

## Chapter 2

# The Context

### 2.1 Review of Literature

Knowledge Management-related research at the global, regional and organizational levels is acute (Mohmed et al. 2008). While the potential contribution of Knowledge Management (KM) to a knowledge economy must be precisely assessed, KM can act as a catalyst to facilitate transition to a knowledge-based economy (Castro et al. 2011; Tseng et al. 2011; Siddique 2012). Affective commitment is of particular relevance to the emerging knowledge economy and to the knowledge firms (Casimir et al. 2012), which entails that the study of Knowledge Management should broadly be done at the level of the Company which is the microlevel where Knowledge Management becomes critical. Another important corollary is that as the economy becomes more based on information and knowledge and upon information and knowledge-based products, the diffusion of technological and economic capability around the globe becomes more and more rapid (Koenig and Jank 2012). It has also been reported that ‘many of the leading KM theories and practices recognize the importance of social interaction and communications in knowledge sharing and creation. The argument presented here is that such theories and practices do not go far enough’ (Crane 2012, p. 457). Fairclough (2001) argues that knowledge-based economies are discourse-based by default. In the light of this, the discourse at the level of the Company should be looked into in-depth.

The approach for the review of the literature has been with reference to the issue whether knowledge is an entity as proffered by epistemological viewpoint or is it an organizational asset which can be managed. The review entails a holistic view of Knowledge Management Implementation. It has also aimed at delineating the causal relation between factors affecting the Knowledge Management Process and practice with particular emphasis on technological parameters and HR parameters. The review has also been carried out apropos various hypotheses/propositions of Knowledge Management Processes and practices with a view to provide a conceptual framework

for Knowledge Management Implementation. In order to assess the body of literature on Knowledge Management (KM) and information, search was made on five computerized databases (Proquest, Emerald, JSTOR, Elsevier and EBSCO). In addition to these, Google Scholar and Google had also been explored so far as computerized databases are concerned. The keywords used for this search were knowledge as an entity, knowledge as an asset, Knowledge Management Implementation, theories of Knowledge Management, human resource factors of Knowledge Management, technological parameter of Knowledge Management and conceptual framework of Knowledge Management. There were approximately 209 studies referring to these keywords during 1995–2014. Four journals, namely *Journal of Knowledge Management*, *Journal of Information and Knowledge Management*, *Harvard Business Review* and *Organization Science*, were also referred extensively. In addition to these, *Electronic Journal of Knowledge Management* was also perused. Besides this, other journals were also referred for review. In accordance with the objectives to review conceptual and empirical research which entails the contour of the objectives of review, this chapter was written.

The studies have been carried out in European countries apropos Knowledge Management efforts (Akhavan and Jafari 2006), where it has been reported that the strategic planning, information and communication technology, attention to public and private sectors, common reference model, publications about KM, leadership, change management, attention to human resources, organizational learning, horizontal structure, investment on KM, conferences and seminars about KM, and communities of practice, training, culture and pilot studies had been carried out since 1980. However, such a study is not carried out in India. In the literature, we find that for the first time in 2010, a study had been reported on knowledge initiatives in Indian public and private sector organizations. This study pointed out that the Knowledge Management in public sector ‘is still in its infancy and has a long way to go in order to keep pace’ (Chawla and Joshi 2010, p. 824) with global and continental developments in this area. Nevertheless, the study of two public sector companies, namely BHEL (Chawla and Joshi 2010) and NTPC (Goel et al. 2010), has been carried out and reported in the literature. However, these studies have not been carried out covering all the aspects of Knowledge Management in totality.

The studies reporting about Indian companies have briefly talked about the KM process, KM leadership, building a collaborative learning environment and culture for KM, infrastructure for KM and lastly developing matrix for measurements for continuous improvement in Indian Public Sector. By keeping the above in view, the present study proposes to examine the major aspects of Knowledge Management in Power Grid Corporation of India Ltd. (POWERGRID). The rationale of the study envisages that ‘in the continuous process of creating reality, everyday knowledge, routines and interpretations play an important part’ (Bergmann 2004, p. 74). It is also proposed to critically assess the relative contribution of KM initiatives, technology and the Knowledge Management from POWERGRID. This is in light with the study conducted for pointing out major lack of strategies designed for the public sector (Cong and Pandya 2003). It entails the conjecture that Knowledge

Management is more than just: knowledge, culture, people, leaders, organizations or technology; it is the sum of all in the proportions necessary to create a fabric that supports the vision of the organization and cannot be prescribed wholesale.

