APPLICATION OF EKM IN THE KEY BUSINESS PROCESSES: A SURVEY STUDY IN SELECTED IT COMPANIES IN PUNE REGION

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ABSTRACT
Enterprises run multiple business processes that use and manage knowledge in various forms and context. The knowledge referred and generated; maybe projected or it may simply reside in the tacit form. Managing such knowledge can be relatively within one's capabilities however the real challenge seen in extracting it from the source where it resides. Typical business majorly is driven by strategic and tactical decisions; for which churning of appropriate knowledge base becomes inevitable. The true knowledge is boundless; that demands validating and mapping as per the need of the business processes. To spot the success of Business enterprise, knowledge base competence is one of the most significant aspects among others. Consuming organisational knowledge and maintaining its relevance to the past and present business processes is crucial as it may impact the accomplishment of sustainable competitive advantage.
Knowledge should be able to incorporate within the business processes effortlessly; however in context to the changing business scenarios it has become a challenging story. In this paper the researchers have considered the involvement of Knowledge Management (KM) in enterprises, wherein visible Human Resource Department exist handling the key business processes. The factors affecting the efforts of various KM initiatives have been identified and studied in IT companies in Pune region, considered for this study. Almost all the key business processes measured in the study; showed close connotation with Enterprise Knowledge Management (EKM); which directed to show its strong hold and influence on the key business processes.
Keywords: Enterprise Knowledge Management, Key Business Processes, Organizational knowledge

Introduction

Technological advancements with massive data churning across the economy, managing knowledge is significantly vital. With innovative models coming up to manage the key business process of an enterprise, knowledge base competence to support the systematic execution of Enterprise knowledge management becomes indispensable. Knowledge Management is the management of organisational knowledge (Ermine, 2010). As a matter of fact, growing attention observed in organizational knowledge and KM spins ahead from transition into the knowledge economy, where this dynamic knowledge is observed as the principle source of value creation and sustainable competitive advantage. Enterprise Knowledge Management (EKM) involves many facets of the information systems domain including technical (business processes, flow of information, etc.), organizational and social (policies, structures and work roles, etc.) and teleological (purposes and reasons) considerations. (Petricles and Vagelio, 1999).

In this research paper certain aspects involved during the application of EKM in a typical IT organisation has been considered, where HRD is visibly one separate department. The impact of Enterprise KM on key business process areas is the focal point of the paper; wherein the survey has been carried out in some of the selected IT companies in and around Pune City.

Literature Review and Problem Description

KM nature and life cycle has several forms of Knowledge and its representations in different contexts and various tools supporting KM practices and various processes. (Iguehi, 2018)

(Edwards, 2016) KM times and their context in the changing business scenarios are prevalent since past 3 decades. KM is now no more a trend or a buzzword; actually it is one of those established terminologies that have endured changing times and this fact is learnt with the help of KM Case studies till date.

(Chen, 2007) KM echoes from knowledge creation or codification, to knowledge diffusion and exploitation. Knowledge has power to create that subtle difference to the worlds' competitive advantage as its journey since industrial economy until the present knowledge economy. The impetus to this transition today is that, knowledge has attained the worthiness and position at both: individual level and organisational level focus; in order to achieve the desired ambitions and goals respectively. Some earlier literatures as well attempted to focus primarily on the knowledge creation or codification processes in organizations.

(Salleh and Goh, 2002) Knowledge management as a process of leveraging knowledge, as a means of achieving innovation in process and products/services, effective decision-making, and organizational adaptation to the market for creating business value and generating a competitive advantage to organizations. Enterprise Knowledge Management is about implementation of collective knowledge of the entire workforce, systems and its business processes to achieve organisational goals.

