two categories, which are short-term decisions and long-term decisions. Further, the knowledge resources leveraged for taking these decisions were probed from the perspective of internal resources and external resources. This categorization was done to bring more clarity to the analysis and to generate better practical implications.

For analyzing the articles, the topic modelling algorithm was used. This technique systematically analyzes the prominent and recurring keywords in the selected articles. The algorithm is a machine learning model that can extract the latent thematic structures, ‘topics’ that underly in a collection of documents. The document can be a collection of essays, articles, emails or any text data. The topics are represented as clusters of keywords that abstractly define the larger theme hidden in the collected document. The keywords defining a topic are relational, with an increased level of substantive interpretability (DiMaggio et al., 2013). The algorithm overcomes different limitations such as (i) difficulties in manual coding of voluminous data, (ii) achievement of significant inter-coder reliability, and (iii) a priori knowledge about the data. Further, a topic model can also reveal topics that otherwise may not be identified in manual coding. Owing to its simplicity and computational ability of discovering new patterns in a rather larger collection of data, the topic model has gained traction among social science researchers as an exploratory technique.

The study used Latent Dirichlet Allocation (LDA) to do a content analysis of the magazine articles. LDA is a Bayesian- probabilistic topic modelling algorithm used in text mining applications (Blei et al., 2003). LDA has been used to investigate the content of a large set of documents because of its ability to assess the likely topics (Nikolenko et al., 2017). It extracts the latent topics from the documents using the word co-occurrence among the documents. It assumes that a collection of documents consists of a set of topics, where each topic is represented through the probabilistic distribution of terms. Terms that are imperative for a topic show higher probability than other terms. The listing of associated terms in a topic enables substantive interpretation of the analyzed content (Klebanov et al., 2008). The terms by themselves may not enable any semantic information, but the association shared with other terms of the topic can provide a central insight about the topic. Technically, for a collection of documents, LDA generates a set of topics along with an estimate of the proportion of the topics contained by each document and an estimate of words contained by each topic. Since a term can be shared by more than one document, a term can also appear in more than one topic.

LDA requires conversion of the collection of documents into a matrix format, where each row corresponds to a document and each column corresponds to a term. Each magazine article is considered as document, and all the terms appearing in the collection of documents were considered. The matrix is tabulated with regard to the frequency of word occurrence across each document. Such a matrix with documents and terms is called a document-term matrix. As with any data mining technique, the topic models also require text data to be pre-processed before converting them into a document-term matrix. The pre-processing ensures that appropriate terms are selected to represent a document, thus enabling faster computation and improved results.

The pre-processing used consists of tokenization, lemmatization, and extraction of specific parts of speech (PoS) - noun, verb, and adjective (Jacobi et al., 2016). The process of text analysis begins with converting the textual data into machine-readable units, tokens. Tokenization consists of splitting a sentence into units of words. The splitting is based on term boundaries that are identified using white space or punctuation characters. Lemmatization is performed on the split tokens (words), which is an essential step for processing languages having substantial inflectional morphology. It is the process of reducing a word to its morphological form (e.g., lemma of 'is' and 'were' is 'be'). The textual data comprises many functional words (particles, prepositions,

conjunctions, etc.) that are used to express a notion. However, the notional words (nouns, verbs, adjectives, and adverbs) hold more information than the other functional words. The presence of functional words along with the notional words increases the sparseness of the document-term matrix. Therefore, it is essential to extract specific POS and retain the necessary content words. Following the pre-processing steps, the process of n-gram generation is conducted on the extracted nouns, verbs and adjectives. N-gram generation consists of identifying 'n' contiguous tokens from the document collection. According to the requirement, the value of 'n' can range anywhere from one to five (e.g., unigrams - single token, bigrams – two tokens occurring contiguously and so on). The N-gram representation, beyond unigrams, enhances phrase matching and extraction (Volkovich et al., 2005). For easier labelling of themes, 4-gram tokens were generated. A 4-gram token is a sequence of four words at various windows extracted from the body of the text. The 4-gram tokens are used to build the document-term matrix.

