

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The first chapter provided an overview of the research study, highlighting emerging relevance of KM as a strategic tool in Indian cement industry. This chapter has undertaken a detailed literature review in the field of KM to identify the research gaps with specific reference to deriving competitive advantage by using KM process and practices. Based on the identified research gaps the chapter highlights the research questions to define the objectives of the study and hypothesis to be tested.

#### **2.2 Knowledge**

##### **2.2.1 Definition of Knowledge**

Knowledge has been defined in a variety of ways by different authors in different contexts. Some of the prominent definitions are as under:

- Knowledge is defined as an action, or a potential of an action, that creates, or has the potential to create, value based on data or previous knowledge, and/or information (Russ, 2010)
- Knowledge may be viewed from several perspectives (1) a state of mind, (2) an object, (3) a process, (4) a condition of having access to information, or (5) a capability (Alavi & Leidner, 2001)
- Knowledge is cumulative experience in things such as manufacturing, engineering and sales, coupled with external information about the organization's critical resources (Civi, 2000).
- Knowledge is described as the “experience, concepts, values, beliefs and ways of working that can be shared and communicated”(Sainter, Oldham, Larkin, Murton, & Brimble, 2000)
- Knowledge can be viewed as a capability with the potential for influencing future action (Carlsson, El Sawy, Eriksson, & Raven, 1996)

- Knowledge is a dynamic human process of justifying personal belief toward the “truth”, while information is only a commodity capable of yielding knowledge (Nonaka & Takeuchi, 1995)
- Knowledge is defined as a justified belief that increases an entity's capacity for effective action (Huber, 1991; Nonaka, 1994)

It is evident from the above that knowledge is an experience, concepts, beliefs, and ways of working that build entity’s capacity and capability based on data and information for favorably influencing future action.

### **2.2.2 Importance of knowledge**

Organizations possess numerous resources, but it is the resources that are unique, inimitable, and valuable that are central to competitive advantage (J. Barney, 1991; J. B. Barney, 1986; Prahalad & Hamel, 1990; Wernerfelt, 1984). An organization's knowledge base is one such resource. Firms increasingly rely on building and creating knowledge as a necessary condition to survive in their respective competitive market places (Huber, 1991; Nonaka, 1994; Stinchcombe, 1990). The view that knowledge is the source of corporate competitiveness is widely shared in our society, and companies are focusing their efforts on how to accumulate and utilize knowledge as an internal resource (Takahashi & Vandenbrink, 2004). From the Resource-Based View theory (J. Barney, 1991; Peter Drucker, 2000; Grant & Spender, 1996; Penrose, 1959), knowledge is recognized as the one and only distinct resource and the key differentiator and crucial for any organization to maintain its competitive advantage (Suppiah & Singh Sandhu, 2011). The manner in which business strategy was formulated over the last five to ten years is now becoming redundant in the fast changing business environment. This phenomenon can, to a great extent, be attributed to a shift in the strategic importance of information and knowledge (Snyman & Kruger, 2004). For business interest all the three integral components of knowledge namely – knowledge of self, knowledge of customers and knowledge of competition are important for competitive success (Mruthyunjaya, 2011) (Fig 2.1).



Source: Knowledge Management, H.C. Mruthyunjaya, page no. 59

**Fig 2.1 Integral Components of Knowledge of Business Interest**

Thus, it is becoming evident that organizations have started acknowledging the importance of knowledge. They are paying due attention to knowledge as it has been identified as a critical internal resource that is needed to be competitive at the market place.

### 2.2.3 Classification of knowledge

Knowledge has been classified in many different ways. The few classifications are discussed below:

**Tacit and Explicit:** The two types of knowledge identified are tacit and explicit (Polyani, 1966). The explicit knowledge can be expressed in words and numbers and shared in the form of data, scientific formulae, specifications, and manuals, it can therefore be readily shared between individuals formally and systematically; whereas tacit knowledge includes subjective insights, intuitions, hunches and is highly personal and hard to formalize, as well as is difficult to communicate or share with others (Nonaka & Konno, 1998).

**Individual and Collective:** Individually held knowledge is the sum total of individuals' competencies, information, and knowledge (Zander & Kogut, 1995), whereas collective knowledge consists of organizing principles, routines and practices, top

management schema, and relative organizational consensus on past experiences, goals, missions, competitors, and relationships that are widely diffused throughout the organization and held in common by a large number of organizational members (Lyles & Schwenk, 1992; Zander & Kogut, 1995).