## 2.2 Scope of the Review

The review of the literature has been carried out from the viewpoint of epistemologies of knowledge in the Knowledge Management literature. It has been examined whether knowledge is an entity as proffered by epistemological viewpoint or is it an organizational asset which can be managed. This has been done to provide a holistic view of Knowledge Management Implementation to help theory-building effort of Knowledge Management Implementation to emerge. The care has been taken to identify the causal relations between factors affecting the Knowledge Management Processes and practices with particular emphasis on human resources and information technology parameters. While reviewing the literature, an attempt has been made to test various hypotheses/propositions of Knowledge Management Processes and practices with a view to provide a conceptual framework for Knowledge Management Implementation in a Company with many business verticals.

## 2.3 Epistemologies of Knowledge as Entity

The key assumptions and characteristics of the knowledge, as entity, have got two perspectives (Hislop 2013). The first one is the objectivist perspective, and the second one is the knowledge-based perspective of the firm. Within the objectivist perspective, the entitative character of knowledge is the primary characteristic. Knowledge is regarded as an entity/commodity that people possess, but which can exist independently of people in a codifiable form. From this perspective, knowledge can be codified, made explicit and separated from the person who creates, develops and/or utilizes it. Such knowledge can exist in a number of forms, including documents, diagrams and computer systems, or be embedded in physical artefacts such as machinery or tools (Hislop 2013, pp. 17–18).

The knowledge-based theory of the firm represents the dominant theory which adopts the objectivist perspective on knowledge (Hislop 2013, p. 19). Over time, the theory has been developed and refined partly through theoretical development and partly through empirical testing (Berman et al. 2002; Bogner and Bansal 2007; Cuervo-Cazurra and Un 2010; Haas and Hansen 2007; Sullivan and Marvel 2011; Wang et al. 2009). Finally, it is a perspective that underpins much of Knowledge Management literature (Donate and Guadamilas 2010; King and Marks 2008; Stock et al. 2010; Veolpel et al. 2005; Williams 2011). There are two central tenets to the knowledge-based theory of the firm. First, it assumes that knowledge which is

difficult to replicate and copy can be a significant source of competitive advantage for firms. Knowledge that is assumed to be difficult to replicate is firm-specific knowledge, which builds from the links to existing knowledge within an organization, and which is related to firm-specific products, services or processes (Wang et al. 2009). Secondly, it assumes that organization provides a more effective mechanism than markets do for the sharing and integration of knowledge between people. Thus, two of the key focuses of research which utilizes the knowledge-based theory of the firm are on the development of firm-specific knowledge (Nag and Gioia 2012) and the relationship between the development and use of such knowledge for firm's performance (Bogner and Bansal 2007; Hislop 2013, p. 19).

The epistemologies of knowledge in the Knowledge Management literature should be further investigated to pinpoint that knowledge-intensive firms are those entities that depend on professional knowledge or expertise corresponding to a specific technical or functional domain (Casimir et al. 2012). It is also to be pinpointed that knowledge should be regarded as a living entity rather than managed as a static object of predetermined process (Chatti 2012). It has been reported that 'In contemporary Anglo-Saxon countries, "epistemologies" is a philosophical term meaning theory of knowledge' (Browaey 2004). Frame (2010) has further elaborated this aspect by concluding that '*Epistemology* is synonymous with theories of knowledge. For a claim to be true, the claim must have a foundation. Yet finding a firm foundation can be difficult. Epistemology is sub-divided into *rationalism* and *empiricism* which are considered ways of acquiring knowledge. Yet these two concepts have limitations. Truth is essential for one to have knowledge; how can we know something if what they think as true is, in fact, false? (p. 18352)'. The concept of epistemology earlier had been as one which concerns itself with the analysis of what is meant by the term knowledge itself, and with questions about the limits and scope of knowledge, its reliability, and what constitutes justification for holding knowledge (Edgar and Sedgwick 2003).

