CRITICAL FACTORS FOR EFFECTIVE KNOWLEDGE MANAGEMENT SYSTEM– A STUDY OF INDIAN FIRMS FROM SERVICE INDUSTRY

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Abstract
Indian multinationals from the service industry have started realizing the need to maximize the benefits of "what they have and what they know". As a result of this, large number of firms have established robust knowledge management processes to tackle with the VUCA (Volatile, Uncertain, Complex & Ambiguous) world where the lasting competitive advantages come only from knowledge. They have hired top class Knowledge Managers to create strategies for the various dimensions of organizational phenomena and challenges. Knowledge Managers in such organization have the task of making the process of knowledge management vibrant and successful. The recent emergence of Knowledge Managers as "who they are and what they do" is being seen as instructive, revealing and sufficiently relevant to enable organizations to either adopt or adapt their knowledge management strategies.

Today, organizations are making major long-term investments in knowledge management. For them analyzing the current and desired state of knowledge in the organization and the need to bridge the gap for successful execution of strategic plans are of utmost importance. Most flatter organizations are looking for the right number and types of knowledge-workers and create strategies for filling up the gaps as and when needed.

This paper makes an exploratory study about Knowledge Management practices in Indian Companies from service industry and tries to identify the critical success factors of effective Knowledge Management. A small survey was done among 38 employees of Companies from Banking, Insurance, Hospitality, Education, Healthcare, ITeS and Hotel Industry and based on their responses a factor analysis was carried out. This resulted in identification of the many critical factors that define the efficacy of knowledge management in organizations who thrive in service industry.

The paper also presents a model for creating ideal framework for Knowledge Management by outlining specific activities and processes for strategy formulation, tactics, budgets, learning and performance in firms.

Key Words: Knowledge Management; Knowledge Managers, Knowledge Managers' Activities; Organizational Knowledge Management Activities.

Introduction
Global economies are dominated by services industry in the present time and the way they conduct their businesses are substantially different from the manner in which businesses were conducted earlier. Today, managing knowledge represents the primary opportunity for achieving substantial savings, significant improvements in human performance, and competitive advantage. To face the challenges of changing business environment, the need for knowledge management (KM) is of paramount importance. It streamlines operations and reduces costs by eliminating redundant or unnecessary processes, result in better decisions, improve efficiency and customer service, foster innovations and in overall success.

As of 2015, services constituted over 65% of Gross Domestic Products in emerging markets. As their economies continue to develop, the importance of the service sector would continues to grow. The service economy in emerging markets is most often made up of the following industries: financial services, logistics, media and entertainment, tourism, distribution, health, and education. In the services landscape, India has the pride of place as the fastest growing service sector nation globally. The share of India's services exports in global market totals 3.2 percent in 2014-15 to the entire world share. It was nearly double that of its merchandise exports in global merchandise exports of 1.7 percent. Services remain the main growth driver of India's economic growth, being the backbone for steady and robust progress. The sector contributed 66.1 percent of the GDP in 2015-16. It is also the main source of employment, with about 28 percent of the workforce.

Definition
Knowledge Management is the process of capturing, developing, sharing, and effectively using organizational knowledge. It refers to a multi-disciplinary approach to achieving organizational objectives by making the best use of knowledge. Knowledge management is therefore the systematic management of an organization's knowledge assets for the purpose of creating value and meeting tactical & strategic requirements. It consists of the initiatives, processes, strategies, and systems that sustain and enhance the storage, assessment, sharing, refinement, and creation of knowledge.

The perpetual growth of an organization is ensured only when the management does not spend too much time reinventing the wheels of success. Knowledge management ensures we build on what we have learnt from others and ensure that the response time to adapt to environmental changes is reduced. In a highly competitive service industry where every unit of time is crucial and where every decision is strategic, it becomes imperative that an organizational repository of knowledge is generated and stored in an accessible place.