Figure No. 1: Knowledge Management (*Source: KMS Lighthouse, May 2022*)

On the KMS Lighthouse (2022) portal blog describes how the business process are completely based on the KM. Wherein internal processes are driven by knowledge of best practices followed by the employees, group knowledge in that organisation set-up and also driven by the environment in which it resides such as customer knowledge , market and competitor knowledge etc. Nevertheless, to maintain its usability, knowledge in any enterprise needs to be dynamic, evolving and should integrate throughout business processes. (Garfield,2016) blog on the LinkedIn social media narrates several crucial perspectives in series of posts related to KM Implementations, wherein particularly in this post the steps for a successful implementation of KM Program are found relates and supports to the study undertaken.(Kebede, 2010) Knowledge management is the creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, and organized for the benefit of the organization and its customers. (Davenport, Long and Beers, 1998) From more than 3 decades the term knowledge management is coined and used for reorganisation of knowledge in different context. In the published book (Davenport and Prusak, 2000) as well reiterate this examined about how their intellectual assets in several types of companies, can be effectively understood, analysed, measured, and managed, thereby turning corporate wisdom into market value. (Seymour, 2023)Managing the Key Business processes efficiently is vital as it has the potential to improvise the overall operations. It directly results in condensing costs; enhanced control over the workflow can be accomplished, operational deficiencies pinpointed. This certainly would provide superior insights for improved enriched business decisions to remain competitive and agile. (Edwards, 2005) There is resilient association of KM and business process in a precise manner. There are internal processes driven by the best practices initiated or leveraged by the employees. There are products and services that are designed developed and continuously upgraded/adapted/improved based on the knowledge flickering within and outside of the enterprise. Both of these add value to the customer experiences. In an enterprise nearly all the elements are involved in it some in visible way and some invisible way scattered across the environment. There is a need to keep the knowledge aligned and integrated easily throughout the business processes so that it does not become obsolete. The controlling of the evolving knowledge is crucial and essential; for keeping the key business process of an organisation in equilibrium.

EKM Framework, IT Industry and *HRD:* A basic framework is required to be defined essentially at the beginning of any design of a Model to be implemented in a business setting. The values, the culture, communication habits & management styles of a particular organisation either aid or hamper KM initiatives.

These knowledge structures or framework are to be customized for a particular business entity. They emphasize the necessity for the enterprise to embed their organizational knowledge within the working purview of the HR precisely. Organizational knowledge in any IT Company must be a complex, critical aspect to achieve sustainable competitive advantage. Here IT Industry as a term is used interchangeably as multiple terminologies like IT Service Industry, Software Industry, Software and services Industry, IT and ITES Industry, etc. have been used by the respondents of these companies when interacted. In view of the prediction made last year (2022), that global IT investment would reach US$ 4.5 trillion, up 5.1% from 2021, investments in human assets are seen enchanted in the backdrop of Covid Pandemic. Despite the potential effects of many variants like the Omicron and many more, lately it has emphasised that the economic recovery, coupled with high expectations for digital market success, continued to drive technological investments.(Gartner, 2022) Furthermore, Indian services export is estimated to reach us$ 1 trillion by 2030 especially in the industries such as healthcare, transport, information technology, business process outsourcing, hotels, restaurants, tourism logistics, transports, and space. In such scenario immense knowledge churning expected, rising the need to manage it efficiently and effectively across all businesses. Three levels of knowledge transfer can be identified in this context, and every level increases the scope of the knowledge related characteristics of enterprises namely: individual and group level, organization level and global level. Whether it is a local or global software company, globalization has re-energized the vital environmental factors shaping the work of HRD professionals. Knowledge based systems and its association with HRD has taken the role of the HR Managers at a higher stand and given HR function a multidisciplinary facet. In this paper the researchers propose to study EKM as a disciplined approach for HR personnel to manage the intellectual assets of the IT enterprise and reinforce the business process.