**Personalized and Codified:** The personalized knowledge is closely tied to the person who developed it and is shared mainly through direct person-to-person contacts. On the other hand, Knowledge that is carefully codified and stored in databases, where it can be accessed and used easily by anyone in the company is called as codified knowledge (Hansen et al., 1999).

**Codified, Common, Social and Embodied:** Codified knowledge is made explicit by human, the common knowledge is accepted as standard without having been made formally explicit, the social knowledge is about interpersonal relationships and cultural issues and the embodied knowledge is the experience, background and skill a person has accumulated during their lifetime (Blumentritt & Johnston, 1999).

The tacit and explicit classification of knowledge is most widely cited. Organizational knowledge is created by a continuous dialogue between tacit and explicit knowledge, and there are four patterns of interaction including socialization, internalization, externalization, and combination within a “spiral” model (Nonaka, 1994).

Thus, from the above classification it can be inferred that there are two broad types of knowledge one is in the written form while the other is in the unwritten form. It is possible to convert the knowledge from one form to the other and thus enrich the knowledge.

### **2.3 Knowledge Management defined**

Some definitions of knowledge management mentioned in the literature are presented below:

- Knowledge management is a discipline and function in which knowledge is created, acquired, shared, codified, and utilized through an enabling environment to increase

innovation and organizational performance (Andreeva & Kianto, 2011; Hajir, Obeidat, Al-dalahmeh, & Masa'deh, 2015; Zack, McKeen, & Singh, 2009)

- Knowledge management is defined as the formal process of determining what internally held information could be used to benefit a company and ensuring that this information is easily made available to those who need it; in other words, the effective use of systems to collect, use and reuse the knowledge within the firm (Harlow, 2008).
- In the current phase of global competition, manufacturing as well as service firms must improve their core competencies by constantly learning and adapting to rapidly changing business environment/conditions. Knowledge management is often perceived and proposed as a key enabler for building such a competency (Wang, Klein, & Jiang, 2007)
- Knowledge management is defined as the deployment of a comprehensive system that enhances the growth of an organization's knowledge (Salisbury, 2003)
- Knowledge management orientation is a broader concept, encompassing both market based information and information about non-market factors such as technology and internal financial information (Darroch & McNaughton, 2001)
- Knowledge management is referred to identifying and leveraging the collective knowledge in an organization to help the organization to compete (Von Krogh, 1998)
- Knowledge management is defined as a discipline with the objectives of promoting knowledge growth, knowledge communication, and knowledge preservation within an organization (Steels, 1993)

Thus, KM is a function that has systems and processes in place for individuals to continuously acquire knowledge, share knowledge, use knowledge and apply knowledge that help the organization to compete

#### **2.4 KM - Relationship with Organizational Outcome**

The impact of KM on an organization as studied by researchers has been found in range of organizational outcomes, namely – competitiveness, innovation, organization performance, financial performance, quality and strategic benefit. The key aspects focused by majority of studies revolve around competitiveness and innovation. The

relationship between KM and Organizational outcome as highlighted by some of the prominent studies is mentioned in Table 2.1.

**Table 2.1 Select Studies on Relationship between KM and Organizational Outcome**

S.no.	Author	Purpose	Key Findings
1	(Shujahat et al., 2017)	To investigate the neglected and pivotal mediating role of knowledge-worker productivity between knowledge management processes (knowledge generation, knowledge sharing, and knowledge application) and innovation	The results support the pivotal role of knowledge worker productivity- the most striking challenge for the management discipline in the 21st century-in knowledge-based innovation
2	(Muthuveloo, Shanmugam, & Teoh, 2017)	To explore and determine if organizations have strategies for tacit knowledge management which is expected to influence their organizational performance both tangibly and intangibly	The outcome of the statistical analysis showed that tacit knowledge management has significant influence on organizational performance.
3	(Herwig, Garcia-Aponte, Golabgir, & Rathore, 2015)	An opinion on KM in the quality by design (QbD) paradigm as it relates to the manufacturing of biotech therapeutic products.	It is concluded that there is an urgent need for the biotech industry to create efficient KM approaches if they wish to be successful in QbD implementation
4	(Andreeva and Kianto, 2012)	To examine the link between KM practices, firm competitiveness and economic performance	The results show that HRM and ICT practices for managing knowledge are quite strongly correlated and have a statistically significant influence on both financial performance and competitiveness of the firm.
5	(Zack et al., 2009)	To report the results of an exploratory investigation of the organizational impact of KM	KM practices found to be directly related to organizational performance, which, in turn, was directly related to financial performance. There was no direct relationship found between KM practices and financial performance.
6	(Danskin et al., 2005)	To investigate KM specifically through the relationships and interconnections of KM systems, strategy and firm performance across the value chain	Differentiation through knowledge is difficult in practice
7	(Berawi, 2004)	To develop a model for management team that enables them to anticipate the direction in which competitive advantage through design should head.	KM affects competitive advantage through its effect on quality management to compete and survive in the challenging global market place
8	(Chuang, 2004)	Develop the concept of KM as an organizational capability and empirically examines the association between KM capabilities and competitive advantage	Positive relationship among human KM resource, structural KM resource, and cultural KM resource and competitive advantage. And inconsistent statistical findings about the relationship between technical KM and competitive advantage