Knowledge management captures the tacit knowledge of different stakeholders (customers, shareholders, employees, suppliers etc.) of the organization and makes it explicit so that other employees can take advantage of it. Such sharing of information enable improved and quicker decision making and benefit the organization. Knowledge Management therefore encompasses areas of business administration, information systems, management, library and information sciences. Other fields that contribute to Knowledge Management research, include information and media, computer science, public health, and public policy.

Many large companies from service sector, public institutions, and non-profit organizations have resources dedicated to internal Knowledge Management efforts, often as a part of their business strategy. Several consulting companies provide advice regarding Knowledge Management to these organizations.

Literature Review
Six types of knowledge can be contained by knowledge management, as highlighted by Holsapple and Whinston (1996) & Zack (1999). They are Descriptive, Procedural, Reasoning, Linguistic, Presentation & Assimilative knowledge.

Information about the about the past, present, future, or hypothetical states of relevance concerned with knowing is Descriptive knowledge. Procedural knowledge refers to knowing how and specifies step-by-step procedures for how tasks are accomplished. The third one is Reasoning knowledge which is concerned with knowing why and evaluating conclusions. Presentation knowledge facilitates communication and it is concerned with the method of delivery of knowledge. Linguistics knowledge interprets communication once it has been received. Assimilative knowledge helps to maintain the knowledge base by improving on existing knowledge. Basic knowledge is referred by first three types that an organization has in terms of performing its business processes. The latter three provide communicating, understanding and learning of knowledge in order to use it.

Knowledge Management emerged as a scientific discipline in the early part of 90's. It is believed that the position of Chief Knowledge Officer (CKO) exists in about one-fifth of the Fortune 500 companies, although not all the positions carry the title of CKO (Stewart, 1998). The job of CKO is still relatively new for most organizations in India, with the big six multinational accounting firms leading the way (Watt, 1997).

Knowledge Management is a process that helps organizations identify, select, organize, disseminate and transfer important information and expertise that are a part of the organizational memory that typically resides within an organization in an unstructured manner. This enables effective and efficient problem solving, dynamic learning, strategic planning and decision making. Knowledge management focuses on identifying knowledge, explicating it in a way so that it can be shared in a formal manner, and thus reusing it (Gupta et al., 2002).

Large organizations suffer from a lack of cohesiveness and duplicates efforts because they have scattered or virtual units, flexi-hours and work from home options. Moreover the employees working in such organizations suffer from lack of self-esteem and do not show loyalty. In such cases although a large amount of knowledge will be generated, it will not be put to proper use due to lack of connectivity. An employee in the eastern region will not be aware of the developments in the western region. Hence knowledge dissemination do not take place in such organizations.(Goswami, 2004).

Discussion of the Knowledge Management idea was taken up by Ikujiro Noaka and Hirotaka Takeuchi from Hitotsubashi University, Thomas H. Davenport of Babson College and Baruch Lev of New York University. The practical relevance of academic research in Knowledge Management was questioned by Ferguson 2005 with action research suggested as having more relevance (Andriessen 2004) and the need to translate the findings presented in academic journals to a practice (Booker, Bontis & Serenko 2008).

Ikujiro Nonaka & Takeuchi proposed a model (SECI for Socialization, Externalization, Combination, Internalization) which considers a spiraling knowledge process interaction between explicit knowledge and tacit knowledge (Nonaka & Takeuchi 1995). In this model, knowledge follows a cycle in which implicit knowledge is 'extracted' to become explicit knowledge, and explicit knowledge is 're-internalized' into implicit knowledge.