Key business processes correlation with EKM: A business process is a set of logically related business activities that combine to deliver something of value which could be a product or a service or even information to the desired customer. Business processes can be seen individually, as distinct steps in a business cycle. There are several business processes in an enterprise that are associated with the functional view of that enterprise. Most large organizations are structured into divisions and departments that are dedicated to performing specific functions and staffed with personnel who are expert at those functions. Business processes cut across these organizational divisions. Where different activities in a process require different skillsets, the process is likely to involve a number of people and departments. A business process is made up of a hierarchy of activity levels. These levels are typically given labels such as; sub-process, activity and task. Strong management processes or workflows are basic and crucial to resilience within an enterprise. Diverse process design projects may target different areas of business activity, as per the focus and requirements of any organizational.
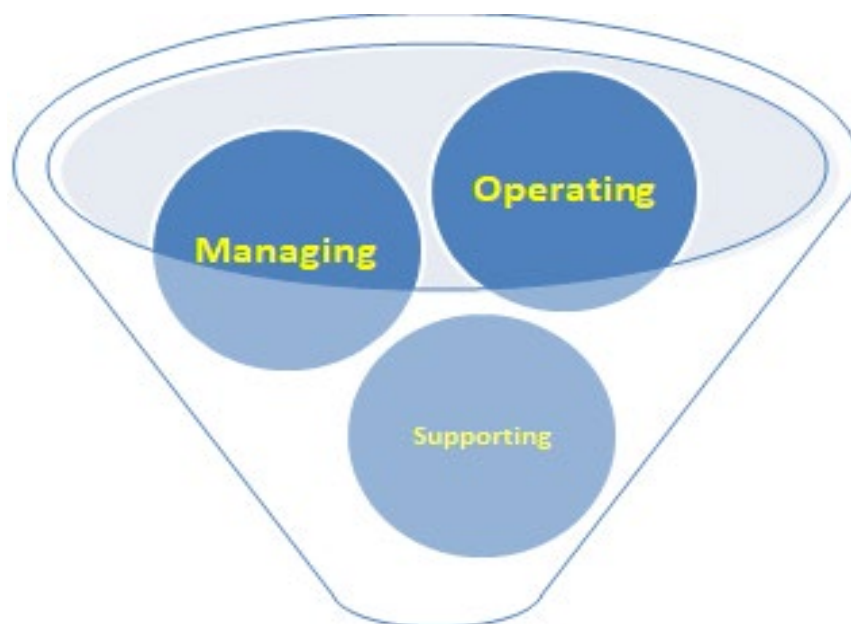

Figure No. 2: Basic Business Processes (Source: Adapted framework design from frevvoblog, 2021)

Organizational structure throughout many diverse industries may be not similar, but all these organizations perform similar Business Processes. Nevertheless, there can be resemblance of some business processes of say HR for one industry similar to another. In fact, the HR Business Processes may even be critical success factor for another industry with which a comparison can be considered very important exercise to benchmark the business process. A common business process framework indeed has the potential to form a quality base or a

foundation of the famous Software Engineering Model proposed by SEI (Software Engineering Institute) to strengthen the EKM Model effectively.

EKM comprises managing the key business processes and functions; that may impact on the innovation process and different sources of knowledge. As a part of a particular business process management, every knowledge resource as an important stakeholder has to have appropriate access. They need to possess the know-how about those tasks associated with the business processes and the way in which they have to be carried out. Every organization have one or more KM Initiatives in the form of drives , forums and similar group of people working for getting connected and sharing information for a constructive cause which add value or contribute to the body of knowledge. This directly or indirectly affects to the business growth as well as reaching out all the mass on common topic or problem discussion or experience sharing or just retrospection. In IT companies there are multiple business processes and functions carried out to run the business under several work mechanisms being executed. While dealing with the day-to-day procedures the HR faces lot of business challenges as well as concerns while dealing with any new initiative like KM initiation. In every aspect stated above, there exists correlation of existence of a KM rich consistency within these process, mechanisms, challenges as well as measures devised to deal with them. There are certain influencing factors those need to be identified and managed, immaterial of whether the company is a small scale or a medium scale or a large scale organization. There are several important core and non-core business processes that make the business run. While implementing business processes especially when critical and multiple functions are involved it might raise some discrepancies with potential to hinder the normal workflow of any business. EKM in place could address the information requirement essentials for the smooth workflow.

