

CHAPTER 3

PROPOSED MODEL FOR KM AND HYPOTHESIS

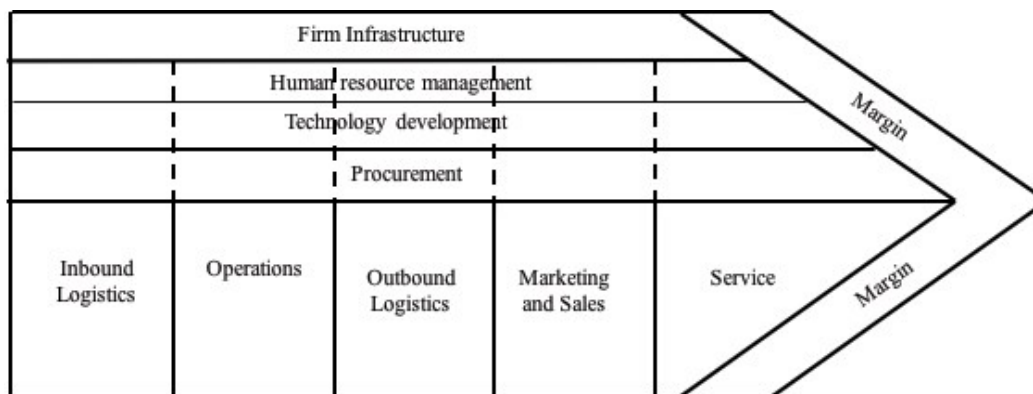
3.1 Introduction

The previous chapter 2 discussed KM, its impact on an organization and gap in the extant literature. It also discussed the importance of KM and its application in the marketing & sales function in achieving a competitive advantage in reference to the cement organizations in India. This chapter presents the proposed KM model to understand the linkage between KM and CA in the organization. The proposed KM model has been build on the foundation of the value chain model proposed by Michel Porter. Out of the nine activities of the value chain model, five activities that fall into the domain of marketing and sales were mapped with the 4 P's of marketing for the developing the KM model. Finally, the hypothesis has been presented to be tested. This chapter deals with the following:

- Value chain model
- Proposed KM model
- Hypothesis

3.2 The Value Chain Model

To create more customer value a value chain as a tool has been proposed for firms by Michael Porter (Fig 3.1).



Source:(Kotler & Keller, 2006), Page 39

Fig 3.1 The Generic Value Chain

The value chain categorizes nine activities – five primary activities namely - Inbound logistics, Operations, Outbound Logistics, Marketing and Sales and Services; and four secondary activities namely - Corporate infrastructure, Human Resource Management, Technology Development and Procurement. The brief description of each of the value chain activities is mentioned in Table 3.1 (Barnes, 2001). From the value chain perspective as propounded by Michael Porter, above referred discrete set of activities contribute to competitive advantage for the firm. This advantage can be broadly classified into cost advantage by way of low cost distribution of products in the market, effective utilization of sales force, efficient manufacturing processes etc, and differentiation by way of purchasing high quality raw material, responsive order management systems etc. For both the set of activities there are costs and associated performance outcomes. The firm is required to continuously evaluate performance outcomes vis-à-vis cost for each activity against competitors; so as to identify the best practices for achieving competitive advantage. The firm's success depends not only on how well each department performs its work, but also on how well the various departmental activities are coordinated to conduct core business processes. These core processes include (Kotler & Keller, 2006) :

- Market sensing process: All the activities involved in gathering market intelligence, disseminating it within the organization, and acting on the information.
- New offering realization process: All the activities involved in researching, developing, and launching new high-quality offerings quickly and within budget.
- Customer acquisition process: All the activities involved in defining target markets and prospecting new customers.
- Customer relationship management process: All the activities involved in building deeper understanding, relationships, and offerings to individual customers.
- Fulfillment management process: All the activities involved in receiving and approving orders, shipping goods on time, and collecting payment.

The activities in Porter's model cover both key aspects namely - marketing and manufacturing of an organization. A closer understanding of each of the five primary activities of Porter's model in context to a manufacturing organization reveals that three correspond to the marketing and sales – Outbound logistics (OL), Marketing and Sales (MS) and Service (SER). And the remaining two – Inbound logistics and operations pertain to the manufacturing domain of the organization. While the four secondary

activities - Corporate Infrastructure, Human Resource Management, Procurement and Technology, support the entire set of five primary activities. But in large organizations there are specialized departments to carry out secondary activities pertaining to Human Resource Management and Technology development separately for both marketing and manufacturing domains of the organization. The other two secondary activities – Corporate Infrastructure and Procurement - support the entire organization through centralized function.