Similarly, Hayes and Walsham (2003) describe content and relational perspectives of knowledge and knowledge management as two fundamentally different epistemological perspectives. The content perspective suggest that knowledge is easily stored; because it may be codified, while the relational perspective recognizes the contextual and relational aspects of knowledge which can make knowledge difficult to share outside of the specific location where the knowledge is developed. Early research suggested that a successful Knowledge Management effort needs to convert internalized tacit knowledge into explicit knowledge to share it, and the same effort must permit individuals to internalize and make personally meaningful any codified knowledge retrieved from the Knowledge Management effort. Subsequent research into Knowledge Management suggested that a distinction between tacit knowledge and explicit knowledge represented an oversimplification and that the notion of explicit knowledge is self-contradictory. Specifically, for knowledge to be made explicit, it must be translated into information (i.e., symbols outside of our heads) (Serenko & Bontis 2004). More recently, together with Georg von Krogh and Sven Voelpel, Nonaka returned to his earlier work in an attempt to move the debate about knowledge conversion forwards (Nonaka, von Krogh & Voelpel 2006); (Nonaka, von Krogh & 2009).

Knowledge Management - Goals & Objectives
By involving a strategic commitment to improve organization's effectiveness and opportunities enhancement, knowledge management works on a few crucial core processes for efficient implementation. Davenport et al. (1998) describes the four broad objectives of knowledge management systems in practice. They are:
1. To create knowledge repository
2. To improve knowledge assets
3. To enhance the knowledge environment
4. To manage knowledge as an asset

As the key purpose of knowledge management is to capture intellectual assets for the tangible benefits for the organization, its imperatives are to transform knowledge to add value to the processes & operations of the business, leverage knowledge strategic to business to accelerate growth and innovation and use knowledge to provide a competitive advantage for the business.

Thus the aim of knowledge management is to improve firm's performance through the improvement and sharing of organizational knowledge and to ensure that the organization has the right knowledge at the right time and place. Knowledge management is the set of proactive activities to support an organization in creating, assimilating, disseminating, and applying its knowledge. Knowledge management is a continuous process to understand the organization's knowledge needs, the location of the knowledge, and how to improve the knowledge.

Managing Knowledge Effectively
Effective knowledge management is just one of the components of a good management and not a panacea. In addition of effective use of management functions, sound planning, effective marketing, quality services, attention to customers and the thoughtful leadership of a service based firm are critical to success and needs to be managed. However, when a business faces competitors that perform well on those other dimensions, the difference between success and failure may well turn on how effectively it manages its knowledge (Davenport et al, 1998). Knowledge management success factors may be links to economic performance or industry value; a technical and organizational infrastructure; a standard, flexible knowledge structure; a knowledge-friendly culture; a clear purpose and language; a change in motivational practices; multiple channels for knowledge transfer and senior management support (Davenport et al., 1998).

In order to manage knowledge effectively in corporates, besides other factors, special attention should be given to contextual dimensions of organization such as *strategy, technology and culture,* that is:
• Most important is building a strong culture to adopt and support it.
• Defining effective strategies for using all knowledge resources efficiently.
• Using information technologies (digital documents, intranets, expert systems etc) for developing knowledge management systems.

An Ideal Model for Knowledge Management
The study was based on the objective of analyzing the present state of knowledge in the sampled firms and the desired levels in the future and planning for bridging the gap as a strategic plan. Study was based on the premise that right number and type of knowledge-workers and the know-how are always available in any firm. While the knowledge should neither exceed the requirement (as it would mean wastage of resources) nor it should fall short (as it would lead to sub-optimal business results). The knowledge gap can be bridged by providing new training/skills to the existing employees, hiring new people with appropriate knowledge/ qualification or sourcing out jobs for which necessary expertise is not available in the company.

In any ideal firm, each and every knowledge worker should feel that he or she has the knowledge of the entire organization required to accomplish his or her job. This is achieved if each knowledge worker either has all the knowledge he or she requires for the job or otherwise knows how and where to acquire it within reasonable time.

A knowledge management system should be established and maintained in such a way that it is readily accessible to all, provides staff members with information and efficient and effective learning methods and has a forum for knowledge sharing. Firms should have enterprise-wide programs for capturing lessons-learned and best practices, tapping tacit knowledge and turning them into organizational knowledge.

