Knowledge Management and Its Impact on Organizational Performance in the Private Sector in India

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Keywords: KM Planning and Design, KM Implementation and Evaluation, Technology, Culture, Leadership, Structure, Organizational Performance, Financial Performance, Private Sector, India.

Abstract: The study proposes a comprehensive model comprising of various relationships between antecedents to effective Knowledge Management (KM) and organizational performance. A review of literature besides a focus group discussion and a personal interview were used to design an instrument and propose seven hypotheses. Data was collected from 127 managers working in private sector organizations in India. To test the hypotheses, Structural Equation Modelling (SEM) analysis through Partial Least Squares (PLS) was used. The results indicate that although all the hypotheses had the desired positive sign, five out of them were significant. This paper presents empirical evidence of the role of KM planning and design (KMPD), KM implementation and evaluation (KMIE), Technology in KM (TKM), Culture in KM (CKM), Leadership in KM (LKM) and Structure in KM (SKM) in enhancing organizational performance. Further, improvements in organizational performance leads to improvements in financial performance.

1 INTRODUCTION

Knowledge and its management have provided an opportunity for organizations to differentiate itself from its competitors. Knowledge Management (KM) has different implications for different industries and sectors. Since business performance, profitability, market share, growth etc. are the key business drivers for private sector, KM becomes a tool to build long-term competitive advantage. The importance of KM in the consulting industry, where the firm's core product is knowledge itself has been discussed by Sarvary (1999). Similar other industries in India like information technology, telecommunications etc. are predominantly from private sector where knowledge constitutes their core resource or asset.

The rest of the paper is organized as follows. The next section discusses the existing literature on KM, factors which are critical for KM success, relationship between KM factors and business performance. Section 3 presents the research gaps and objectives of the study. Next, the fourth section presents the methodology which is followed by the findings of the study in the fifth section. Finally, the paper closes with a discussion of the research findings and the main conclusions of the study.

2 LITERATURE REVIEW

For effective KM implementation, organizations need to create processes and systems to capture, store, disseminate, apply and evaluate knowledge sources from internal and external stakeholders. In addition to KM planning and implementation process, several KM enablers have been suggested by researchers.

2.1 KM in Indian Private Sector

Sarvary (1999) defines KM as a process through which firms create and use their institutional or collective knowledge and includes three sub-process, viz. organisational learning, knowledge production and knowledge distribution. It refers to identifying and leveraging the collective knowledge to help organization compete and is the art of creating commercial value from intangible asset (Sveiby, 2001). We defined it as a systematic, formal and structured approach to develop socio-economic

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Joshi, H. and Chawla, D.
Knowledge Management and Its Impact on Organizational Performance in the Private Sector in India.
DOI: 10.5220/0008494204270434
In *Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (IC3K 2019)*, pages 427-434
ISBN: 978-989-758-382-7

business systems where knowledge forms a key component of all business inputs, outputs and processes, to enhance capabilities of decision makers and improve firm performance.

Although the importance and use of KM in private sector organizations is unquestionable, the benefits and KM outcomes may vary. In general, the design and implementation of KM practices are a difficult task for managers, and the effectiveness and success of such practices depend heavily on their optimal adjustment to organizational factors (Bierly & Daly, 2002).

2.2 KM Critical Success Factors

When conceptualizing a KM system, there is no single approach that fits all sectors and industries. The literature has many instances of different approaches, frameworks and models developed and adapted across different contexts to guide KM implementation. While information technology is a key enabler in KM, its important to realize that here is much more to KM than technology alone. Lee and Choi (2003) believe that KM enablers must be structured based upon a socio-technical theory to provide a balanced view between a technological and social approach to KM. Therefore, KM should always be viewed as a system that comprises of a technological subsystem as well as a social one (Wong and Aspinwall, 2004). Chong and Choi (2005) identified 11 key KM components for successful KM implementation (training, involvement, teamwork, empowerment, top management leadership and commitment, information systems infrastructure, performance measurement, culture, benchmarking, knowledge structure and elimination of organizational constraints).

2.2.1 KM Planning and Design (KMPD)

Donate and Pablo (2015) have examined KM process in the form of KM exploration (i.e. creation) and exploitation (i.e. storage, transfer and application) practices. It is a systematic process of identifying, capturing and transferring information and knowledge people can use to improve (O'Dell et al., 2004). Prior research studies have identified many key aspects in the KM processes such as: acquiring, collaborating, integrating, experimenting (Leonard-Barton, 1995); knowledge acquisition, knowledge sharing and knowledge distribution (Nevis et al., 1998). knowledge acquisition, knowledge conversion into useful form, application and protection (Gold et al., 2001); creation, storage/retrieval, transfer and application (Alavi and Leidner, 2001); generation, codification, transfer and application (Singh and Soltani, 2010); acquisition, creation, storage and application (Aujirapongpan et al., 2010).

