Integration of Knowledge Management Practices with Supply Chain Management in Pharmaceutical Industry of North India

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Abstract
The power of knowledge from the ages has been well recognized and documented. The sharing and transferring of knowledge had provided incalculable benefits in the human growth and development. The management of knowledge dimensions in the organizations provides opportunities to create and retain value from core business competencies. A supply chain is the management of firms' network that aims to supply products according to customer demand. The knowledge management in the supply chain maximizes the creation, transfer and reuse of knowledge that helps to serve customers with enhanced products and meet the fast changing nature of the their demands. Knowledge management also facilitates the integration of knowledge across the various components of supply chain. This article sheds some light on the theoretical concept of knowledge management and its practices that are relevant for supply chain management academicians and practitioners and empirically explore the relationship between knowledge management and supply chain in pharmaceutical firms.

Keywords: *Knowledge, Knowledge management, KM practices, Supply chain management*

Introduction

Knowledge is the state of awareness, understanding and amassed thoughts gained from the experiences and education. It is present in ideas, judgments, intuitions, competencies and skills of the individual. The management of knowledge dimensions means the renaissance of creating, sharing, leveraging and applying the knowledge, expertise and intellectual capital for learning in the organization. It involves the transformation of individual-held tactic knowledge to organizational-shared explicit knowledge to keeps the knowledge pool vibrant. Knowledge Management involves the process, namely, knowledge creation, sharing, distribution, analysis, reuse and storage.

The Globalization and advanced technology has poised several challenges for the supply chain managers. They have to integrate suppliers, manufacturers, warehouses and stores, to produce and distribute merchandise in the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs, while satisfying service level requirements(Zhang, 2010). They have to take various decisions at the each stage of the chain. The sharing of knowledge amongst the chain partners solves the major problem of collaboration in supply chain. The management of knowledge in the supply chain help in creating and delivering innovative products or services; managing and enhancing relationship with existing and new customers, partners, and suppliers and administrating and improving work practices and processes. The nature of knowledge flow greatly affects the performance of supply chain in the organization.

The knowledge management can helps the organization to collectively, share towards fulfillment of goals and objectives of the organization. It facilitates better, more informed decisions; contributes to the intellectual capital of an organization; encourages the free flow of ideas which leads to insight and innovation; eliminates redundant processes, streamlines operations, and enhances employee retention rates; improves customer service and efficiency; and leads to greater productivity, collaborative culture and more efficient problem handling in the entire supply chain.

Literature Review

The several researchers had investigated the importance of Knowledge Management process in supply chain (Li, 2007; Zhang et al., 2007). Some of the studies related with this area are as follows:

Crook et al. (2008) researched the effect of knowledge sharing on supply chain and represented that the role of knowledge sharing on the effectiveness of supply chain is very important.

Fawcett et al. (2007) emphasized that the knowledge sharing capabilities of firms are the determinant of Supply chain progress. Li and Lin (2006) also imported that knowledge sharing determines their progress.

Zhou and Benton (2007) highlighted that knowledge sharing determines the performance of the Supply chain. Eris (2007) summarized the need of KM in SC as: e-commerce systems, web-based interactions, decision making, competitive advantage and collaborative arrangements.

Childhouse and Towill (2003) revealed in their empirical findings that simplified material flow, including streamlining and making highly visible all information flowing throughout the chain, is the key to an integrated and effective Supply chain.

Maqsood et al (2003) discussed that Knowledge Management ensures that knowledge is shared with the trading partners in the supply chain. Knowledge management can help to determine how best to deliver that product or ensure the swift availability of the related knowledge.

Minner (2003) stated that Knowledge Management bridges the gap between individuals on conflicting objectives in supply chain and the detail analysis of knowledge requirement for the effectiveness of the whole value added chain.

Zhao et al. (2002) emphasized that Knowledge sharing improves coordination between Supply chain processes to enable the material flow and reduces inventory costs. The knowledge sharing leads to high levels of Supply chain integration by enabling organizations to make dependable deliveries and introduce products to the market quickly.

Lin et al. (2002) suggested that the higher level of knowledge sharing is associated with the lower total costs, the higher order fulfillment rate, and the shorter order cycle time.

According to Stein and Sweat (1998), Supply chain partners who exchange knowledge regularly are able to work as a single entity. Together, they can understand the needs of the end customer better and hence, they can respond to market changes quicker.

Hall and Andriani (1998) analyzed the management of knowledge in the supply chain along with the management of knowledge associated with inter-organizational innovation and the techniques for analyzing the role of intangible resources. A supply chain contains several stages (e.g., manufacturers, distributor, wholesaler, retailers) and each of these stages involves several entities (e.g., suppliers) that either compete or cooperate to provide the service, product,

materials requested from another stage in the chain (e.g., Copacino, 1997; Simchi- Levi et al., 1998). Based on the above literature review it has been hypothesis that

H1: There is a significant positive correlation between Knowledge Management Practices and increased performance of the supply chain

Research Methodology

Sample and Data Collection

A survey was undertaken to gather all the appropriate data by use of a structured questionnaire. The questionnaire was constructed on the basis of developed hypotheses. The five point scale was used to measure all the statements (1=strongly disagree to 5=strongly agree).