In an ideal scenario of the leading function, all knowledge workers should have the proper communication and environment for learning in terms of support, facilitation and encouragement from line manager and peers and an appropriate recognition and reward system that will motivate them to acquire and use the best knowledge. Knowledge workers and their peers are encouraged and recognized to collaborate and share their knowledge so that new knowledge is created. The incentives are designed such that they maintain a balance between the organizational requirements and that of individual's. Staffing personnel for Knowledge Management specific roles must be taken care of.

Ideally, the evaluation measures for any program should flow from its goals. Now, the goal of Knowledge Management is to facilitate knowledge workers learn in order to improve their job performance and the company's business results. So the controlling would have to be done based on two evaluation measures – learning gap and network effectiveness. Learning gap can be understood as the gap between the maximum knowledge employees can get from the knowledge network and what they actually have. It should be measured and controlled so that human capital can be optimally utilized with the available knowledge network. The second measure would evaluate the effectiveness of the knowledge network itself i.e. how well the network caters to the needs of the knowledge workers in terms of making a positive difference in individual employee's performance and in territory's and overall company business performance. Feedback received from the second measure should be the basis of upgrading the knowledge network, acquiring new knowledge etc.

The ideal model of Knowledge Management is shown in the figure. The Knowledge Management process consists of activities showed within the dotted rectangle. Activities outside the dotted rectangle are other managerial processes (like strategy formulation, drawing up tactics and budgets) and business processes (like learning and performing). Knowledge Management starts with planning for knowledge, which is done as a part of formulating strategy. Therefore, this activity is part of both strategy formulation and KM. It forms the one of the basis for acquiring new knowledge.

Acquiring new knowledge, establishing and maintaining knowledge network and codifying knowledge created in the organization form the part of organizing function of Knowledge Management. The activities in this function get inputs from several other managerial and business processes as shown in the figure. For example, tacit knowledge of knowledge workers, application of knowledge to work, sharing knowledge – all form the source of new knowledge creation inside the organization, which should be codified to become organizational knowledge. The knowledge network facilitates knowledge workers to learn and access information easily.

Communicating, motivating, facilitating and rewarding for learning, doing and knowledge sharing constitute the leading function. These activities make the knowledge workers use the knowledge network to learn, upgrade their knowledge and skills, apply this learning to work and also share knowledge with each other. An individual can take up the role of knowledge worker and peer simultaneously or interchangeably. Finally evaluation and control is done based on inputs received from various sources like the knowledge worker, managers and business results and while putting knowledge into action. This function, in turn, gives feedback to the appropriate level for corrective action.