The final document-term matrix, consisting of 8 documents and 6134 terms, is used as an input to the LDA algorithm. LDA also requires a priori number of topics to be extracted. The number of topics should be small enough to comprehend the content without much information loss. The likely number of topics in the document collection is identified using the perplexity score (Blei et al., 2003). Perplexity score gives the goodness-of-fit of the LDA model. The number of topics was varied between two and fifty, and when the number of topics was equal to five, the model had better (lower) perplexity score. The final LDA model is executed on the 4-gram document-term matrix with five number of topics. The 4-grams tabulated across five topics is shown in the table mentioned as appendix (2).

Findings

The data related to short-term decisions and the resources leveraged for the same included 18 themes grouped under nine aggregates. The creation of a single point of contact was one of the first activities of the organizations during the pandemic. It was an attempt to create an integrated communication from the business side with the employees. The next set of themes was related to the work-from-home provision, virtual meeting, and trial run for the virtual work scenario. These three themes indicate that the firms are making serious efforts to migrate to a virtual work scenario. The subsequent two themes were the virtual enhancement of employee skills and use of the online platform-based resources for training. Both the set of themes emanate from a similar thought

process that firms need to be capable of enhancing human capability even through virtual platform. This indicated that firms were making efforts to enable and motivate employees for virtual training, which was closely associated with the migration efforts. Considering the changing work scenario, there was also a theme on the reworking of the project delivery time, thereby indicating that the firms were redesigning work plans owing to the challenges of virtual and remote work.

Firms that depended on internal resources for taking the above decisions developed new teams, encouraged cross-learning, designated internal experts, encouraged online brainstorming and application of analytics. These indicated that firms were trying to increase the virtual sharing of internal knowledge and to improve the application of knowledge using analytics. Firms also depended on external resources by gathering information from public sources, conducting virtual meets, and creating intelligence teams of employees to gather external information, thereby indicating that firms depended on a variety of external sources to augment the inputs from internal sources. A summary of themes and aggregates are provided in Table (2).

Insert Table (2) about here

The analysis of data concerning long-term decisions and the knowledge resources leveraged for the same includes 13 themes that were grouped under eight aggregates. A summary of the themes and aggregates are presented in Table (3). The first theme concerning long-term decision was hiring specialist talent for data analysis and indicated that the firms were not ready to limit themselves to their existing capability. The next set of themes indicated the acquisition or development of new enterprise platforms, thereby giving access of the same to employees, which indicated migration to a better-quality online platform that could be used for internal management and communication. The subsequent themes were related to workload redistribution and new leave policy for work from home, which indicated that firms were considering the optimization of workload and a new policy to support the changed work scenario as important measures at the time of the pandemic.

Insert Table (3) about here

The long-term decisions required the utilization of both the internal and external resources. Internal resources included an online learning management system and technical upskilling of employees,

which indicated that firms were working toward enabling a smooth knowledge transfer even in a virtual work scenario. Another theme suggested that firms were also encouraging employees for new knowledge creation. The themes pertaining to external resources include organization of webinars, dependence on external consultants, and collaboration with partner organizations, thus signifying that organizations are not only utilizing resources available in the public domain but are also investing significant resources for dealing with uncertain times.

Insert Table (4) about here

The output of the initial content analysis of the articles was subjected to a thematic analysis, which generated eight themes and three aggregates. The themes included efforts made by firms to acknowledge the difficulties faced by employees and the measures taken to enhance trust between employer and employees, which indicated that the firms were looking at long-term behavioural change for the entire organization. The other themes suggested that firms also made efforts to encourage digital work and supported the employees by giving access to various tools, which indicated that the firms wanted to accelerate learning in the virtual and digital environment. The final set of themes suggested that firms took resilience-building measures by acknowledging stakeholders and encouraging collaborations, thereby indicating that the firms are keen to explore alternatives through collaborations with various stakeholders. A summary of the themes and aggregates are presented in Table (4).