Scope and Objective of the research study
The scope of the research undertaken has been limited to examine and understand the existing enterprise wide KM systems and the business processes in an IT organization. For this research paper purpose the scope is restricted to EKM Implementation, its impact on key business processes in background of HR involvement reviewed. The researchers have considered the IT companies in and around Pune region for the study as a geographical scope for the problem statement and its analysis.

Research Methodology
A stepwise approach has been followed for conducting this research study wherein, Survey Method is predominantly used for this research study. The extent of the research is to evaluate the application of EKM in HRD; that facilitate the business processes in organization; to study the influencing factors in the changing environment in business and technology in different companies including Multinational Companies (MNCs). For undertaking a comparative analysis of different categories of companies, the study is restricted to the selected companies in IT Sector, in and around Pune (Maharashtra State- India).

Research Hypothesis: "Understanding of Application of EKM is effectively reflected in the key business processes and KM initiatives in IT companies"

Data Collection and Data Analysis
The methods for collecting the data were primary and secondary sources. Multiple data collection tools were used namely; Structured Questionnaire, Planned Interview with the Mid-senior level employees especially HR personnel, discussion with the senior Managerial employee, employees especially from the HR Forum, KM Focus group, Talent Group, etc. **A pilot study** was conducted in 10 to 15 known IT companies in Pune before planning for the full scope detailed research study. It helped in improving the questionnaire and gave a better roadmap to carry out the data collection. Secondary Data collected by the researcher by visiting several Libraries. Supportive publications online and printed form; were referred throughout the study. Cronbach's Reliability Test is used to determine the internal consistency.

Reliability test result	
Cronbach's Alpha	**N of Items**
.734	19

Table 1: Cronbach's Reliability Statistics using SPSS

The alpha coefficient for the dataset of 19 items is .734, indicating that the items have fairly high internal consistency. Reliability coefficient of .70 or higher is considered as "acceptable".

Sampling Design: The sampling has been done in 2 stages for the convenience of the study undertaken and the type of the data that was considered. Stage 1: Multi-Stage Sampling Technique (Purposive Convenience Technique): Purposive Conventional Sampling Technique has been followed in the research survey. Stage 2: Stratified Disproportional Sampling Technique was applied based on the types of the companies. The researchers has chosen, more than 7 % of the sample; from the population of IT Companies in and around Pune.

Source Organization	No. of MNC Companies	No. of Indian Companies	Total Companies
MCCIA	98	932	1030
Fundoodata.com	108	1887	1995
NASSCOM	90	901	991

Table No: 2: Total IT companies in Pune taken for study

There were 100 odd companies reached out with Questionnaire; out of which pertinent responses were received from 56 companies, which have been considered for this research study. Moreover, 12 respondents were engaged from Top management in interview and/or discussions.

There were more than 15 key business processes mentioned in various articles as well as stated during the discussions during the pilot study undertaken. After normalizing the most appropriate, common and having similar interpretation around 13 Key business processes were recognized. These were ; E-commerce processes, Business Communications(written, verbal/published, unpublished), Strategic and business planning activities, Premises /Administrative (Head Office and branches), Research and development activities, Finance and Accounting, Human resources management , Production line and processes, Quality assurance and Quality control mechanisms, Information technology services, Maintenance and support services, Customer services, Marketing and public relations.

