

CHAPTER NO. 6

Findings, Limitations and Future Scope of Study

6.1 Introduction

This chapter presents the findings, limitations and future scope of research. The chapter begins with a summary of the study and research design that deals with discussion about final variables useful from the point of view of knowledge management to derive competitive advantage. The next section furnishes the managerial implications, followed by the limitations of the study and future scope of research. The key sections of this chapter are as under:

- Summary of the study and research design
- Findings of the study
- Key strategic aspects
- Managerial implications
- Limitations of the study
- Future scope of study

6.2 Summary of the Study and Research Design

A detailed review of literature was carried out in the field of KM and research gaps were identified with specific reference to deriving competitive advantage by using KM process and practices. The study was undertaken with the purpose of understanding the linkages of competitiveness and knowledge management practices and processes with a view to derive competitive advantage through marketing and sales domain in Indian cement companies. The need, importance and relevance of knowledge management was identified in chapter 1 especially, after post-decontrol which shifted strategic thrust from dispatch centric to more of customer centric. This has largely changed due to change in expectation of the customer such as - timely delivery of cement, competitive price, discount and sales promotion schemes, commercial terms coupled with the overall business environment.

To understand the linkage between KM and competitive advantage a proposed model was built on the foundation of the value chain model by 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 developing the KM model. For this study a total of seven constructs comprising of 65 variables have been developed to measure - KM practices pertaining to Information Technology (IT), KM practices pertaining to Human Resources (HR), KM process to acquire knowledge from market, KM process to share knowledge within the organization, KM process to use knowledge within the organization, KM process to apply knowledge back into the market for gaining competitive advantage over competitors.

The variables in the form of questionnaire were administered to TSM's for pilot and main study. The rationale to choose TSM as survey research unit was because he was the one who is responsible for implementation of policies, strategies and IT initiatives in the market. He is also the user of practices adopted for implementation of such policies and closest to market and gathers market intelligence about the overall market condition such as strategy of competitors, cement demand, supply chain capability and availability was critical for overall decision making across levels in the organization. The survey questionnaire was sent to 962 TSM's or their equivalent positions responsible for marketing and sales of cement through trade channels, assuming average sales per TSM 15000 MTPM. It was sent through email with an attachment in MS word and as a web link. Their e-mail address was gathered through the address booklet published by Cement Manufacturers' Association of India and subsequent linkages got from them. A total of 130 questionnaires were received, of which 120 were found to be valid and complete for study, which corresponds to a response rate of 12.47% (120/962). This response rate is considered to be reasonable for this study especially keeping in view the intense competition and recent norms of Competition Commission of India which inhibits marketing professionals from sharing their views and data pertaining to their company. It was observed that, out of the total respondents 77% are above the age of 36 years, 62% have experience of more than 9 years in cement marketing and sales and 86% have management qualification. The respondents represent 35% districts in the northern region which comprises 35% of all India consumption of cement, 26.2% of the districts from east comprising 19% of all India consumption, 15.3% districts from west covering 21% of all India consumption and

30.5% of districts from south covering 24% of all India consumption for the year 2016-17.

The statistical analysis performed on the data collected in this study covered analysis namely – importance index, normality assessment of data by obtaining values of Skewness and kurtosis a pre-requisite to be conducted before steps of SEM are initiated. This was followed by exploratory factor analysis using principal component analysis on seven constructs to extract components and finally confirmatory factor analysis to develop measurement and structural model. The categorization of the variables through importance index analysis suggests that the respondents had recognized that all the variables were required for the intended purpose. In the next analysis normality of the data was established through Skewness and Kurtosis, a pre-requisite before SEM analysis is carried out. The content validity was established through discussion with senior and middle management professionals from three functions – sales and marketing, supply chain and IT of cement companies in India. The combined result through reliability test and item-analysis indicated that the constructs developed were reliable, and the strength of the relationship among the variables was established through KMO analysis. Further, the varimax rotated exploratory factor analysis was carried out and it was found that 5 variables load on more than one factor. These variables were deleted as their relevance was minimal due to cross loading. Finally, for the 60 variables first the measurement model for the individual construct and combination of constructs were developed through various iterations till the fit level was attained by following the guidelines of fit levels. Once the validity for the individual and combined constructs was evaluated, an overall model was diagnosed for validity through iterations and it was found that finally with 20 variables model fit was obtained. Finally results suggest that a combination of 6 variables from KM practices and 11 variables from KM processes have a positive relationship with competitiveness that comprises of 3 variables.