Discussion

The essential processes that constitute KM in organizations are knowledge creation, knowledge sharing, and knowledge utilization or application (Alavi & Leidner, 2001; Mahdi & Hosseini Seno, 2019). The findings suggested that decisions taken with regard to the short-term orientation as well as long-term orientation were related to all the three processes. In the short-term, the decisions were focused on providing integrated communication, redesigning work-plans, migrating to virtual work, and enabling virtual training of employees. Amongst these, virtual work and virtual training span across all the three essential processes of KM. The integrated communication and redesigning work-plans pertains more to knowledge sharing and utilization. It is critical to ensure integrated communication in the context of a pandemic because it reduces the possibilities of counter knowledge, defined as misconceptions owing to unverified information (Martelo-Landroguez et

al., 2019). The counter knowledge could adversely impact the consequences of knowledge sharing within teams, groups or departments, and it could reduce trust levels and create accountability issues in future. Such an adverse impact would hamper the effectiveness of other KM activities; and hence, the integrated communication, which is a preventive measure to counter knowledge has become an important KM activity during pandemic like situations.

The short-term decisions taken by business firms require both the internal and external knowledge resources. Internal analytics capabilities are used to refine management and governance. Firms have also leveraged the different internal resources by encouraging virtual sharing of tacit and explicit knowledge with peers and internal experts. The sharing of knowledge is a difficult process and encounters barriers at multiple levels in a firm (Jackson et al., 2013). Nonetheless, the process involves interactions at multiple levels, which provide opportunities to bring forth contradictions about the social, cultural, or economic differences amongst individuals. Literature (Nonaka & Toyama, 2003) suggests that the synthesis of such contradictions through a dialectical process would create new knowledge. Further, the findings indicate that firms also leveraged external knowledge resources, such as external experts and publicly available published sources for information and knowledge to take the short-term decisions. This is a generic activity done by most business firms for benchmarking with respect to other firms that are part of the competitive context. For complementing the external resources, firms developed intelligence teams with groups of employees to gather external perspectives and information that can be used for further analytics. This is a novel finding and has hardly any mention in KM literature. The existing literature suggests that discovery and mobilization of personal knowledge is a key purpose of KM (Gao et al., 2008; Choi et al., 2020) and the capability of individuals to utilize the mobilized knowledge becomes important for business firms (Zaim et al., 2019). Intelligence teams are a way of mobilizing knowledge from external sources through application of the knowledge utilization capabilities of individuals. The capability of teams to identify the type of knowledge with utmost utility in the short run, depending on the organization's context, is of the highest importance.

The long-term decisions were essentially meant to institutionalize the short-term decisions. They are favorable policies to support virtual work, to optimize work-load, to acquire specialist analytics talent, and to adopt advanced enterprise platforms. Policy decisions regarding work from home are also being revisited to create a conducive environment for work. Work-load optimization could

help employees in creating work-life balance, especially as work-life is increasingly extending its boundaries and encroaching family-life. The two decisions, policy for virtual work and workload optimisation, are dependent on each other for being effective in the long run. Firms are also considering hiring specialist analytics talent to bring better insights on different ways of manoeuvring through the future and adopting advanced software/digital platforms to support the new ways of working. Unlike the previous long-term decisions, the decisions on specialist analytics talent and advanced enterprise platforms have a significant long-term orientation and require more investment. It is interesting to observe that some of the long-term decisions are a continuation of short-term decisions. For example, analytics is used in the short-term to refine management and hiring of specialist analytics talent is being planned in the long-run. Similarly, the migration to work on the virtual platform is a short-term priority, but the long-term decision in this direction is related to policies that support working on the virtual platform and migration to advanced enterprise platforms.