2.2.2 KM Implementation and Evaluation (KMIE)

According to Smith and McKeen (2004), the process of KM must facilitate knowledge development (i.e. identification, creation, harvesting and organizing) and knowledge application (sharing, adaptation and execution) and develop the linkages between the two.

2.2.3 Leadership in KM (LKM)

The biggest challenge to KM is getting support, commitment, and a separate budget from top management. Prior studies have highlighted the importance of leadership in knowledge intensive organizations in Malaysia (Chong, 2006) and in India (Singh and Soltani, 2010).

2.2.4 Structure in KM (SKM)

Knowledge flow as a phenomenon not only occurs through the conventional top-down approach but also bottom-up and horizontal knowledge exchanges (Mom et al., 2007). Smith and McKeen (2004) proposes communities of practices within network of people who create, disseminate, and retain knowledge. Therefore, organization structures determine the effectiveness of the working of such communities.

2.2.5 Culture in KM (CKM)

KM is all about people and organizational culture and has been advocated by researchers. KM is not very useful in environments that are highly secretive or overly competition driven. But, nurturing a climate of trust and openness is a gradual and long-term process.

2.2.6 Technology in KM (TKM)

IT plays an active role in knowledge sharing and dissemination. Smith and McKeen (2004) believe that IT tools help knowledge managers deliver the right knowledge at the right time, but do not tell what to collect, how to collect or how to get people to use it.

2.3 KM and Its Impact on Performance

Performance improvement due to KM can be measured at three levels, i.e. individual, process and business. But attaching a value to intangible assets is difficult because of the associated uncertainties. The frequently asked question is, how can you put a value to knowledge? KM initiatives must show a return otherwise the effort goes waste.

Knowledge creation practices are significantly related to organizational improvement while knowledge acquisition practices are positively related to organizational performance (Seleim and Khalil, 2007). Zack et al. (2009) found that KM practices are related to measures of organizational performance. In other words, knowledge practices of creation, transfer, storage, application and evaluation will influence organizational performance.

According to Lee and Choi (2003), the support of IT is essential for carrying out KM activities. Wang et al. (2007) found that IT support of KM indirectly benefits manufacturing organizations resulting in enhanced employee productivity, customer satisfaction, improved product and service quality, reduced duplication of efforts and better cooperation. Chen et al. (2011) also found support for KM technology positively effecting KM performance. Thus, it appears logical to believe that a good IT infrastructure for KM may influence performance.

Culture (underlying beliefs, values and behaviors) is regarded as one of the most important factors that impact KM and the outcomes from its use (Alavi and Leidner, 2001). According to Chang and Chuang (2011) culture is the most important factor for successful KM. Thus, positive corporate culture is expected to enhance organizational performance.

Leadership is an important construct in driving the success of any organizational initiative. Given the low awareness levels and maturity of KM within most organizations, the importance is leadership is even much more. Anantatmula and Kanungo (2010) found top management support is most crucial to build a successful KM initiative as it ensures strategic focus. Thus, knowledge-oriented leadership will have a positive impact on organizational performance.

Organizational structure within an organization may encourage or inhibit knowledge creation, sharing and application. Mills and Smith (2011) in a survey involving managers in Jamaica showed that only organizational structure had a significant impact on organizational performance. Further, Chen et al. (2011) found that centralization has a negative impact on KM performance. Thus, it would be appropriate to believe that structure will impact organizational performance.

Hiebler (1996) believes that organizations that can create and use a set of KM measures tied to financial results seem to come out ahead in the long run. KM can impact things like recruitment and retention, response time for problem solving, customer satisfaction and avoidance of problems. In addition to hard numbers success can also be represented in the form of 'soft' benefits such as anecdotes and success stories (Smith and McKeen, 2004). Rao (2005) considers five types of metrics which would help assess the level of KM implementation. These are: 1) technology metrics 2) process metrics 3) knowledge metrics 4) employee metrics and 5) business metrics. In this study statements related to organizational performance (OP) include non-financial measures while those of financial performance (FP) include financial measures. We use the above argument to postulate that KM induced organizational performance improvements will improve financial performance.