Table 3.1 Primary and Secondary Activities of Value Chain Model

Activity	Sub-activity	Explanation
Primary	Inbound logistics	Receiving, storing, and disseminating inputs to the product, such as material handling, warehousing, inventory control, vehicle scheduling, and returns to suppliers.
Primary	Operations	Transforming inputs into the final products form, such as machining, packaging, assembly, equipment maintenance, testing, printing, and facility operations.
Primary	Outbound logistics	Collecting, storing, and physically distributing the product to buyers, such as finished goods warehousing, material handling, delivery, vehicle operation, order processing and scheduling
Primary	Marketing and sales	Providing means, by which buyers can purchase the product and inducing them to do so, such as advertising, promotion, sales force, quoting, channel selection, channel relations and pricing
Primary	Service	Maintain or enhance product value through post –sale service such as installation, repair, training and parts supply
Secondary	Corporate infrastructure	Support for the entire value chain, including general management, planning, finance, accounting, legal, services, government affairs, and quality management
Secondary	Human resource management	Recruiting, hiring, training, development and compensation of all employees
Secondary	Technology development	Range of activities that can be broadly grouped into efforts to improve the product and the process
Secondary	Procurement	Purchasing inputs includes raw materials, supplies, and other consumable items as well as assets such as machinery, laboratory equipment, office equipment and buildings.

Source: (Barnes, 2001), page 50

3.3 Proposed Knowledge Management Model

The proposed model has been built on the basis of the Porter’s model and focuses on knowledge and its management on the marketing and sales functions of the organization; that is the journey of the “finished product” from the factory premises to the market place where “customer” is located (Fig 3.2).

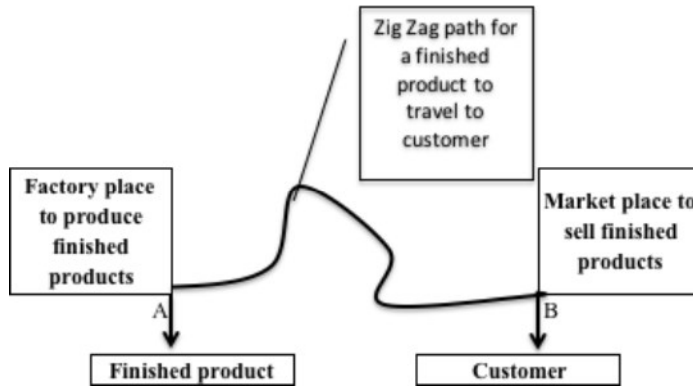


Fig 3.2 Finished Product from Manufacturing Plant to Customer Location

Marketing and sales requires knowledge of customers and their preferences, competitors, products, distribution channels, service providers, laws and regulations, and general management practices (Bennett and Gabriel, 1999). This knowledge is important for the marketing team to develop and implement marketing strategies ahead of their competitors to create a competitive advantage. The management of such knowledge calls for manipulation of activities (interpreted as knowledge management processes) and managerial influences (interpreted as knowledge management practices) (Holsapple and Singh, 2001).

There are broadly four stages of knowledge management processes (Fig 3.3) that are - Acquire knowledge from market, Share knowledge within organization across stakeholders, Use knowledge to devise strategy to derive edge over competitors and apply knowledge with the devised strategy back into the market. These processes need to be complemented by two categories of practices, namely - Human resources (HR) and Information Technology (IT). Individually and collectively these knowledge management processes and knowledge management practices provide a competitive advantage in terms of faster growth, greater market share, enhanced profitability, innovative and greater responsiveness to market demand. The framework has a knowledge management orientation that encompasses both market-based information and information about non-market factors such as technology and internal financial function (Darroch and McNaughton, 2003).