Figure: The ideal Knowledge Management Model for Indian Firms

Legend: M – Managers; W - Knowledge Workers; P – Peers
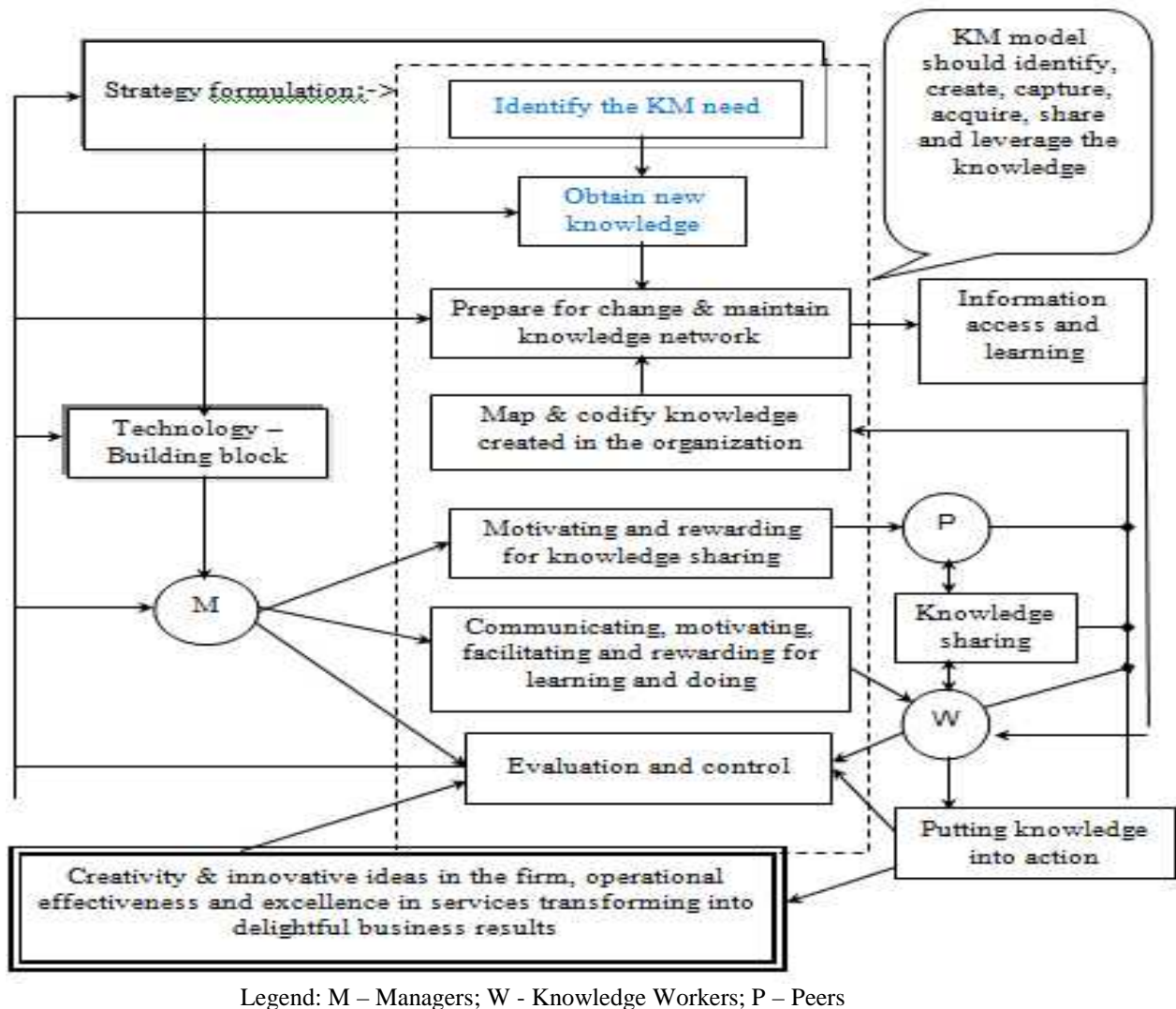
Another feature of this figure is that it depicts the interaction between Knowledge Management and non- Knowledge Management activities. It shows the alignment of the KM process with strategies and its role in achieving business results.

Research Methodology
A small survey was done among 38 employees of Indian firms from service industry – from Banking, Insurance, Hospitality, Education, Healthcare, ITeS and Hotel Industry to identify the critical success factors of effective Knowledge Management in their respective organizations. Based on their responses a factor analysis was carried out. This resulted in identification of the many critical factors that define the efficacy of knowledge management in organizations who thrive in service industry.
In order to conduct the factor analysis, Kaiser-Meyer-Olkin (KMO) Test was used to measure suitability of data. The test measures sampling adequacy for each variable in the model and for the complete model. Factor analysis is conducted to reduce the data to a smaller set of underlying summary variables and to explore questions about the underlying structure of psychological phenomena. KMO model was introduced by Henry Kaiser & Rice in the year 1974. The index is known as the Kaiser-Meyer-Olkin (KMO) index. KMO returns values between 0 and 1. A rule of thumb for interpreting the statistic is as under:

• 0.00 to 0.49 unacceptable	• 0.70 to 0.79 middling.
• 0.50 to 0.59 miserable	• 0.80 to 0.89 meritorious.
• 0.60 to 0.69 mediocre	• 0.90 to 1.00 marvelous

The formula for the KMO test is:

$$KMO_j = \frac{\sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} u}$$

where: R = [r_{ij}] is the correlation matrix and U = [u_{ij}] is the partial covariance matrix.