Thus, we hypothesize:

H1: KMPD has a positive impact on OP
H2: KMIE positively influences OP
H3: LKM has a positive impact on OP
H4: SKM positively influences OP
H5: CKM positively impacts OP
H6: TKM has a positive impact on OP
H7: Organizational Performance impacts FP

3 RESEARCH OBJECTIVES

Majority of the prior studies on linking KM to organizational performance have been either done in public sector or focused on developed countries (Zhou, 2004; Taylor and Wright, 2004; Park, 2007; Cong et al., 2007; Goel et al., 2010; Evoy et al., 2019). Little is known about the impact of KM in developing and emerging economies. Perhaps the most significant gap in the literature is the lack of large-scale empirical studies to link KM to organizational performance in private sector organisations in India. The objectives of the study are to:

1. Propose a research model to identify the factors relevant for KM.
2. Determine the impact of these factors on enhancing performance in organizations.

4 METHODOLOGY

To meet the first objective, a review of literature was conducted across multiple research databases with keywords like "KM impact assessment", "KM and performance", "KM in India". This process resulted in several studies, findings of which were synthesized in the form of broad themes like KM factors, Impact of KM on performance. Qualitative data collection techniques like Focus Group Discussion (FGD) and personal interview was used to explore and investigate the themes. An FGD guide and an interview template was prepared for this purpose. Open ended questions were used for FGD while one semi-structured interview was conducted with a senior representative from a private sector organization in insurance industry. The FGD was conducted with four representatives from private sector organizations in manufacturing, information technology, telecommunications and power generation. Content analysis of transcripts was done to identify several themes which were subsequently cross checked with literature. This resulted in the identification of factors and associated items relevant for KM. A web-based questionnaire was designed with 50 statements. Before launching the survey, the instrument was shown to two KM experts who were spearheading the KM initiative in their organizations.

This study employs survey methodology to gather primary data for meeting the second objective. Convenience sampling was used to select the respondents. Majority of the respondents were reached through the personal networks of the researchers. Because of these efforts 127 respondents from private sector in India filled this questionnaire. Adaptation of eight items for Knowledge Management Planning and Design (KMPD), 11 for Knowledge Management Implementation and Evaluation (KMIE), six for Technology in Knowledge Management (TKM), six for Culture in Knowledge Management (CKM), five for Leadership in Knowledge Management (LKM), four Structure in Knowledge Management (SKM), seven for Organization Performance and three for financial performance come from earlier studies as discussed in the review of literature section. Items were measured on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

The study employs partial least squares (PLS) to analyse the research model and seven hypotheses. The reason for using variance based PLS is twofold; firstly, it is an SEM technique which estimates the measurement and structural model simultaneously and secondly, it imposes less restrictions on assumptions about distribution of data, multicollinearity and sample size. SmartPLS 3.0 was used for this purpose. As a first step, PLS algorithm is used to estimate the measurement model to assess the reliability and validity of the theoretical constructs. Estimation of the structural model examines the relationships defined as part of the hypotheses in the research model.

5 FINDINGS OF THE STUDY

5.1 Research Model

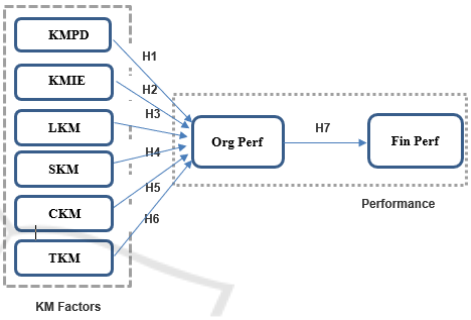

Figure 1: Research Model.

5.2 Measurement Model

The measurement model was assessed in terms of internal consistency, composite reliability, average variance extracted and convergent and discriminant validity.

As per Fornell and Larker (1981), convergent validity of the scales is based on the fulfilment of three criteria (1) all item loadings should exceed 0.65 (2) composite reliabilities (CR) should exceed 0.8 and (3) the average variance extracted (AVE) for each construct should exceed 0.5. As evident from Table 1, all item loadings are greater than the threshold of 0.65, the CR values are greater than 0.8 and the AVE ranges from 0.543 to 0.810. Thus, all the three conditions for convergent validity are met.

For discriminant validity, the square root of the AVE for each construct must be higher than the correlation coefficient with other constructs (Fornell and Larcker, 1981; Liao et al., 2006). As shown in Table 1, the condition for discriminant validity is satisfied as the square root of the AVE for each construct is greater than the estimates of the inter-correlation between the latent constructs.

Table 1: Convergent and Discriminant Validity.