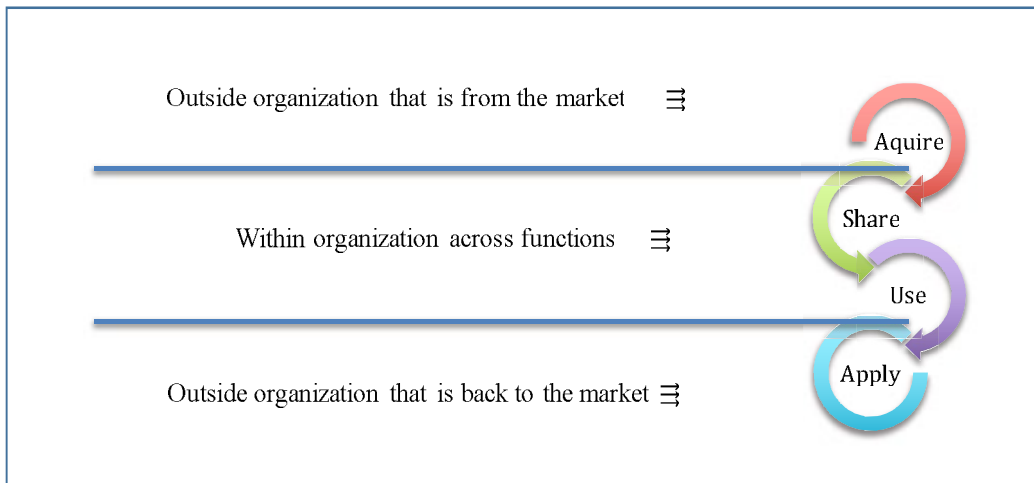


Fig 3.3 KM Processes Interface – Internal and External to Market

The comprehensive model considered for the study encompassing primary components - Outbound Logistics, Marketing and Sales and Services with associated secondary components by way of HR and IT contributing to competitiveness is shown in (Fig 3.4). The competitiveness of the firm is defined by way of key variables – market share, growth, innovativeness, responsiveness and profitability. The primary and secondary components have been comprehended under KM process – acquire, share, use and apply, and KM practices by – HR and IT.

KM practices pertaining to HR include - Team size, Training, Reward and Recognition and IT includes - Solution, Support and Gadgets that strengthen the organization by way of standardizing the practices within these functions. KM practices in turn are used to support the KM processes, namely – *acquire, share, use and apply* effectively within outbound logistics for effective management of channel, inventory and transportation, marketing and sales for better understanding of market demand and competitors – advertisement approach, sales promotion and pricing strategy, discount and credit term policy and services by fulfilling service level expectation of the customer.

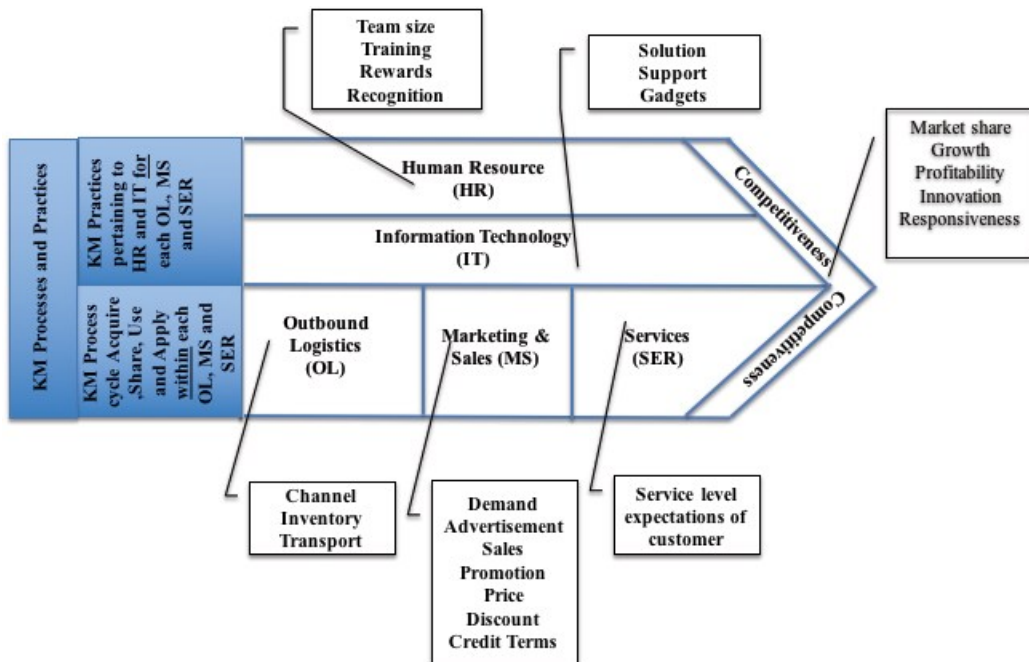


Fig 3.4 Scope of Research

Above model has been considered for the study to empirically establish relationship between knowledge management and its relationship with competitiveness. Model as a whole captures 4 P's of marketing and sales function and their value proposition in the whole chain leading to competitiveness from knowledge management perspective.