6.3 Findings of the Study

KM Model for cement industry

The final model developed through structural equation modelling as given in section (5.3.5.2) reveals that KM that comprises of KM processes and KM practices has a positive relationship with competitive advantage. A total of 11 variables pertaining to KM process emerged in the final model. An important aspect that was revealed was that out of the four KM processes - *acquire, share, use and apply*, one of the KM process named as *share* did not appear as the part of four stage KM process. For the KM practice a total of 6 variables, 3 each for HR and IT practice find the place in the final model. The 11 variables of KM process and 6 variables of KM practice have a positive relationship with competitiveness that comprises of 3 variables. The list of all the 20 variables is mentioned in the Table 5.23.

Key KM variables related to competitiveness

The three key variables pertaining to competitive advantage having critical value proposition are - organization is growing faster, more profitable and more innovative by using knowledge management imperatives. Innovation is key to the growth in the 21st century which has emerged as a key variable resulting in deriving a competitive advantage. As such an innovative company is expected to have a faster growth and could create benchmarks in critical marketing and sales function to derive greater profitability. The two variables under the competitive advantage which did not find a place based on the findings of the study in context to cement industry are responsiveness to customer and the market share.

Critical variables of KM processes affecting competitiveness

The KM processes in a cement organization especially pertaining to channels, inventory and modes of transportation play an important role in timely meeting customer requirements through dealer network. These three aspects of KM processes contribute significantly to the value chain through marketing and sales function for deriving competitive advantage.

It is evident from the supported hypothesis that knowledge management intelligence processes through sales force teams to know about the upcoming construction projects in different sales territories and proactively pass over the same for developing effective marketing plan and sales promotion strategies contributes directly to value chain in achieving competitive advantage.

The findings also reveal that pricing strategies and credit terms are critical variables for cement industry from KM process perspective as they have greater bearing on the overall value chain for deriving competitive advantage as compared to advertising strategies and sales through discounts as a means for achieving goals.

The KM processes that pertain to service level standards of fulfilment of expectations of dealer in terms of response time, announcement of price change and discounts and fulfilling the orders have not emerged as critical variables. This may need further exploration in the present emerging scenario to substantiate its relevance or otherwise.

Critical variables of KM HR practices affecting competitiveness

The human resource development practices through KM pertaining to participation of employees in seminars on sales promotion, training on carrying out cost benefit analysis of discount schemes and training in credit terms negotiations contribute directly to the value chain for deriving a competitive advantage. It is evident from the study that training particularly related to channels, inventory management, transportation modes which are mostly logistics in nature have not emerged as critical variables affecting competitiveness. The study also reveals that rotation of sales force from one territory to another, small team size deployment in advertisement function and recognition for price fluctuations does not contribute much value in the whole chain in cement industry.

Critical variables of KM IT practices affecting competitiveness

The findings reveal that IT support through KM practices contributes great value through pricing, discount and credit terms decisions which need to be continuously examined through inputs from IT practices to derive competitive advantage. However, KM IT practices pertaining to channels information and visibility of inventory to both dealers and logistics teams does not contribute much value to the whole value chain.

The findings reveal that installation of GPS in trucks through IT practices does not contribute much value to the competitive advantage in the present state of the industry. However, this appears to be important variable and is likely to emerge as a critical factor in the coming years. This aspect may need further study.