The firms leveraged both the internal and external knowledge resources for making decisions. Employees are using the internal virtual resources like learning management systems to train or upskill themselves. These include multiple social web technologies to share knowledge like mailers, webinars, podcasts, virtual meetings and intranet portals. In addition to the internal resources, external resources like online resources, consultants, subject matter experts and partner organisations are also leveraged. Organizations are planning collaborative workshops with partner organizations to create and share knowledge. The eagerness of business firms to collaborate with other partner organizations is an interesting fact, which makes two things very evident. One is that business firms are still uncertain about the exact course of action to be taken in future, and the other is that they are willing to share knowledge and learn from other business firms. The former is intuitive, and the latter seems promising.

The findings from the globally published articles indicate that business firms are attempting knowledge utilization and application by moving towards digital and virtual work. To make this transition a success, business firms are focussing on bringing behavioural changes amongst organizational members and acknowledging the knowledge of various stakeholders for fostering collaboration. The behavioural changes will ensure trust and accountability in the organization, which will become crucial in the absence of face-to-face interactions. These efforts on behavioural

changes could be supported by the efforts to acknowledge all stakeholders, which will bring more participation in the KM activities.

Insert Figure (1) about here

An analytical abstraction of the theoretical aggregates generated four broad categories, which are together depicted as an integrated model in Figure (1). According to the model, the need for integrated communication comes as an immediate short-term intervention. Communication is also important in the long-term, however an integrated communication across the organization is a necessary short-term immediate intervention. The technological aspect is crucial and requires migration to virtual platforms in the short run, which should mature into the long-term solutions like new enterprise platforms that can encompass the needs of future and pandemic like scenarios. The impact of technology upgradation can be realized only when the business firms start creating a conducive environment for change, which includes redesigning work plans in the short-term that would lead to workload optimization and new work policies for all employees in the long-term. This will ensure the remodelling of the internal environment of the business to respond to the significant work changes or restrictions caused by the Covid-19 pandemic. Similarly, the external environment also needs to be acted upon through increased stakeholder engagement and partnerships with the external partners. Firms also need to focus on enhancing human capability, by imparting training to migrate to virtual work in the short-term and acquiring specialist talent in the long run. Accelerating the learning and bringing behavioural changes are the other long term focus areas.

Contributions and Implications

This study has few limitations. The interview responses are fewer in number and more interviews from an extensive selection of firms could strengthen the generalizability of the study. However, this lacuna was compensated by adding the thematic analysis of globally published articles through application of the topic modelling algorithm. Despite these limitations, this study makes significant contributions to the field of KM. The findings, behavioral changes, and revision of policies and practices signify KM's embeddedness in management. The new insights generated by this study delineates the KM related decisions during a pandemic, which reiterates the importance of KM as

a critical ingredient for survival and sustenance. It also suggests that the changes in KM systems or practices lead to simultaneous changes in other managerial aspects for providing better results.

The study also has several implications. While managers and leaders navigate their firms through the post pandemic, they need to examine both the internal and external sources of knowledge. Organizations need to invest in acquiring new resources, building knowledge capabilities through partnerships, and creating new teams. It will help them in dealing with uncertain situations and improving firm performance. Hence, managers need to focus on developing and facilitating the work of employees through upskilling of employees and providing them access to future technologies. The proposed model integrates the various decisions taken and this could be used as a framework for bringing change into KM and also to prepare organizations for becoming resilient.