Table 2.1 (Contd..)

S.no.	Author	Purpose	Key Findings
9	(Gloet and Terziovski, 2004)	To explore relationship between KM and innovation and its impact on performance	Relationship between combination of KM practices - IT and HR and innovation is positive as well as reliable.
10	(Lee and Choi, 2003)	To establish credibility between knowledge creation and organization performance	An organization can achieve strategic benefits of knowledge management through effective knowledge creation.
11	(Darroch and McNaughton, 2003)	To find firms with KM orientation outperform firms with market orientation.	Firms adopting more knowledge management practices are more innovative and display superior financial performance.
12	(Forcadell and Guadamillas, 2002)	To analyze the implementation of an innovation and KM strategy in the Irzar company, a maker of luxury coach bodywork.	KM can be used by a firm as a method to develop a process of continuous innovation.
13	(Bhatt, 2001)	To clarify the concept of knowledge management and show why technological as well as social systems become critical in knowledge management.	To derive maximum benefit of knowledge management for competitive advantage, balance between social and technical facets of organization is essential to create, internalize and apply the new knowledge in products, processes and services for value-addition.
14	(Gold, Malhotra, and Segars, 2001)	To examine the effectiveness of KM from the perspective of organizational capabilities that is knowledge infrastructure and process	A KM model is proposed and results show that knowledge infrastructure capabilities and knowledge process capabilities impact organisational performance.
15	(Beckett, Wainwright, and Bance, 2000)	To clarify what KM actually constitutes to both the organization and the individuals within it	Develops a framework with three KM strategies – acquisition, retention, and exploitation, to gain competitive advantage.
16	(Argote and Ingram, 2000)	To understand how organizations can derive competitive advantage by transferring knowledge internally, while preventing its external transfer to competitors	Knowledge embedded in the interactions of people, tools, and tasks provides a basis for competitive advantage in firms.
17	(Civi, 2000)	To understand Knowledge management is an important competitive asset.	Knowledge does not expand across an organization on its own. It has to be managed with KM initiatives such as creation of knowledge teams, sharing of best practices, development of knowledge databases, creation of knowledge centres and use of collaborative technology to respond to competitive pressure.
18	(Braganza, Edwards, and Lambert, 1999)	To understand the contribution that KM makes to an organization's ability to innovate and, ultimately to be competitive.	Proposes a framework, named as "knowledge-innovation diamond-a portfolio for knowledge projects", that enables organizations to leverage knowledge to innovate for organizations to be finally competitive

The focus on resources that are developed within the organization and difficult to imitate puts organizational knowledge in a preeminent position as a principal source of competitive advantage (Spender & Grant, 1996; Teece, Pisano, & Shuen, 1997). The competitive firms are hypothesized to be able to win a large number and high value of projects, likely to have superior financial performance in the form of profitability and display high level of performance (Ling, Li, Low, & Ofori, 2012). To succeed in business, a firm needs to adopt generic competitive strategies comprising of cost leadership, differentiation and focus (M.E. Porter, 1980). These generic strategies require specific efforts to realize the benefits in terms of competitive advantage. To achieve cost leadership firms need to make efforts namely - by lowering its production and marketing costs (M.E. Porter, 1980), by reducing costs in administrative activities (Kale & Arditi, 2002), by ensuring that their staff undergo training regularly (Warszawski, 1996). In terms of differentiation strategy the firms can differentiate with their competitors by providing unique products and services combined with creative marketing, so that a firm can create and nurture strong brand recognition and customer loyalty (M.E. Porter, 1980), firms can gain competitive advantage by innovating and competing on the basis of product or process innovation (Pries & Janszen, 1995), by fostering innovation and creativity as well as building a reputation of being technologically advanced, a firm is assured of meeting the interests of new clients as well as catering to the demands of existing clients for uniqueness (Allen & Helms, 2006). A firm may achieve a strategic advantage by choosing to specialize and focus on a niche market instead of competing broadly in the market (M.E. Porter, 1980). In a focus strategy, firms should focus on certain geographical areas and certain types of projects, clients and services (Shen, Li, Drew, & Shen, 2004; Veshosky, 1994; Warszawski, 1996).