	Cronbach Alpha	Range of Loadings	Composite Reliability	AVE	CKM	Fin Perf	KMIE	LKM	Org perf	KMPD	SKM	TKM
CKM	0.820	718-0.808	0.874	0.582	**0.763***							
Fin Perf	0.883	884-0.915	0.927	0.810	0.420	**0.900***						
KMIE	0.732	791-0.824	0.848	0.651	0.655	0.525	**0.807***					
LKM	0.844	739-0.830	0.889	0.615	0.731	0.566	0.657	**0.784***				
Org perf	0.896	708-0.842	0.918	0.617	0.667	0.733	0.721	0.759	**0.785***			
KMPD	0.797	801-0.872	0.881	0.712	0.705	0.610	0.744	0.738	0.750	**0.844***		
SKM	0.719	679-0.790	0.826	0.543	0.687	0.475	0.706	0.745	0.702	0.705	**0.737***	
TKM	0.759	716-0.793	0.847	0.580	0.595	0.509	0.644	0.694	0.698	0.689	0.607	**0.762***

* Diagonal values are squared roots of AVE; off-diagonal values are the estimates of the inter-correlation between the latent constructs

Table 2: Structural Model.

Path (Hypothesis)	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Supported/Not Supported
KMPD -> Org perf (H1)	0.192	0.194	0.085	2.274	0.023**	Supported
KMIE -> Org perf (H2)	0.200	0.195	0.111	1.793	0.073***	Supported
LKM -> Org perf (H3)	0.268	0.273	0.098	2.733	0.006*	Supported
SKM -> Org perf (H4)	0.098	0.103	0.107	0.912	0.362	Not Supported
CKM -> Org perf (H5)	0.037	0.031	0.078	0.474	0.635	Not Supported
TKM -> Org perf (H6)	0.170	0.170	0.082	2.061	0.039**	Supported
Org perf -> Fin Perf (H7)	0.733	0.733	0.049	14.818	0.000*	Supported

* significant at 1 percent; ** significant at 5 percent; *** significant at 10 percent

5.3 Structural Model

After analysing the measurement model, the next step is to test the relationships between constructs as depicted in the research model in the form of hypotheses H1 to H7. For structural model analysis, bootstrapping (500 sub-samples) technique is used as suggested by Chin (1998). Figure 2 displays the results of the structural model showing standard errors, t-values, path coefficients and the significance value.

The results of the structural model as summarized in Table 2 offer support for hypotheses H1, H2, H3, H6 and H7. Hypotheses H4 and H5 are not supported although their path coefficient is in the desired positive direction. H1 and H2 predicts a positive and significant impact from KMPD and KMIE on Organizational Performance. The more an organisational performance. Similar results are found for the construct LKM (H3), which also has a positive and significant effect on organisational performance.

With respect to H4 and H5 it is seen that both SKM and CKM practices influence organizational performance positively, but the impact is insignificant. Therefore, H4 and H5 are rejected.

Considering the postulated link between TKM and organisational performance, it is found that TKM has a positive and significant effect.

As per (Ringle et al., 2012), path significance alone is not the only indicator of importance, the effect size f squared (Cohen, 1988) of each relationship and relative prediction relevance q square (Hair et al., 2014) for each of the endogenous constructs was assessed. Values of 0.02, 0.15 and 0.35 denote a small, medium or large f square or q square effect size respectively. It is evident from Table 3 that for all significant relationships, the f square effect size is medium while its small for the insignificant ones. Thus, for all significant

relationships it can be inferred that the effect of omitting a predictor of an endogenous constructs in terms of the change in the R square value of the construct (organisational performance) would be medium.

The predictive relevance of structural model was tested by calculating cross-validated redundancy (Q square). Using blindfolding technique. The smaller the difference between the predicted and original value, higher is the value of Q2 and thus higher is the predictive accuracy of the model. The value of Q square greater than zero indicates satisfactory accuracy. In our case, the values of Q square equals 0.395 for Organizational Performance.

Finally, results also confirm the impact of organisational performance on financial performance (H7). Overall, the structural model explains 70.4 percent of the variance in organizational performance and 53.8 percent of the variance in financial performance.

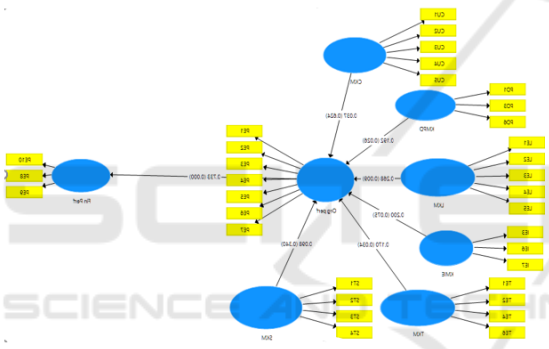

Figure 2: Structural Model - Path Coefficients and P-values.