References

- Alavi, M., & Leidner, D. E. (2001). Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 25, 107-136.
- Ambos, T. C., & Schlegelmilch, B. B. (2009). Managing knowledge in international consulting firms. *Journal of Knowledge Management*, 13(6), 491-508.
- Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent dirichlet allocation. *Journal of Machine Learning Research*, 3, 993-1022.
- Boughzala, I., & Dudezert, A. (2011). *Knowledge Management 2.0: Organizational Models and Enterprise Strategies*. IGI Global.
- Choi, H.-J., Ahn, J.-C., Jung, S.-H., & Kim, J.-H. (2020). Communities of practice and knowledge management systems: effects on knowledge management activities and innovation performance. *Knowledge Management Research & Practice*, 18(1), 53-68.
- DiMaggio, P., Nag, M., & Blei, D. (2013). Exploiting affinities between topic modeling and the sociological perspective on culture: Application to newspaper coverage of US government arts funding. *Poetics*, 41(6), 570-606.
- Drucker, P. (1993). *Post capitalist society*. Butterworth-Heinemann.
- Edmondson, A. C., & McManus, S. E. (2007). Methodological Fit in Management Field Research. *The Academy of Management Review*, 32(4), 1155-1179.
- Eisenhardt, K., Graebner, M. E., & Sonenshein, S. (2016). Grand Challenges and Inductive Methods: Rigor Without Rigor Mortis. *Academy of Management Journal*, 59(4), 1113-1123.
- Fontana, A., & Frey, J. (1994). The art of science. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The Handbook of Qualitative Research* (pp. 361-376). SAGE Publications.
- Gao, F., Li, M., & Clarke, S. (2008). Knowledge, management, and knowledge management in business operations. *Journal of Knowledge Management*, 12(2), 3-17.
- Giampaoli, D., Ciambotti, M., & Bontis, N. (2017). Knowledge management, problem solving and performance in top Italian firms. *Journal of Knowledge Management*, 21(2), 355-375.
- Goermar, L., Barwinski, R. W., Bouncken, R. B., & Laudien, S. M. (2020). Co-creation in coworking-spaces: boundary conditions of diversity. *Knowledge Management Research & Practice*, 1-12.
- Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(S2), 109-122.
- Hagen L. Content analysis of e-petitions with topic modeling: how to train and evaluate LDA models? *Inf Process Manag* 2018 Nov;54(6):1292-1307
- Hayek, F. A. (1945). The use of knowledge in society. *The American Economic Review*, 35(4), 519-530.

Jackson, T., Parboteeah, P., & Wilkinson, N. (2013). Scientifically Grounded Model to Reduce Knowledge Loss in Organisations. In *European Conference on Knowledge Management* (p. 287). Academic Conferences International Limited.

Jacobi, C., Van Atteveldt, W., & Welbers, K. (2016). Quantitative analysis of large amounts of journalistic texts using topic modelling. *Digital Journalism*, 4(1), 89-106.

Jami Pour, M., Jafari, S. M., & Vajihe, V. (2020). What are the determinants of KM 2.0 adoption? A meta-synthesis of the literature. *Knowledge Management Research & Practice*, 1-12.

Johns, G. (2017). Reflections on the 2016 decade award: incorporating context in organizational research. *Academy of Management Review*, 42(4), 577-595.

Klebanov, B. B., Diermeier, D., & Beigman, E. (2008). Automatic annotation of semantic fields for political science research. *Journal of Information Technology & Politics*, 5(1), 95-120.

Liu, M., & Rao, P. (2015). A comparative perspective of knowledge management via social media: India and China. *The Learning Organization*, 22(2), 93-114.

Lönnqvist, A. (2017). Embedded knowledge management: towards improved managerial relevance. *Knowledge Management Research & Practice*, 15(2), 184-191.

Mahdi, E., & Hosseini Seno, S. A. (2019). Identifying and Ranking Knowledge Management Tools and Techniques Affecting Organizational Information Security Improvement. *Knowledge Management Research & Practice*, 17(3), 276-305.

Marianne, G., & Danny, S. (2016). Knowledge Management and Systematic Innovation Capability. *International Journal of Knowledge Management*, 12(2), 54-72.

Martelo-Landroguez, S., Navarro, J.-G. C., & Cepeda-Carrión, G. (2019). Uncontrolled counter-knowledge: its effects on knowledge management corridors. *Knowledge Management Research & Practice*, 17(2), 203-212.

Miles, M. B., & Huberman, M. A. (1984). Drawing valid meaning from qualitative data: Toward a shared craft. *Educational Researcher*, 13(5), 20-30.