6.4 Key Strategic Thrust Areas for Deriving Competitiveness through KM

The key strategic thrust areas by imbibing knowledge management processes and practices in a cement industry that would have a greater bearing on deriving competitive advantage are as under:

Sales promotion: This thrust area has emerged as the domain that may be impacted by both KM practice and KM process. The KM practice for this area suggests need for investment on human resource development of sales team to learn and apply Knowledge management inputs that would help sales team to be innovative in designing sales promotion strategies. The KM process pertaining to sales promotion recommends focus on three stages - understanding strategies of competitors, developing new and effective sales promotion strategies and their timely implementation. The implications of knowledge management in the area of sales promotion strategies to derive competitive advantage has emerged as the single most critical aspect that need to imbibe continuously in cement industry.

Marketing plan: Developing a robust marketing plans and effectively executing them by recourse to relevant knowledge management inputs contribute to faster growth of the company. This aspect has emerged as an important input for deriving competitive advantage and basically requires continuous updating of knowledge and intelligence related inputs from a sales force. Study has revealed that more than preparing a marketing plan, providing allocating due resources becomes a prerequisite for effective implementation.

Dealer expansion: Dealer expansion strategies emanating from knowledge management inputs has emerged as critical factor for deriving competitive advantage. The study reveals that more than formulating the strategies what matters the most is the effective implementation of such strategies for expanding dealer network.

Demand and supply: One of the key challenge for the cement industry is to timely cater to the requirement of dealers spread across geographical territories. This requires continuous logistics planning and optimization on transportation of cement through appropriate modes. This aspect from logistics point of view has emanated as critical input. Professionals in the cement industry need to continuously acquire data on demand of dealers and match it with appropriate strategies to ensure that such knowledge management inputs get duly incorporated to ensure delivery to dealers on time.

Price and Discount: The combined impact of discount and price influences the profitability in a cement industry. The findings of the study corroborate that desired benefits of discount be acquired through HR and IT practices by imparting training to sales teams on cost benefit analysis duly supported by IT solutions. IT solutions need to be emphatically deployed for analysis of past to predict future prices, so as to develop effective implementation of pricing strategies resulting into enhanced profit and profitability. The application of knowledge management processes and practices pertaining to pricing decisions for swiftly catering to the demand would play a critical role.

Credit terms: The knowledge management inputs for coming out with rational and objective credit terms for dealers plays a significant role for increased sales and profits. It is evident from the findings of the study that acceptable and judicious credit terms for dealers to sell cement in the market coupled with having a system to provide IT solutions to change credit terms as agreed to by the dealers contributes to achieve higher sales with marginally adverse implications on profit. The study also reveals that recognition for negotiating better credit terms for the company by the sales force contributes directly to profit and in turn competitive advantage.

6.5 Managerial implications

In the present and future emerging business environment, companies will continuously strive to take strategic moves to be ahead of competitors by focusing on knowledge management processes and practices. The challenge in front of the leadership would be to design, develop and implement the practices and processes in the area of knowledge management. The findings of this study will have direct strategic relevance to the marketing and sales professionals of cement industry in India to acquire, use and apply knowledge for deriving competitive advantage.

The study suggests two aspects to be considered for designing, developing and implementing KM processes and practices. The study reveals that KM processes and practices are complementary to each other and therefore have to be viewed in an integrated manner. The one without the other would not yield desired results to derive competitive advantage. However, it is important to keep in mind that KM processes that are imbuing knowledge inputs from acquiring to applying and knowledge management practices related to IT and HR are equally important. However, based on the factor loading processes aspects related to KM were found to be having marginally upper edge.

The relevance of HR practices pertaining to developing and implementing effective training modules for sales promotion, cost benefit analysis and negotiation capabilities pertaining to credit terms significantly contributes to competitive advantage. Therefore, top management in cement industry need to specifically focus on training budgets commensurate with the needs as also encourage employees to compulsorily participate in the training modules developed for improving their performance. In addition, recognition should form an integral part of overall performance appraisal framework such that the marketing professional is not only recognized for his sale performance but also for the business acumen that actually translates into increase in profitability.