Thus, it is evident that knowledge management is important for an organization to derive competitive advantage against its competitors.



## 2.5 KM Studies

### 2.5.1 Research methods used

A study on the KM research (Dwivedi et al., 2011) published in various peer-reviewed journals during the past 34 years between 1974–2008 was carried out through a combination of bibliometric analysis, historic analysis (Chao, Yang, & Jen, 2007), and meta-analysis (Avison, Dwivedi, Fitzgerald, & Powell, 2008; Dwivedi & Kuljis, 2008; Dwivedi, Lal, Mustafee, & Williams, 2009; Palvia, Pinjani, & Sibley, 2007; Williams, Dwivedi, Lal, & Schwarz, 2009) to categorize the accumulated knowledge on KM research. A very large proportion of articles out of 250 were of empirical nature (115), in comparison to the articles that fell within the non-empirical category (92). However, for 43 articles it was not possible to determine if they were empirical or non-empirical in nature due to lack of information provided.

In another KM research (Serenko & Dumay, 2015) all articles having 145 or more citations as of January 3, 2014 were extracted and then was developed a list of citation classics published in knowledge management (KM) journals and analyzed the key attributes and characteristics of the selected articles to understand the development of the KM discipline. The study revealed (Table 2.2) that literature reviews are most prevalent (Bhatt, 2000) followed by case studies (Ardichvili et al., 2003) and surveys (Yahya and Goh, 2002), viewpoints, articles with no empirical or literature support presenting a personal opinion of the author, are also prominent (Gurteen, 1998; McElroy, 2000).

**Table 2.2 Research Methods Used**

<b>Method</b>	<b>No. of articles</b>
Literature review	52
Case study	20
Survey	18
Viewpoint	14
Interviews	8
Other qualitative	7
Action research	1
Modeling tools	1
Total	121
Note: Up to three research methods were recorded per article	

Adapted from (Serenko & Dumay, 2015), page no. 409

The study conducted a systematic literature review (Mariano & Awazu, 2016) of 101 articles published during past 18 years (1997-2015) in seven journals retrieved from EBSCO and Google Scholar online research databases. The review suggested that from a methodological perspective, 44 per cent were conceptual articles (Sánchez-Alonso and Frosch-Wilke, 2005) and 66 per cent were empirical articles (Kajamaa, 2011).

Above literature review reveals methodologically a distinct shift in favor of empirical studies, which is increasing over years as against non-empirical studies in the field of knowledge management.

### **2.5.2 KM - Country-wise and Industry coverage**

A review of 1,043 articles on KM, published in various peer-reviewed journals between 1974–2008 suggests top three countries in terms of highest publications as USA, UK and Germany with 321, 162 and 104 publications respectively (Dwivedi et al., 2011). Further a KM research carried out during the period 1980-2014 results in a sample of 3198 articles with top three countries emerging in terms of highest publications as China, US and UK with 668, 363 and 253 publications respectively (Appendix III) (Akhavan, Ebrahim, Fetrati, & Pezeshkan, 2016). The share of articles published on KM as a percentage of total from USA and UK put together has decreased from 46.3% (1974-2008) to 19.3% (1980-2015), while during the same period for China, it increased from 4.2% to 20.9% and that for India increased from 1.3% to 1.5%.

This suggests a shift in the trend of KM publications from developed to developing countries. China has emerged as one of the dominating countries wherein publications in the area of knowledge management have increased markedly and it has emerged as a country having maximum publications during 1980-2014; surpassing USA and UK. There is still a huge potential for Indian economy to focus their research efforts in the field of knowledge management as share of studies in India lag far behind China and other countries such as USA and UK.

The aspects of KM and its relationship with competitiveness in organizations have been studied in different ways in diverse industries such as Textile, Pharmaceutical, Manufacturing, Steel, Biotech etc.