This test was conducted by using SPSS to run the Factor Analysis. The KMO statistic is found in the "KMO and Bartlett's Test" table of the Factor output.

Following eleven factors were used for conducting the analysis:
- Effective business strategies depend on internal knowledge base
- Strategies help in dealing with external environment.
- External agencies (consultants) are better equipped to design long term plans.
- Intangible assets can be objectively codified
- Intangible assets provide an invaluable edge for ensuring competitiveness.
- Long term sustainability come from intangible assets and not from tangible assets
- Effective use of knowledge base of the company results in reaping rich dividends.
- Profit is directly linked to employees' knowledge.
- Knowledge can be replicated if gathered, stored and shared properly.
- Knowledge base is easily transferable.
- Sharing or application of knowledge leads to enrichment of the knowledge base.

Exploratory factor analysis was conducted and the initial results of tests of sampling adequacy showed the following results.

Kaiser- Meyer- Oklin Measure of Sampling Adequacy showed a result of 0.489 and when a few factors were dropped from the analysis, the KMO statistics did not show any remarkable change. It remained around 0.537. Thus the eleven eleven factors were considered for the analysis using the software SPSS. The method of Principal Component Analysis was used and the following results were obtained.

Motivations for Knowledge Management System in India
The survey of professionals from the Indian service firms pointed out the following pointers of motivation for launching effective knowledge management system in their organizations. They are as under:
- Availability of useful knowledge for developing desired products and services
- Quality improvement
- Improving new product development cycles
- Training and development of new employees
- Encouraging innovation and organizational learning
- Leveraging existing knowledge and expertise of people across the organization
- Better synergy between the organization and customers
- Managing VUCA (Volatile, Uncertain, Complex, Ambiguous) challenges in a better manner
- Encouraging employees to have relevant insights and ideas appropriate to their work
- Resolving complicated problems
- Managing intellectual capital and intellectual assets in the workforce

Many professionals who were interviewed believed that sharing knowledge remains a challenging in their organizations and several barriers exist for its effective use.

Findings: Perception about KM in the sampled firms from Services Industry in Navi Mumbai
Knowledge Management will achieve its desired objective of contributing positively to strategy formulation only if there is whole hearted participation from the employees. A survey was conducted among 38 employees of Companies from Services Industry on Navi Mumbai. Their perception about Knowledge Management are as follows:
- Over 91% of the respondents felt that a good business strategy depends on the internal knowledge base of the company.
- Out of total 97% of the respondents felt there was indeed a link between strategy and the external environment.
- Only 66% believed that strategies based on inputs from external agencies are good for long term plans.

It is quite clear from the above responses that most employees believe that adequate knowledge exists in organizations and hence firms must capitalize on it for its future growth. Many firms from Fortune 500 companies have started moving towards the newer school of strategic planning and stress is being given on internal resources.

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Tangible vs Intangible Resources
- Over 95% of the respondents felt that there must be a way to objectify and present information on intangible assets of a firm.
- 91% of the respondents agree that the intangible assets of a firm provide an invaluable edge for ensuring competitiveness.
- Large number of them (57%) felt that the sustainability in the long term comes from intangible assets and not from tangible assets (43 %)

It is evident from this finding that firm must build a solid framework for KM and not just invest in creating tangible assets.

Knowledge Management and Profitability
- 100% of the respondents think that good use of knowledge base of the company will result in reaping rich dividends.
- 95% of them felt that profit is directly linked to employees' knowledge.

From the above finding, it is clear that use of the company knowledge adds into the yield of their firms and they are very clear each and every employee contributes towards profitability of the company.

Knowledge Dissemination and Transferability
- Large number of respondents (79%) agreed that knowledge can be replicated if gathered, stored and shared properly. However 14% of them felt that it is difficult to replicate knowledge.
- 84% disagreed with the statement that employees' knowledge base is easily transferable.
- 100% respondents agreed that knowledge would improve if applied or shared efficiently. They were unanimous in their opinion that sharing or application of knowledge leads to enrichment of the knowledge base.