The 4 P's and the constituent variables of marketing function as highlighted (Kotler & Keller, 2006) are as under:

- Place – Channels, Coverage, Assortments, Locations, Inventory, Transport
- Price – List Price, Discounts, Allowances, Payment period, Credit period
- Promotion – Sales promotion, Advertising, Sales force, Public relations, Direct marketing
- Product – Product variety, Quality, Design, Features, Brand name, Packaging, Sizes, Services, Warranties, Returns

The relevant variables under 4 P's considered in the study for cement industry for sales to dealer network which constitutes more than (60%) and having direct bearing and greater relevance from value chain perspective are given in Table 3.2

Table 3.2 Marketing 4 P's and Applicable Marketing Variables

S. No.	Marketing 4 P's	Applicable marketing variables
1	Place	<ul style="list-style-type: none"> • Channel • Inventory • Transport
2	Price	<ul style="list-style-type: none"> • Price • Discount • Credit term
3	Promotion	<ul style="list-style-type: none"> • Sales force • Advertising • Sales promotion
4	Product	<ul style="list-style-type: none"> • Service

Keeping in view Porter's model for marketing and sales function in cement industry as shown in Fig 3.4 the questionnaire for the study was developed for knowledge management through process and practice with associated components consisting of 65 variables. Five variables relate to competitiveness which are – market share, growth, profitability, innovativeness and responsiveness to market demand, and remaining 60 pertain to KM processes and KM practices. It may be observed from Table 3.3 that 40 questions were related to 4 P's pertaining to KM processes and remaining 20 questions were related to KM practices Table 3.4.

Table 3.3 Primary Activity and KM Processes

Primary Activity	4 P's	Focus area	Applicable KM processes
Outbound Logistics	Place	Channels	Acquire, Share, Use and Apply
		Inventory	Acquire, Share, Use and Apply
		Transport	Acquire, Share, Use and Apply
Marketing and Sales	Promotion	Sales Forces	Acquire, Share, Use and Apply
		Advertising	Acquire, Share, Use and Apply
		Sales Promotion	Acquire, Share, Use and Apply
	Price	Price	Acquire, Share, Use and Apply
		Discounts	Acquire, Share, Use and Apply
		Credit Terms	Acquire, Share, Use and Apply
Service	Product	Service	Acquire, Share, Use and Apply

Table 3.4 Secondary Activity and KM Practices

Secondary Activity	Primary Activity	4 P's	Focus area	Applicable KM practices
Human Resource	Outbound Logistics	Place	Channels	Training
			Inventory	Reward
			Transport	Training
	Marketing and Sales	Promotion	Sales Forces	Job rotation
			Advertising	Team size
			Sales Promotion	Training
		Price	Price	Recognize
			Discounts	Training
			Payment Period	Recognize
			Credit Terms	Recognize
Services	Product	Service	Training	
Information Technology	Outbound Logistics	Place	Channels	IT solution
			Inventory	IT solution
			Transport	IT support
	Marketing and Sales	Promotion	Sales Forces	IT solution and gadgets
			Advertising	IT solution and gadgets
			Sales Promotion	IT solution
		Price	Price	IT solution
			Discounts	IT solution
			Payment Period	IT solution
			Credit Terms	IT solution
	Services	Product	Service	IT solution

3.4 Hypotheses

Keeping the objectives of the study in the backdrop as given in section 2.7 of chapter 2 and the above proposed model (Fig 3.5) for KM for marketing and sales functions; the hypotheses are formulated for investigating the relationship of KM processes (Acquire, Share, Use and Apply) and KM practices (HR and IT) with competitiveness. These hypotheses are further categorized under three primary activities namely – outbound logistics, marketing and sales and services. The hypotheses formulated are as follows:

The hypotheses have been developed in a block of 9 hypotheses that is – H1 (H1a, H1b, H1c), H2 (H2a, H2b, H2c, H2d, H2e, H2f), H3, H4 (H4a, H4b, H4c), H5 (H5a, H5b, H5c, H5d, H5e, H5f), H6, H7 (H7a, H7b, H7c), H8 (H8a, H8b, H8c, H8d, H8e, H8f) and H9.