A case study of Invista (Du Pont subsidiary, USA) suggests that differentiation through knowledge is difficult in practice although Invista has taken initial steps to develop knowledge management systems that connect the internal and external knowledge base to gain competitive advantage (Danskin et al., 2005).

The exploratory study related to the Indian pharmaceutical industry suggests that knowledge creation and its management with respect to the existing molecules represents more explicit knowledge and the new therapeutic molecules embody more of tacit knowledge leads to sustainable competitive advantage (Sharma and Goswami, 2009).

An empirical study pertaining to manufacturing industries in both the private and public sectors in Australia and New Zealand shows that KM contributes to innovation performance when a simultaneous approach of “soft HRM practices” and “hard IT practices” are implemented (Gloet and Terziovski, 2004).

A Case study of USA based Nucor steel company reveals that its phenomenal success cannot be explained by external factors such as industry structure, access to technology, raw materials, location, distribution channels, brand and market power. It has been due to tremendous knowledge sharing environment with regard to plant construction and start-up, manufacturing processes and ability to adopt breakthrough technologies earlier and more effectively than competitors (Gupta and Govindarajan, 2000).

In the quality by design (QbD) paradigm, global regulatory agencies have introduced the concepts of quality risk management and knowledge management (KM) as enablers for an enhanced pharmaceutical quality system. The authors conclude that there is an urgent need for the biotech industry to create efficient KM approaches if they wish to be successful in QbD implementation (Herwig et al., 2015).

It is evident from the literature review that there has been a sporadic focus on different industries with particular reference to textile, pharma, biotech, steel mainly in countries such as USA, UK, New Zealand and Australia. An integrated perspective to implement knowledge management HRM and IT practices has been identified as a key contributor

to innovation. However, the uniformity in approach towards implementing and assessing the industry specific benefits of KM need to be more deeply probed and further developed across industries and countries.

### **2.5.3 KM in India**

A study of research trends in knowledge management for the period 1974-2008 reveals that India had produced 14 studies on KM (Dwivedi et al., 2011), similar study for the period 1980-2014 reveals that from India KM publications stood at 49 (Akhavan et al., 2016).

A study to understand KM practices was carried out in select Indian industries, which are typically manufacturing industries such as automobile, machine tools, electronics-telecommunication-IT, chemicals, etc. The results indicate that the main reasons why these organizations are focusing on KM are gaining competitive advantage and creating new knowledge. However, culture and financial constraints are amongst the highest ranked barrier for KM implementation. The priorities that Indian organizations have towards gaining competitive advantage include quality, cost reduction, improvement in efficiency, improved delivery, flexibility and innovation. The industries covered in this study include – manufacture of automobiles, machine tools, electronics and telecommunication, chemicals and others (Singh, Shankar, Narain, & Kumar, 2006).

In Indian pharmaceutical industry a study was carried out with the purpose to develop a systematic and dynamic model of knowledge creation and it concluded that organizations will have to reach out for tacit knowledge and enhance the stock knowledge by constantly absorbing and assimilation of new ideas and research findings. This is because the environment in which Indian pharma companies operate is changing in terms of contract research, in-licensing, out-licensing where strategic intent also changes and gets redefined (Sharma & Goswami, 2009).

A study on dimensions of KM namely: process, leadership, culture, technology, and measurement are compared across the three industries in India to understand the differences in KM practices in these industries. This study used structured questionnaire -Knowledge Management Assessment Tool (KMAT) developed by the American Productivity Council and Arthur Anderson. This questionnaire was administered

among the Indian manufacturing, IT Enabled Services, and power generation and distribution companies. The study found that the extent of knowledge management implementation in IT Enabled service organizations is higher compared to both manufacturing, and power generation and distribution companies (Chawla & Joshi, 2010).

In another study it was found that organizations by implementing innovative knowledge management strategies can sustain economic downturn as well as maintain business relationship with the internal and external world (Mehta *et al.*, 2011).

In an analysis of 12 manufacturing SME's, potential factors affecting knowledge management were identified as – in-depth study of market orientation, learning from consultants, attending conferences/workshops outside India specific on particular topic subtopic of manufacturing processes, use of online websites, blogs and interactive sessions with workers. The study also reveals that it is more of individual barriers in Indian SMEs compared to organizational and technological barriers in knowledge management (Vasudevan & Chawan, 2014) .