In the detailed research study the association of these 13 key business processes was thoroughly studied; which showed that these business processes have close association with the application of EKM. This was seen as reflected percentage of KMS system actively implemented in the IT organization scored over and above 90 % in both the type of IT companies: IndianIT&Indian MNCs and Foreign MNCs, in all the given aspects of achievements. Furthermore, other business processes namely HRM, Quality Control, Quality assurance and IT Services scored 100 % which is noteworthy observation. It indicated that EKM reveals its existence in most of the key business processes with a Highly Significant score. The business process that scored the least significant point was identified as Premises /Administrative (Head Office and branches) in both IndianIT&IndianMNCs and Foreign MNCs with 50 % and 61.71 % respectively. Majority of the responses reflected the need to start the KM in both IndianIT&IndianMNCs and the Foreign MNCs was to bring transparency in process and boost productivity; thereby manage information and enrich the systems in an innovative and qualitative way.

Other responses projected needs and considerations based on the maturity of the application EKM in the IT Company. Organizations where EKM is recent initiative were more concerned about the consistency in understanding the whole business cycle. Whereas, the organizations where EKM has been in a matured phase had profound points to ponder like creating technological diversified team with competency building and sharing, providing more client-centric solutions in cost effective manner, predicting the prospects to become pioneer in specific domain, better reach-out within employees, with the partners and likewise with the consumers too. This aided in aligning with the pace in today's competitive highly data driven business market.

Results and Inference
Research Hypothesis: "Understanding of Application of EKM is effectively reflected in the key business processes and KM initiatives in IT companies". Tested and accepted.
To validate this hypothesis understanding attributes were defined with respect to;

- Key business processes and
- KM initiatives

Findings

Efficiency percentages of training that are being organized in order to Increase in creativity and innovation in both Indian IT &Indian IT MNCs (92.85 %) and Foreign MNCs (89.28 %).

| Key Business Process	IndianIT&Indian IT MNC		Foreign IT MNCs	
	No.	Percentage	No.	Percentage
a)E-commerce processes	23(5)	82.14	25 (3)	89.29
b)Communications(written, verbal/published, unpublished)]	26(3)	92.86	28 (1)	100.00
c)Strategic and business planning activities	27(2)	96.43	27(2)	96.43
d)Premises /Administrative (Head Office and branches)	14(8)	50.00	17(5)	60.71
e)Research and development activities	27(2)	96.43	27(2)	96.43
f)Finance and Accounting	18(7)	64.29	24(4)	85.71
g)Human resources management	28 (1)	100.00	27(2)	96.43
h)Production line and processes	20(6)	71.43	24(4)	85.71
i)Quality assurance and Quality control mechanisms	28(1)	100.00	27(2)	96.43
j)Information technology services	28(1)	100.00	28 (1)	100.00
k) Maintenance and support services	23(5)	82.14	27 (2)	96.43
l) Customer services	25(4)	89.29	27(2)	96.43
m) Marketing and public relations	23(5)	82.14	27(2)	96.43

Table No.3: Ranking of Association of Key Business Process that EKM should focus for successful Implementation (Figures in brackets indicates ranking the Key Business process parameters)

To decide the usefulness of employee engagements to consider the desired parameters, and available sample; "One sample T – Test" used to compare Means at 6 level of degree of freedom.

In order of this the observed 95 % confidence interval of the lower and upper difference (232 and 250) at 2-tailed significance. Therefore considered ranking for observed parameters.

Inference: Based on the data and statistical tests the given Hypothesis[1]
"Application of Enterprise Knowledge Management (EKM) is significantly understood in the key business processes and KM Initiatives in IT companies" is accepted. The secondary data also supported this hypothesis.
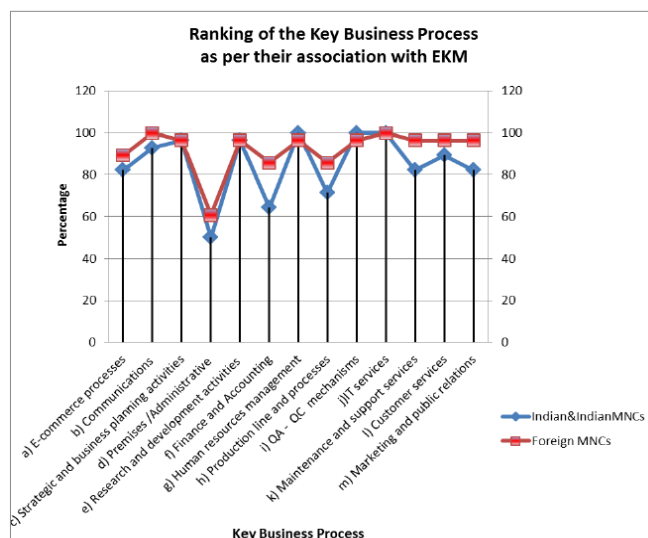
Graph No: 1: Ranking of Association of Key Business Process that EKM should focus for successful Implementation