The data was collected from 50 pharmaceutical organization based in and near Chandigarh using random sampling technique. The primary data is supported by the secondary data collected from various research articles, company websites and annual reports, internet, magazines, newspapers and other publications. These sources were used as supporting evidence to justify the significance of the study.

The top level managers like Chief Executives, Chief Knowledge Officers (CKO), Chief Information Officers (CIO), HR executives and other management experts of the organization are asked to provide data. The data so collected was analyzed by using SPSS

Analysis and Interpretation

KM Practices employed in the firms

A mean score was calculated to examine the various Knowledge management practices used in pharmaceutical organizations. These practices are chosen as measurement items after the through literature review. The resultant values are summarized in the **Table 1**. The values for the all the factors ranged from 3.15 to 4.5 which reveal that all the practices are actively employed in the selected firms.

Table 1: KM practices employed in selected firms

Label	KM Practices	Mean
KM1	The organization actively captures external knowledge from industrial associations, competitors, clients and suppliers	4.50
KM8	Regular meetings are done for discussion of professional projects	4.50
KM5	Has a culture intended to promote knowledge sharing	4.26
KM3	Has dedicated resources for acquisition and obtaining internal knowledge from experienced workers and managers.	4.20
KM12	People are encouraged to access and use knowledge saved in company systems.	4.18
KM4	Encourages workers to participate in project teams with external experts	4.12
KM11	The information systems and knowledge stored in the systems are constantly upgraded	4.00
KM6	Has policies or programs intended to improve knowledgeable worker retention	3.95
KM9	Databases of good work practices, lessons learned, skills and listings of experts are regularly updated.	3.85
KM10	Written documentation of lessons learned, training manuals, good work practices and articles is done	3.75
KM2	The organization captures knowledge from public research institutions, universities and government laboratories	3.50
KM7	Problems, failures, experiences and method of working are discussed openly and avoid making similar mistakes in the future.	2.80

The **table 1** narrates that pharmaceutical firms actively captures external knowledge and do regular meetings for discussion of professional projects and explicit knowledge (Mean= 4.5).They have a culture that promote knowledge sharing (Mean= 4.26); dedicated resources for acquisition of internal knowledge from experienced workers and managers (Mean= 4.20) and has policies intended to improve knowledgeable worker retention (Mean= 3.95). The knowledge systems, Databases of good work practices, lessons learned, skills and listings are constantly upgraded (Mean= 4.00) and people are encouraged to access knowledge saved in these systems (Mean= 4.18). But the problems, failures, experiences and method of working are not discussed openly in these firms (Mean=2.80).

Impact of KM Practices on organizational performance

The descriptive statistics analysis and simple regression analysis has been done to determine the effect of the Knowledge Management practices on organizational performance.

Label	Variables	Mean
IM7	Increase of knowledge re-use	4.14
IM9	Better Decisions	3.91
IM4	Increased market share	3.58
IM1	Improved competitive advantage	3.48
IM2	Improved capture and use of knowledge from sources outside your firm or organization	3.21
IM8	Ease collaborative work of Virtual teams	3.10
IM10	Improved production processes	4.14
IM3	Improved sharing or transferring of knowledge with employees/Clients/Customers	3.68
IM6	Improved transparency	3.17
IM5	Achieving Strategic objectives	3.00

The simple regression analysis has been done to determine the quantitative effect of Knowledge Management practices on the performance of the organization. Knowledge Management practices acts as independent variable and organizational performance as dependent variable.

Table 3: Coefficients of KM Practices and organizational performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.388	1.516		1.575	.118
	KM Practices	1.388	.235	.513	5.912	.000

Dependent Variable: Organizational Performance

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.513[a]	.263	.255	7.46836

Predictors: (Constant), KM Practices

The t-test equals 5.912, and is statistically significant. The amount of effect of KM practices on organizational performance is equal to 0.513. The coefficient of KM practices is 1.388 meaning that for a one unit increase in KM practices, there is 1.388 units increase in organizational performance. The R-squared is .263 means that approximately 26% of the variance of organizational performance is accounted by the KM practices. The adjusted R-squared indicates that about 25% of the variability of organizational performance is accounted by the model; even after taking into account the number of predictor variables in the model.

Conclusion

Knowledge Management practices has been recognized as the key driver of generating novel ideas that helps to create innovative products, services and solutions in tune with the market requirements. The knowledge management practices in the supply chains leads to the effective decision making by increasing knowledge reuse. Knowledge Management provides new opportunities to create and retain greater value, learning and effectiveness from supply chains based on core business competencies that leads to increased competitive advantage and market share.

Knowledge sharing is a key ingredient for supply chain. By taking the data available and sharing it with other parties within the supply chain, an organization can accelerated the flow of information flow in the supply chain, improve the chain efficiency and effectiveness of the supply chain and ease collaborative work of Virtual teams.

Knowledge Management practices also contributes positively to customer satisfaction and responds to customers changing needs quicker. Thus, Knowledge Management practices impacts the Supply chain in terms of both total cost and service level. There is great need for developing KM based supply chains and their demo models to promote the benefits of knowledge sharing and knowledge advancements.

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