To identify clusters of knowledge management practitioners in Indian organizations, a study formulated and validated six constructs pertaining to knowledge management – planning and design, implementation and evaluation, leadership, technology, culture and structure to influence performance both financial and non-financial. A questionnaire developed for these constructs and finally administered to the respondents from 65 organizations drawn from a broad spectrum of industry sectors like computer hardware, software, telecommunications, automobile, consulting, power etc. The results identified three clusters labeled as “Active KM Practitioner”, “Partly KM Practitioner” and “Passive KM Practitioner”. It was also found that there is significant difference in the priorities attached by these practitioners to knowledge management with highest by “Active KM Practitioner”, moderate by “Partly KM Practitioner” and lowest by “Passive KM Practitioner” (Joshi, Chawla, & Farooque, 2014).

Indian Knowledge Management researchers during 1999-2007 as reflected in Scopus database have produced 51 publications, that is 5.67 average publications per year

(Surulinathi, Amsaveni, Maheswaran, & Srinivasaraghavan, 2009) as against world-wide total KM papers published during 1974-2008 were 1043 with an average of 30.67 per year (Dwivedi et al., 2011). This suggests that Indian KM researchers' contribution towards the world KM research output is relatively low.

An exploratory study about Knowledge Management in practice at ICICI (India) identified the critical success factors which play a prominent role in Knowledge Management as – co-operation, motivation level, top management support and work culture play a prominent role (Goswami, 2008).

There is no dearth of ideas and knowledge in India, but many brilliant ideas are wasted because top management lacks interest in knowledge activities (Malhan & Gulati, 2003).

It can be summarized from the above literature review on KM in India that –

- Overall KM research has been less in India compared to what has taken place across the world.
- A wide range of sectors have been covered such as - computer hardware, software, telecommunications, automobile, consulting, power, IT enabled services, power generation and distribution, manufacturing, pharmaceutical. However, no major study pertaining to cement industry could be identified that too with specific reference to implications of marketing and sales functions to derive competitive advantage.
- In totality, the benefits of KM implementation in Indian organizations are evident, however, a comprehensive and integrated perspective is lacking.

#### **2.5.4 Function focus**

An organization typically has functions such as – Production, Marketing, Outbound and Inbound Logistics, R&D, HR, Procurement etc. The study of KM's and its relationship impact within these functions has been limited. A few studies within some of these functions to identify impact of knowledge management are as under:

The outcome of an empirical study of organizational factors and knowledge management within large marketing departments in large UK companies across five industry 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 (Bennett and Gabriel, 1999).

In a South Wales based steel plant the knowledge acquisition methodology (KAM) and knowledge management methodology (KMM) were adopted for the development of a knowledge-based system (KBS) to estimate the cash cost performance of the product delivery process of steel plants. The structured KBS provides insight that does not vary from expert to expert as long as input data is the same, and structured KAM and KMM employed proved vital for the development of the KBS (Naylor, Griffiths, and Naim, 2001).

An outcome of an empirical study carried out among the manufacturing and industrial service companies of various sizes identified from the directory of Federation of Malaysian Manufacturers reveals that SCM (Supply Chain Management) practices namely - information sharing, integration, on-time delivery, response time and communication of strategic needs, interaction with the KM capabilities pertaining to technology, structure, culture and process, to influence firm performance in terms of market share, ROI (Return on Investment), overall product quality, overall competitive position, and overall customer service levels (Wong and Wong, 2011).

In a study on Spanish SME's results confirm that information technology-supported operations and commitment-based human resource practices have a positive and significant influence on KM capability. In contrast results do not support the relationship between interdepartmental connectedness and KM capability whereas both KM capability and environment dynamism have a direct influence on open innovation (Martinez-Conesa, Soto-Acosta, & Carayannis, 2017).

It is evident from above that KM practices and processes at the functional level are less and lack comprehensive perspective. This calls for more KM studies at the functional

level which could then be aggregated at the organizational level to identify the impact of KM on organizations performance.

### 2.5.5 Combined impact of KM processes and practices on organization

The stages of KM processes can be defined as – acquire, share, use and apply and the components of KM practice as HR (Human Resources) and IT (Information Technology). The investigation pertaining to KM processes reveals that in an organization impact of one stage or combination of stages of KM processes is either individually or collectively on organization performance, competitive advantage, financial performance and innovation. The impact of both components namely HR and IT was found to be having direct relationship with economic performance, competitive advantage and capability to respond to competitive pressure. The studies of overall impact of KM processes and practices is mainly on organization and financial performance coupled with innovation. The multiple combinations of stages of KM process and components of KM practice and their impact on organizations is presented in Table 2.3.