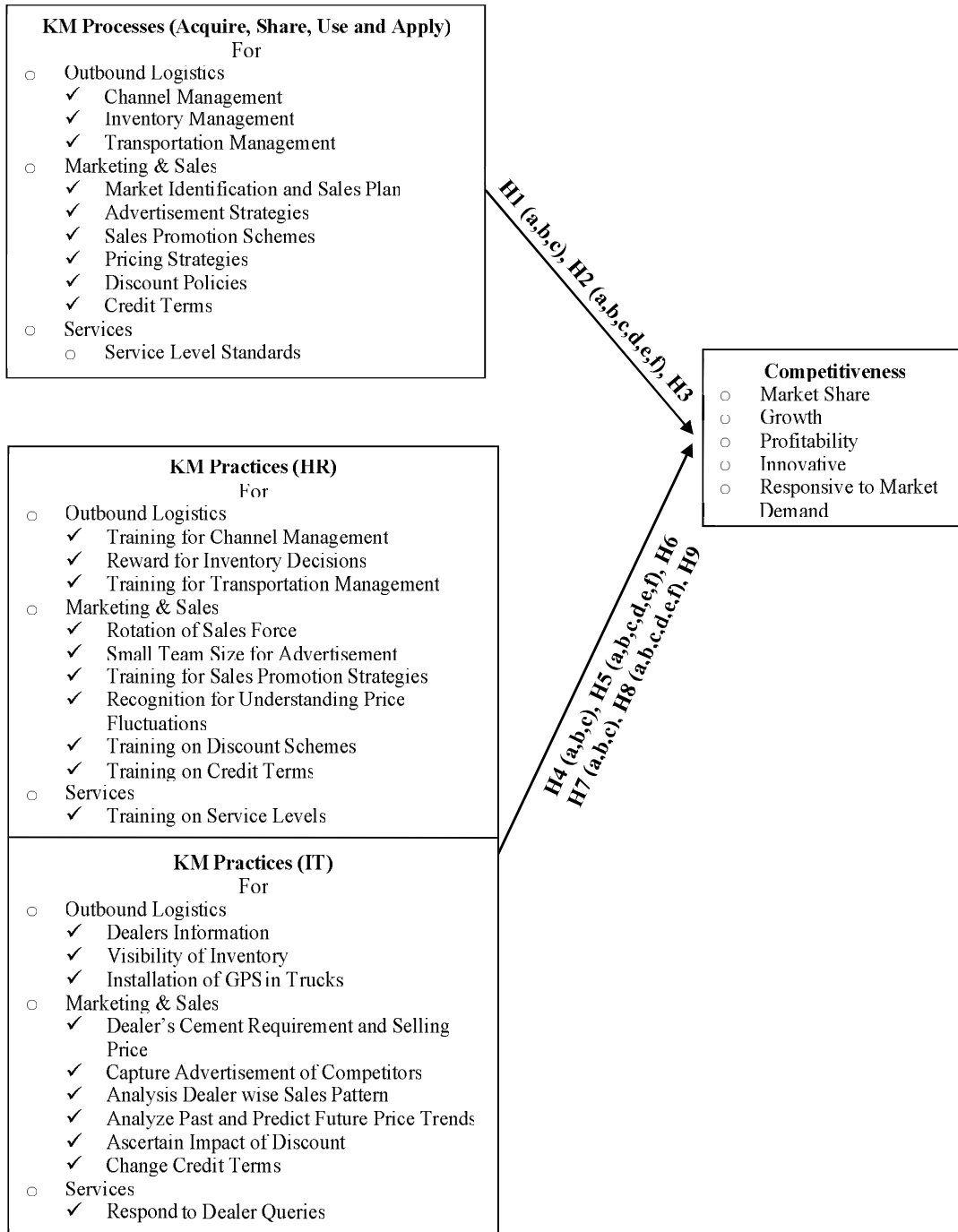


Fig 3.5 KM Proposed Model for Marketing and Sales Function

3.4.1 Hypothesis pertaining to KM processes

A literature review of various studies have emphasized upon four stages of KM processes that contribute and have a direct impact on the organizational competitiveness (Beckett et al., 2000; Danskin et al., 2005; Gold et al., 2001; Lee & Choi, 2003). KM can be viewed as a leverage mechanism for supply chain integration