There are ample of enterprise-wise KM activities, drives and initiatives visible or invisible, consciously or unconsciously being implemented wherein, few are success and few fail. These knowledge base environments influence the business systems and functions significantly in both; Indian IT & Indian ITMNCs and Foreign MNCs, in all the given aspects of the accomplishments. The study further indicated that almost all the key business process in both the type of IT companies showed close association of EKM. The analysis study revealed that; EKM has an active role in major business process of an organization. The existence of EKM initiatives has favourable impact on these business processes.

In majority of organization where HR is separate entity, the HR personnel are constructively involved in EKM Initiation and Implementation. Moreover, technology has positive and strong hold on EKM Application; as it is the support system for systematic Implementation of EKM.

There exist positive trends in knowledge based systems, wherein HRD plays a vital role. There is a need of upgrading the skill set of HR Managers to utilize the KMS; as they remain under-utilized. The fundamental components of HRD processes and its association with EKM facilitate the organization to addresses such prime concerns like; to comprehend skilled labour requirement innovatively or retain resource or its knowledge perspectives in a live repository form. This crucial fact was supported in the Focus group interaction conducted with few HR Heads from MNCs in Pune.KM initiatives across the IT organizations are undergoing changes constantly. The top management of the organizations can reflect seriously over these KM initiatives considering it as effective methodology in the long run. These drives enrich and strongly support business process which are profoundly dependent on information and allied services in the knowledge intensive economy. EKM is gradually getting acceptance as it has advanced to have the capability to become an integral part of a business function in the organisations. Some of the HR Heads spoke on gearing up for newer challenges and up-skilling to the artificial Intelligence based knowledge systems for HR implementation which would be the building blocks for further study. Some HR Leaders gave suggestive input for coming up with a model based on Agile Methodology. A common business process framework can form a quality base or a foundation as depicted in the famous Software Engineering Model proposed by SEI (Software Engineering Institute). Such a framework would strengthen the EKM Model effectively is one of the significant outcome observed during the deliberations with the key personnel in the IT companies.

Concluding Remarks

The survey research concludes that for application of successful EKM, systematised efforts are essential followed by identification of the prioritised areas. It was observed that all the considered Key Business Processes showed close connotation with EKM; specifically Human resource, Quality assurance & Quality control mechanisms and IT Services in particular had significantly high score indicating strong association. For effective implementation of EKM, the HR department need to gear up in action. They need to invest in skilling as per the need of the technological advancements and explore innovative approach to facilitate the execution qualitatively. Although there are massive enterprise-wise KM activities being implemented in enterprises wherein, few are successful and few fail. These knowledge base environments influence the business systems,

processes and functions significantly creating turbulence in the business eco-system. EKM is certainly not tied up with the Business processes; rather it is undergoing dynamic changes with the changing transformations in Business scenarios across the globe. With newer and better Enterprise Knowledge Management initiatives being refurbished and weaved within advance environments; change is inevitable and gearing up with this new outlook needs meticulous efforts.

Scope for Further Research

Design Thinking, SEI- CMM and Agile Methodology can be explored for further deliberations that may add value to the research excursion ahead, in this area; precisely in the IT sector. As a final line of thought, the researchers propose that; Enterprise KM has an active multidimensional context: with technology and Human Resource being the important support system to implement across all the key business processes.

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