The other KM practice component pertains to IT which has become an integral part and parcel of majority of businesses including cement industry. The managerial implications pertaining to IT use in cement industry need to basically focus on providing IT solutions with their updated version for ease of carrying out business and

help in taking informed decisions contributing to profit and profitability. IT solutions have to be embedded into decisions related to analyzing past and predict future prices, ascertain impact of discount and change credit terms as agreed with the dealers within the perspective of cost benefit analysis.

The process related managerial implications that mainly revolve around generating cement requirement of dealers of the company in all the market and process for logistics team to distribute cement as per developed distribution plan to the dealers in all markets.

The findings of the study would mainly encourage top management in the cement industry to not only appreciate the relevance and importance of KM processes and practices but also directly help them in picking up the critical threads based on empirical evidences that would help them to be ahead of the competitors by investing in critical areas of knowledge management pertaining to marketing and sales function of cement industry.

6.6 Limitations of the Study

Some of the important limitations of this study are as under:

1. The sample has only focused on TSM's for responses to structured questionnaire and does not consider other professionals at the all India level, zonal level and regional level in the marketing and sales function. This may lead to response bias due to single type of respondent and not considering other professionals in the hierarchy who refrain from getting the KM perspective in totality.
2. Although 962 TSM's were sent the questionnaire but the response received was only from 120 which might have had certain implications on the statistical results and findings thereof.
3. The demand for cement sales was only considered for the residential segment that pertains to retail segment and did not include other two segments namely

- infrastructure and commercial. Therefore, the implications of the findings arrived at from the study cannot be generalized to cement industry as a whole.
4. The study focuses only on marketing and sales function of cement industry and has not covered other aspects of inbound logistics pertaining to manufacturing aspects in the value chain to derive competitive advantage.
 5. The questionnaire was only focused on the professionals having a desired stipulated experience of serving as TSM's in cement industry and therefore had limitation of capturing implications of KM from the perspective of other stake holders such as dealers, transporters, retailers etc. The holistic perspective of different stakeholders might result in capturing broader perspective of KM applications in deriving competitive advantage.

6.7 Future Scope of Research

The above mentioned limitations of the study suggest a number of areas to carry out further research and augment the studies on knowledge management and its implications on competitive advantage. These are as under:

The future research could include other marketing and sales professionals employed at the all India level, zonal level and regional level in cement companies in India to investigate empirically relationship with and impact of knowledge management on competitiveness by incorporating multiple perspective.

The approach of cement sales practices in commercial and infrastructure segment differs from that of sales to residential segment. Therefore, a study that includes response from the marketing and sales teams that deal with commercial and infrastructure segment would be useful to provide a comprehensive picture of cement industry as a whole from the marketing and sales perspective relating to knowledge management.

In the cement business the external stakeholders such as dealers, transporters, retailers etc play a very important role and capturing their perspective from knowledge management point of view would be useful to understand the broader perspective of KM applications in deriving competitive advantage.

The entire value chain of cement industry begins from limestone mines to finished product as cement that is delivered to the customer in the market. In order to understand the knowledge management through this entire value chain of cement production, the study could include both the domains of cement industry that is manufacturing and marketing along with their relevant functions.

The outbound logistics in cement industry is a critical function since company officials in recent times desire to know on a continuous basis about the cement movement through trucks from plant to market. The tracking of such a movement requires GPS installation in trucks. A detailed study about the cost benefits of GPS vis-à-vis customer service from the knowledge management perspective would be useful.

The KM processes that pertain to service level standards of fulfilment of expectations of dealers in terms of response time, announcement of price change and discounts and fulfilling the orders may be useful to have an edge over competitors. This may need further exploration in the present emerging scenario to substantiate its relevance or otherwise.

Above all out of the four knowledge management processes – acquire, share, use and apply, one stage i.e. share did not find a place in the final model. There could be multiple reasons for the same such as – sample, nature of the industry, tacit and explicit knowledge and their implications on sharing etc. However, this may require further investigation.



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