and strategy alignment coupled with knowledge transfer in product development (del Rosario Pérez-Salazar, Lasserre, Cedillo-Campos, & González, 2017). Another study suggests that to successfully manage the supply chain to create customer value requires extensive integration between demand focused-processes and supply focused-processes that is based on a foundation of value creation through organizational knowledge management (Esper, Ellinger, Stank, Flint, & Moon, 2009). The relevance of KM processes for channel, inventory and transportation management becomes inevitable from an outbound logistics point of view as regards their contribution to derive competitiveness. It is in this backdrop of research study that the hypotheses H1a, H1b and H1c pertaining channel, inventory and transportation management have been developed to diagnose the implication or otherwise of the said outbound logistics variables on competitiveness.

The outcome of an empirical study carried out in a large marketing departments across five sectors suggests that companies that use KM extensively were on the whole those reported to be more innovative, readier to cope with change and better able to access knowledge than other firms. In general the contributions of KM to both direct marketing and sales management are highly regarded (Bennett & Gabriel, 1999). The significance of KM processes for market identification, sales planning, advertisement strategies, sales promotion schemes, pricing strategies, discount policies and credit terms are pertinent variables from marketing and sales perspective. With this in the backdrop, the research study has developed hypotheses H2a, H2b, H2c, H2d, H2e and H2f that pertains to six aspects of marketing and sales to analyze the implication or otherwise of the relevant variables on competitiveness.

The outcome of an empirical study carried out in Greek organizations suggest that customer-centric knowledge management requires a positive attitude and a desire to extract value for the organization by managing customer relationships over time. The organization, in order to really manage customer relationships, has to primarily develop a culture, motivating employees at all levels towards learning and facilitating them in capturing, selecting, using, and sharing knowledge by providing the means and the technology required to do so (Stefanou, Sarmaniotis, & Stafyla, 2003). The significance of KM processes is inevitable to fulfill the expected service levels of customers in terms of response time; to announce price change, to announce discounts and to fulfill orders

to derive competitiveness. With this in the backdrop the research study has developed hypotheses H3 to analyze the implication or otherwise of the relevant variable pertaining to service levels on competitiveness.

It may also be stated here that this study attempts to identify the relevance of KM processes pertaining to different stages that is acquire, share, use and apply for different aspects of marketing and sales.

Relationship of KM processes (Acquire, Share, Use and Apply) for outbound logistics with competitiveness

H1a: KM processes for channel management have positive relationship with competitiveness

H1b: KM processes for inventory management have positive relationship with competitiveness

H1c: KM processes for transportation management have positive relationship with competitiveness

Relationship of KM processes (Acquire, Share, Use and Apply) for marketing and sales with competitiveness

H2a: KM processes for market identification and sales plan have positive relationship with competitiveness

H2b: KM processes for advertisement strategies have positive relationship with competitiveness

H2c: KM processes for sales promotion schemes have positive relationship with competitiveness

H2d: KM processes for pricing strategies have positive relationship with competitiveness

H2e: KM processes for discount policies have positive relationship with competitiveness

H2f: KM processes for credit terms have positive relationship with competitiveness

Relationship of KM processes (Acquire, Share, Use and Apply) for services with competitiveness

H3: KM processes for service level standards have positive relationship with competitiveness

3.4.2 Hypothesis pertaining to KM - HR practices

HR policy and practices play a critical role in KM and are significant in aligning knowledge strategy for the firm (Hansen et al., 1999; Hislop, 2003; Yew Wong, 2005). The relevance of HR practices through KM strategies to derive competitiveness has been well established (Andreeva & Kianto, 2012; Berawi, 2004; Chuang, 2004; Gloet & Terziovski, 2004). HR practices need to focus directly to the knowledge producing capacity of the firm (Demarest, 1997). Based on the review studies combining HR and KM, it is evident that essential part of HR for KM is reward, remuneration (Mohrman, Finegold, & Klein, 2002) and employee training and motivation (Bhatt, 2001) have been identified as significant factors contributing to productivity, improvement and competitiveness.