Miles, M. B., Huberman, M. A., & Saldana, J. (2013). *Qualitative Data Analysis: A Methods Sourcebook and The Coding Manual for Qualitative Researchers*. SAGE Publications.

Nikolenko, S. I., Koltcov, S., & Koltsova, O. (2017). Topic modelling for qualitative studies. *Journal of Information Science*, 43(1), 88-102.

Nonaka, I., & Hirotaka, T. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford university press.

Nonaka, I., & Toyama, R. (2003). The knowledge-creating theory revisited: knowledge creation as a synthesizing process. *Knowledge Management Research & Practice*, 1, 2-10.

Onwuegbuzie, A. J., & Leech, N. L. (2006). Linking research questions to mixed methods data analysis procedures. *The qualitative report*, 11(3), 474-498.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications.

Raman, M., Ryan, T., & Olfman, L. (2009). Knowledge Management Systems for Emergency Preparedness: The Claremont University Consortium Experience. *International Journal of Knowledge Management*, 2(3), 33-50.

Saldana, J. (2013). The coding manual for qualitative researchers. SAGE Publications.

Scales, B. J. (2013). Qualitative analysis of student assignments: A practical look at ATLAS.ti. *Reference Services Review*, 41, 134–147.

Sharma, P., Leung, T. Y., Kingshott, R. P., Davcik, N. S., & Cardinali, S. (2020). Managing uncertainty during a global pandemic: An international business perspective. *Journal of Business Research*, 116, 188-192.

Volkovich, K. Z., Bolshoy, A., Nevo, E., & Korol, A. (2005). The method of N-grams in large-scale clustering of DNA texts. *Pattern Recognition*, 38(11), 1902-1912.

Yin, R. K. (2013). Case study research: Design and methods (5th ed.). Los Angeles, CA: Sage Publications, Inc.

Zaim, H., Muhammed, S., & Tarim, M. (2019). Relationship between knowledge management processes and performance: critical role of knowledge utilization in organizations. *Knowledge Management Research & Practice*, 17(1), 24-38.

Table 1: Summary of Interview Respondents

Sl/No.	Business Firm Category	Industry Sector	Employee Strength	Age of Firm (Years)	Role of Respondent	Gender	Experience in Current Role (Years)
1	Foreign owned MNC	E-Commerce	120	7	HR Head	Female	1
2	Foreign owned MNC	Services	200	11	Group HR Manager	Female	5
3	Indian Firm (Non- MNC)	Manufacturing	1000	30	Head - Corporate HR	Male	1
4	Indian owned MNC	Engineering services	10000	22	Manager - Learning & development	Female	4
5	Indian owned MNC	Manufacturing	13000	75	Head Organization Development	Male	10
6	Foreign owned MNC	Services	290000	25	Associate director	Male	15
7	Foreign owned MNC	Services	400000	31	Lead business analysts	Female	1.5