**Table 2.3 KM Practices, Processes and Organization Impact**

Authors	KM practices		KM processes				Organization impact
	HR	IT	Acquire	Share	Use	Apply	
(Beckett et al., 2000; Danskin et al., 2005; Gold et al., 2001; Lee & Choi, 2003)	×	×	✓	✓	✓	✓	Organization Performance and Competitive advantage
(Darroch & McNaughton, 2003)	×	×	✓	✓	×	✓	Innovativeness and Financial Performance
(Shujahat et al., 2017)	×	×	✓	×	×	✓	Innovation
(Braganza et al., 1999)	×	×	✓	×	×	×	Innovativeness and Competitive advantage
(Argote & Ingram, 2000)	×	×	×	✓	×	×	Competitive advantage



Table 2.3 (Contd..)

Authors	KM practices		KM processes				Organization impact
	HR	IT	Acquire	Share	Use	Apply	
(Andreeva & Kianto, 2012; Gloet & Terziovski, 2004)	✓	✓	×	×	×	×	Firm competitiveness and economic performance
(Bhatt, 2001; Zack et al., 2009)	✓	✓	✓	✓	✓	✓	Organization and Financial Performance
(Forcadell & Guadamillas, 2002)	✓	×	✓	✓	✓	×	Innovation
(Chuang, 2004)	✓	✓	✓	✓	✓	×	Competitive advantage
(Civi, 2000)	×	✓	✓	✓	×	×	Respond to competitive pressure
(Berawi, 2004)	✓	✓	✓	×	×	✓	Competitive advantage

It may be observed from the above table that majority of studies have attempted to understand the implications of KM processes on organization performance as against KM practices. On the other hand, there are two studies that focuses on complete chain - KM practices and KM processes (Bhatt, 2001; Zack et al., 2009). However, all studies referred above have established the relevance of knowledge management – partially or wholly - the impact on the organization by way of deriving competitive advantage or innovation or financial performance.

Thus, there is a need for undertaking a comprehensive study of relationship KM practice and process on competitiveness across industries and functions.

### 2.5.6 Foundation for research framework

Having identified from the literature review different perspectives about KM and its implications to organizational outcomes, it is evident that the basic framework of KM includes the goals and game plan of the strategy and the use of three enablers supporting such a strategy: levers, processes and systems. This framework that need to be translated into KM action plan through KM resources and constraints to derive KM outcomes (Russ, Fineman, Paterni, & Jones K., 2010). This requires clear identification of goals which could be intellectual property, sales, profits, innovations, cost savings, delivery performance, learning etc.

According to the knowledge-based view (KBV), performance differences between organizations accrue due to their different stocks of knowledge and their differing capabilities in using and developing knowledge (Grant, 1996; Grant & Spender, 1996; Kogut & Zander, 1992; Penrose, 1959). The key focus of KBV lies on utilization of knowledge resources in coordinated manner that is management of knowledge.

Knowledge management (KM) refers to identifying and leveraging the collective knowledge in an organization to help the organization compete (Von Krogh, 1998). From a practical perspective, KM can be seen as an organizational innovation involving changes in strategy and management practices of firms (Marqués & Simón, 2006). KM typically is seen to consist of knowledge processes (such as knowledge creation, sharing, acquisition, transfer and application) and infrastructures or capabilities or management activities that support and enhance the knowledge processes (Gold et al., 2001; Lee & Choi, 2003).

In section 2.4, detailed literature review to focus on KM and its relationship with organizational outcome was highlighted. The studies reveal KM's relationship with innovation (Braganza et al., 1999; Darroch & McNaughton, 2003; Forcadell & Guadamillas, 2002; Gloet & Terziovski, 2004; Shujahat et al., 2017); organizational performance (Gold et al., 2001; Muthuveloo et al., 2017; Zack et al., 2009); financial performance (Andreeva & Kianto, 2012; Darroch & McNaughton, 2003; Zack et al., 2009); competitive advantage (Andreeva & Kianto, 2012; Argote & Ingram, 2000; Beckett et al., 2000; Berawi, 2004; Bhatt, 2001; Braganza et al., 1999; Chuang, 2004; Civi, 2000); organizational creativity (Lee & Choi, 2003) and quality (Herwig et al., 2015).