In this backdrop, hypotheses H4a, H4b, H4c, H5a, H5b, H5c, H5d, H5e, H5f and H6 have been developed to identify HR related important variables for outbound logistics, marketing and sales, and services contributing to competitiveness.

Relationship of KM HR practices for outbound logistics with competitiveness

- H4a: KM HR practice of training for channel management have positive relationship with competitiveness
- H4b: KM HR practice of reward for inventory decisions have positive relationship with competitiveness
- H4c: KM HR practice of training for transport management have positive relationship with competitiveness

Relationship of KM HR practices for marketing and sales with competitiveness

- H5a: KM HR practice of sales force rotation have positive relationship with competitiveness
- H5b: KM HR practice of having small advertisement team have positive relationship with competitiveness
- H5c: KM HR practice of training for sales promotion strategies have positive relationship with competitiveness

H5d: KM HR practice of recognition for understanding price fluctuations have positive relationship with competitiveness

H5e: KM HR practice of training on discount schemes have positive relationship with competitiveness

H5f: KM HR practice of training on credit term negotiations have positive relationship with competitiveness

Relationship of KM HR practices for services with competitiveness

H6: KM HR practice of training on service levels have positive relationship with competitiveness

3.4.3 Hypothesis pertaining to KM - IT practices

A literature review on KM practice pertaining to IT applications have emphasized on IT applications that have a direct impact on organizational competitiveness (Andreeva & Kianto, 2012; Berawi, 2004; Chuang, 2004; Gloet & Terziovski, 2004). A study suggests that with the shift from mass marketing to one-to-one relationship marketing, one area that could greatly benefit from data mining is the marketing function itself. A systematic application of data mining techniques will enhance the knowledge management process and arm the marketers with better knowledge of their customers leading to better service to customers (Shaw, Subramaniam, Tan, & Welge, 2001). An integrated framework for CRM through the application of knowledge management technology creates value for through organizational knowledge (Bose & Sugumaran, 2003). An empirical study among the fortune 1000 firms suggests that IT relatedness has significant effect on KM capability, and KM capability in turn, has significant effects on market-based and accounting-based firm performance (Taniriverdi, 2005). A study of literature related to KM technology during its development period from 1995 to 2002 reveals its ability to continually change and obtain new understanding is the power of KM technologies and will be the application of future works (Liao, 2003)

With above in the backdrop, this study has developed hypotheses H7a, H7b, H7c, H8a, H8b, H8c, H8d, H8e, H8f and H9 to analyze the implication of the relevant variable pertaining to outbound logistics, marketing and sales, and services on competitiveness.

Relationship of KM IT practices for outbound logistics with competitiveness

- H7a: KM IT practice of providing software solutions for dealer's information have positive relationship with competitiveness M
- H7b: KM IT practice of providing IT solutions for visibility of inventory to both dealer and logistics team have positive relationship with competitiveness
- H7c: KM IT practice to support installation of global positioning system in trucks have positive relationship with competitiveness

Relationship of KM IT practices for marketing and sales with competitiveness

- H8a: KM IT practice to support sales force by providing IT solutions and gadgets to acquire dealer's cement requirement and selling price have positive relationship with competitiveness
- H8b: KM IT practice to support sales force with IT solutions and gadgets to capture advertisement of competitors have positive relationship with competitiveness
- H8c: KM IT practice of providing IT solutions to analyze dealer wise sales pattern to devise sales promotion strategies have positive relationship with competitiveness
- H8d: KM IT practice of providing IT solutions to analyze past and predict future price trends have positive relationship with competitiveness
- H8e: KM IT practice of providing IT solutions to ascertain impact of discount on organization's profitability have positive relationship with competitiveness
- H8f: KM IT practice of providing IT solution to change credit terms as agreed with the dealers have positive relationship with competitiveness

Relationship of KM IT practices for services with competitiveness

- H9: KM IT practice of providing IT solution to respond with speed to dealer queries have positive relationship with competitiveness

3.5 Conclusion

This chapter proposed a model for KM built on the foundation of the value chain model proposed by Porter to understand KM's linkage with competitive advantage in the organization through its marketing and sales function. Subsequently, keeping the objectives of the study in the backdrop and the proposed model, the hypotheses were framed for KM processes and KM practices to test and arrive at evidence based outcomes from the study.



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