Table 2: Short-term KM Decisions and the Knowledge Resources Leveraged

Preliminary Code	Theme	Theoretical Aggregate
Decisions with short term orientation		
One-stop solution for all Covid-19 information (policies, advisories, contacts)	Single point source for all solution related to COVID	Integrated communication
Updating of data to migrate to virtual work	Data specific trial for work from home	Migration to Virtual work
Location-specific trial run to ensure data security		
Enabling work from home using online platforms	Work from home for employees	
Enabling work from home using cloud services		
Work from home option for employees		
Team/group meets using virtual platforms	Virtual team meetings	
Customized learning resources for each role	Online platform-based resources for training and certification	Enable and motivate Virtual Training of employees
Licenses for online education and certification		
Online training program for employees	Virtual enhancement of skills	
Virtual contest for solving business problems		
Prioritizing work and Reworking of the project timeline	Reworked project delivery timeline	Redesigning work plans
Leveraging internal knowledge resources		
The project team also uses Intra and inter-team details for work.	Intra and inter-team information for work	Virtual Sharing of tacit and explicit knowledge with peers and internal experts
Sends mailers, encourages people to cross learn	Encouraging people to cross learn	
Frequent webinars on contemporary topics by internal and external experts	Internal Experts for Training Engineers	
Brainstorming sessions, after people have read a piece of information shared on the knowledge management portal.	Online knowledge sharing followed by online brainstorming	
Yes, all internal analytics are used for decisions pertaining to management and governance.	Internal analytics for decisions pertaining to management and governance	Knowledge application using analytics
Leveraging external knowledge resources		
Intelligence teams and Rand D teams work to gather outside perspectives for managing work.	Intelligence teams and R&D teams gather outside perspectives for data analysis	A special team of employees to gather external knowledge & information
Used external knowledge resources for data analysis	External knowledge resources for data analysis	
News Articles, LinkedIn updates	Use of public sources like News articles and LinkedIn	Depend on published and publicly available information sources
Shares mailers on external knowledge resources content (usually partnered).	Share mailers on external knowledge resources content	
Frequent webinars on contemporary topics by internal and external experts and going to customer clinics for new upcoming products (minor upgrades)	Webinar by external experts	Depend on external experts
Virtual meetups where people share their experiences and journey of learning, benefit from the outcome.	Virtual meets with people	

Table 3: Long-term KM Decisions and the Knowledge Resources Leveraged

Preliminary Code	Theme	Theoretical Aggregate
Decisions with long term orientation		
The hiring of data analyst	The hiring of specialist talent for analysis	Acquiring specialist talent
Access to Yammer for each employee	Access to new enterprise social networking service for communication	Migration to a new enterprise platform
Launching of new internal portal	New enterprise work platform	
Decisions on appropriate platform for internal communication		
Implementation of the new HRM platform for performance management and work appraisal	A new platform for performance management	
Revised leave policy for work from home.	Leave policy suited for work from home	Scenario-based policy revisions
Revised workload distribution to reduce redundancy and work overload	workload re-distribution for work from home	Work-load optimization
Leveraging internal knowledge resources		
Technical sessions every month for employees	Technical Upskilling of employees through training	Multiple online/virtual resources for knowledge sharing
Technical & Leadership upskilling using Learning management system		
Making available the new standards and design through a digital library	Online /virtual Learning management system	
Organizing organizational community groups on learning management system		
Disseminating articles and white papers	Sending new content to employees	
Enabling employees to develop new content, point of view, and proof of concepts.	Supporting employees to generate new content and concepts	The internal mechanism for new knowledge creation
Leveraging external knowledge resources		
Webinars/podcasts from external sources	Webinars/ podcasts from public sources	Public resources
Collecting Competitive information and using it as the core for decision making	Gathering information about external stakeholders through consultants	External consultants and partner organizations
Engaging external consultant for expert opinion and getting client perspective		
Workshops in collaboration with other firms	Collaboration with partner organizations	

Table 4: Data based on published articles

Topics (Codes)	Theme	Theoretical Aggregate
Acknowledge difficulty employee experience	Acknowledge the difficulties of the time and bring changes in management behaviour	Bringing behavioural changes in the organization
Abate management behaviour change		
Action build trust		
accountability excellent opportunity encourages	Measures to enhance trust and accountability	
additional accountability company trust		
encourage employee work home	Encourage work from home for continuity	Digital and virtual work to accelerate learning
continuity ask employee work		
accessible virtual meeting important	Get access to virtual tools for collaborative work	
access collaboration tool such		
accustom experience work digital	Get accustomed to digital work	
accelerate launch digital apprentice		
Accelerate smart work flexible	Smart flexible work to accelerate the learning curve	
accelerate learn curve draw		
acknowledge corporation stakeholder worker	Acknowledge stakeholders and bring resilience measures	Acknowledge all stakeholders and look for collaborations and alternatives
access important resilience measure		
activate alliances collaborate industry	Activate collaborations and alternate channels	
ad hoc measure implement		
Activate alternate channels of service		