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Table 3: f^2 and q^2 values for the endogenous variable Organizational Performance.

	Path	R Square	f Square	Q square	q square
All constructs included		0.704		0.395	
CKM excluded	CKM to Org Perf		0.002	0.394	0.002
KMIE excluded	KMIE to Org Perf		0.048	0.394	0.002
KMPD excluded	KMPD to Org Perf		0.037	0.390	0.008
LKM excluded	LKM to Org Perf		0.071	0.385	0.017
SKM excluded	SKM to Org Perf		0.011	0.394	0.002
TKM excluded	TKM to Org Perf		0.042	0.389	0.010

Next, the importance-performance map analysis (IPMA) was carried out to the results of PLS-SEM by also taking the performance of each construct into account. Here the target variable considered was organizational performance. The objective was to primarily identify those constructs which exhibit a large importance regarding their explanation of organisational performance but, at the same time, have a relatively low performance.

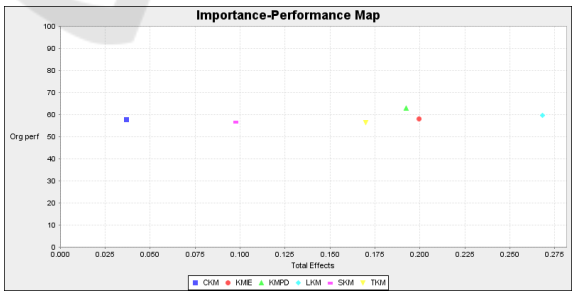

Figure 3: The Importance-Performance Matrix for Organizational Performance.

In order of importance, LKM is the most important followed by KMIE, KMPD, TKM, SKM and CKM respectively. Further, in terms of performance, all the constructs have more or less the same performance score (around 60) on a scale from 0 to 100. In terms of importance effect (total effect), LKM is the most relevant group

followed by the KMIE, KMPD, TKM group. CKM and SKM can be treated as a relatively less important group.

6 CONCLUSIONS AND RECOMMENDATIONS

We found that out of the seven hypotheses, five were supported. KM processes (KMPD and KMIE) were found to positively and significantly influence organisational performance.

With respect to leadership, we found that KM leadership is an important construct which influence organisational performance significantly. Similar findings have been reported by earlier researches. Anantatmula and Kanungo (2010) found top management support is most crucial to build a successful KM initiative as it ensures strategic focus.

It was found that technology infrastructure has a statistically significant influence on organisational performance. Thereby this finding corroborates the findings of earlier studies about the importance of leadership for enhancing organisational performance (Lee and Choi, 2003; Chen et al., 2011)

However, we could not find support for two of our hypotheses related to KM structure (H4) and culture (H5) and the target construct organisational performance. We believe that a reasonable explanation for this observation is that KM structure and culture in private sector organization is fairy well developed and respondents may have perceived this as a relatively less important construct impacting organisational performance.

Considering that organisational performance is influenced by so many factors other than KM, it seems that the obtained results (explained variance of 70.4 percent) justify the strong impact of KM on organisational performance. Further, KM induced organisational performance is found to explain 53.8 percent of variation in financial performance. This means that KM constructs act as appropriate antecedents to organisational performance. One of the implications of the findings could be that KM does not directly influence financial performance but routes it through organisational performance. Thus, testing the mediator role of organizational performance can be an area of future study.

IPMA analysis of Indian private sector data reveals that the effect of the various KM constructs on organisational performance can be grouped into three. The highest important construct is leadership, followed by planning, implementation and usage of technology. The last group comprises of culture and structure. One of the plausible reasons could be that private sector enterprises assign more importance on leadership and policy & strategy. With respect to culture and structure, since private sector companies are dynamic workplaces which are constantly evolving, creation and exchange of knowledge is a way of life. Private sector organizations have taken better measures to reduce hierarchies and enhance streamline flow of knowledge. Since conducive structure and culture are by composition ingrained in private sector organizations, their importance for KM is perceived as relatively lower as compared to other constructs. Singh and Sharma (2011) found organizational culture to be positively and highly correlated with KM in Indian private sector. Thus, one of the recommendations which emerge from the above discussion is that the buy-in of the top management for KM success is most critical. Further, the existence of the formal KM planning, implementation and evaluation is important. To start with the initiative, private sector organizations can prepare a business case to align the initiative to address critical real-world business problems. Further, identifying a KM team, defining roles and responsibilities including subject matter experts should be an integral part of the KM planning process.

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