The foundation for KM framework to derive sustainable competitive advantage highlights that knowledge, which includes what organization knows, how it uses, what it knows and how fast it can know something new, is the only thing that offers an organization a competitive edge (Prusak, 1996). Knowledge edge and its management are more valuable and powerful than natural resources, big factories or fat bank-rolls (Stewart Thomas, 1997). The KM processes and practices could be more deeply understood in the light of porter's value chain model (Michael E Porter, 1985). Porter had invented the value chain model that comprises of 9 value adding activities: 5-

primary and 4-secondary. These value chain activities mainly provide fundamental link between competitive strategy formulation and implementation. In the porter's value chain model the knowledge input fundamentally differentiates competitors and become key source of competitive advantage. The European foundation for Quality Management (EFQM) model introduces the major components of leadership, people, policy and strategy, and partnerships and resources, in addition to processes, as being key enablers of organizational success (Dalkir, 2011). KM framework has been defined as a procedure, process or practice to accomplish process about knowledge, process for knowledge, and process from knowledge which leads to improve the internal and external operation (Alryalat & ALHawari, 2008). KM framework is a process which contains creation, acquisition, incorporation, allocation, and application of knowledge to advance the operation efficiency and competitive advantage of an organization (Albers & Brewer, 2003). A KM process model consists of six steps: Discovery, Acquisition, Creation, Storage and Organization of the Knowledge, sharing, and finally, Use and Application step (Huber, 1991).

A KM model describes KM processes into five phases: (1) Knowledge creation and generation focus on describing the different methods of generating new knowledge from the organization and from outside, (2) Knowledge storage and retrieval phase use data mining and learning tools referred to as organization memory, (3) Knowledge transfer describes the relocating of knowledge between individuals, from individuals to explicit sources and between groups and organizations, (4) Knowledge application phase describes integrating knowledge into organizational practices by using technology to guarantee effectual use of knowledge and finally (5) knowledge roles and skills illustrate the importance of roles and skills existence to perform capturing, distributing and using knowledge (Peachey & Hall, 2005).

Keeping the framework and theoretical models in the backdrop the proposed KM model considered in the study comprises of integrated approach towards KM processes (acquire, share, use and apply)/ and practices (human resources and information technology) with specific reference to marketing and sales function to derive competitiveness. The details of which has been discussed in section 3.3. Keeping in view the detailed literature review and the theoretical framework for KM models; in

the subsequent sections, research gaps have been identified and the research questions and the objectives of the study have been framed.

## **2.6 Research Gaps**

From the above literature review, following research gaps are identified:

The research has highlighted the benefits and impact of KM on organization performance, still there are missing elements to develop a concrete relationship between KM and competitiveness. These missing elements can be collectively looked at as research gaps mentioned below:

- There are limited studies on knowledge management and its relationship with competitiveness in Indian context.
- There are very few studies in the field of KM from functional perspective, that is marketing.
- Although there are few studies on KM pertaining to different industries but we could not identify knowledge management application to cement industry in India in particular. Further, there is hardly any study pertaining to knowledge management in respect of marketing and sales in cement industry in India.
- Most of the studies have attempted on a piece meal basis to understand the implication of KM by considering either process or practice part of it. However, there are very few studies that have covered the whole chain with both aspects KM practice and KM process.
- As regards tools and techniques used for research the shift in favor of empirical research is emerging which in the past has been more on theoretical, conceptual, case based and viewpoints.

Keeping in view identified research gaps this study attempts to identify linkages of KM – processes and practices and its relationship with competitiveness in Indian cement industry with specific reference to marketing and sales function

## **2.7 Research Questions for the Study**

The following are the two research questions considered in the study:

*Research question 1:*

What are the components of KM in the marketing and sales function of Indian Cement Industry?

*Research question 2:*

How are the **critical** components of KM in the marketing and sales function of Indian Cement Industry related to each other and their implications on deriving competitive advantage?

## **2.8 Objectives for the Study**

The objectives for the study are:

1. To identify the critical components of KM in marketing and sales function in cement industry.
2. To empirically establish a relationship and develop a model for deriving competitive advantage through knowledge management processes and practices in cement industry

## **2.9 Conclusion**

This chapter has reviewed the literature pertaining to knowledge, knowledge management, dimensions of knowledge management, knowledge management's impact on an organization to identify the gap in extant literature. Thereafter, based on research gaps, research questions were developed for objectives of the study. The next chapter deals with the theoretical framework developed to seek answers to the research questions and chalk out hypotheses for testing.



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