The above findings suggest that everybody believes in sharing and application of knowledge. While some respondents felt that one can replicate (copy) another employees knowledge (methodology of working), a small number disagreed that the entire knowledge base of an employee can be easily transferred to another person or database.

To conclude, most sampled firms from Navi Mumbai emphasize on giving importance to internal intangible resources while formulating strategies. The ambience within the organization is that of willingness to share one's own experience and learn from other's experience. Knowledge dissemination and sharing is believed to lead to rich dividends but a direct link with profits is still not yet clear cut.

Roadmap for the Future
The current reality showed a different picture altogether. It was seen from the sampled firms that that a large number of service intensive companies lacked a system that can ensure that strategic decisions always address the issue of knowledge requirement necessary for all the knowledge workers involved in executing that decision. Most of these firms, especially from the Hotel industry employed training and development methods that are primitive and inefficient and not coping well with the learning needs of the knowledge workers. The platform used for knowledge sharing in these firms was found to be ineffective and there is no institutional mechanism to tap tacit knowledge. Lack of directions and leadership skills remained ineffective for creating a positive learning environment in these firms to encourage learning and knowledge sharing at all levels and application of that learning to the company's work. The present evaluation and control measure were found to be out of tune for over 50 percent of the sampled firms. Firms form the service industry must take a few initiatives to overcome the shortcomings found in the survey and help improve Knowledge Management system in their organization. Their strategies must include the job analysis of knowledge workers who implement them. This will ensure that the issue of knowledge requirement is always addressed at the stage of strategy formulation. Chief HR Office can assist in this part of strategy formulation.

Like Infosys, a virtual corporate university of differing size may be established by creating IT-enabled knowledge network. It should be an integral part of Corporate HR's responsibility to build, maintain and upgrade knowledge network with appropriate repositories and database which should be edited and updated periodically. Firms must develop and offer courses of substance and good quality for up gradation of skills. These courses may offered in MOOCs manner to give an opportunity to learn as and where desired. Knowledge mapping must be able to help any one in distress to find the right expert for a problem and expedites the response to problems and queries posted on the discussion forum. Communities of practice are very useful avenue for knowledge sharing forum. It is made of groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. These people do not necessarily work together every day, but they meet because they find value in their interactions. As they spend time together, they typically share information, insight and advice and help each other solve problems. Communities of practice have become a highly recommended technique for getting employees to share what they know.

Execution of many of the initiatives specified above will require some personnel in new KM specific roles. The position of **Chief Knowledge Officer (CKO)**, knowledge engineer, knowledge harvester, knowledge manager, knowledge analyst and knowledge facilitator may be identified. Effectiveness of the knowledge network should also be measured to determine how good it is in meeting the requirements of the knowledge workers and positively affecting business results. It should be measured primarily based on the ratings knowledge workers get for their 'self-development' KRA and the feedback received from staff after taking the learning course offered on the network. Feedback received from staff/line managers about the non-availability of course or material in the knowledge network on certain topics should form the basis for introducing new ones. This control measure will be the basis for upgrading the knowledge network.

Conclusion

The survey of KM in the sampled companies began on an experimental basis and demonstrated wide scope for future research opportunities. Several firms like HDFC, JM Financial, ICICI, Infosys, Mind Tree, Accenture, Wipro, Taj and others have made an excellent use of this initiative. The role of knowledge manager in these organizations is relatively new and a growing phenomenon. The study suggests that knowledge managers are well-educated and experienced individuals who are generally satisfied with their position and the freedom and latitude it affords. The primary goal is to guide their organization towards an understanding of knowledge as an organizational asset so that it can be managed for maximal benefit. As they see it, their key challenge is changing people's behavior. Despite considerable support from top management, they have little direct authority over employees so their levers for effecting change are negotiation, persuasion and communication.

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