In fact, epistemological problems and theories are often interconnected with problems and theories in the philosophy of mind. There is, then, much discussion of the topics in the philosophy of mind that are crucial for epistemology, for instance the phenomenology of perceptions, the nature of belief, the role of imagery in memory and introspection, the variety of mental properties figuring in self-knowledge, the nature of interference and the structure of a person's system of belief (Audi 2003). The debate towards the relationship between epistemology and knowledge continued further. In the year 2005, Stanford Encyclopedia of Philosophy–Epistemology reported that defined narrowly, epistemology is the study of knowledge and justified belief. As the study of knowledge, epistemology is concerned with the following questions: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure? And What are its limits? As the study of justified belief, epistemology aims to answer questions such as: How we are to understand the concept of justification? What makes justified belief justified? Is justification internal or external to one's own mind?

Understood more broadly, epistemology is about issues having to do with the creation and dissemination of knowledge in particular areas of enquiry.

The issue related with epistemology was reported as entwined with ontology in the year 2012, when it was reported that however, lots of efforts under the semantic Web initiative nowadays brought to public vast amounts of background knowledge which informs of machine readable RDF/OWL ontologies. Little work has actually been done for representing and managing contextual information bounding the validity and applicability of knowledge (Tamilin et al. 2012). Last years are characterized by a rapid growth of publicly available structured knowledge sets whose development has been strongly stimulated by recent semantic Web initiatives. Among numerous databases available nowadays, the most notable are as follows: Freebase, Wikipedia and DBpedia resources which provide high-quality, structured knowledge on well-known topics, and they are famous entities. Nevertheless, this does not negate the importance of knowledge with reference to epistemology where ‘the ability to disambiguate a polysemous entity refers that two orthographically different mentions are the same entity and they are in fact, crucial in updating an entity’s KB (Knowledge Bases) record. This task has variously called entity disambiguation, record linkage, or entity linking’ (Dredze et al. 2013, p. 1). Earlier Han and Sun (2011) proposed the *entity mention model* for the entity linking task. The main advantage of this model is that it can incorporate multiple types of heterogenous entity knowledge. This model also claimed that it has a statistical foundation, making the entity knowledge extraction approach different from most of previous *ad hoc* approaches. Once the entity disambiguation is carried out through *entity mention model*, it comes to the fore that knowledge as an entity has been encompassing the muddling of issues of ontology (the study of being—essentially studying questions of what kind of entities exist) and issues of epistemology (the studying of knowing that essentially is studying what knowledge is and how it is possible) and has been one of the key confusions in various branches of philosophy (Spencer 2012).

The arguments presented so far have established that the epistemological bearings connote that knowledge is an entity, but this entity status can be accorded to the *explicit knowledge* only. So far as the *tacit knowledge* is concerned, it falls beyond the discussion of epistemological scholars and, thus, may be treated separately with a view to find out whether knowledge (inclusive of explicit and tacit) as a whole is an entity. Nonaka et al. (2012, p. 18) have concluded that ‘The knowledge based view of the firm views a firm as a knowledge—creating entity, and the capability to create and utilize such knowledge are the most important source of a firm’s sustainable competitive advantage. Knowledge and skills give a firm a competitive advantage because it is through this set of knowledge and skills that a firm is able to innovate new products/processes/services or improve existing ones more efficiently and/or effectively. The *raison d’être* of a firm is to continuously create knowledge’.

Buehl and Alexander (2005) had carried out research regarding knowledge, epistemological competency beliefs and achievement values which were influencing the students and their attitudes towards knowledge as an entity. The researchers

stated that ‘Cluster analysis and analysis of variance procedures were used to identify students’ domain-specific epistemological belief profiles and to examine difference in students’ beliefs, motivation, and task performance. Four hundred eighty-two undergraduates completed measures regarding their beliefs about knowledge, competency beliefs, and achievement values relative to history and mathematics and participated in domain learning tasks. Cluster analysis was used to identify epistemological belief profile groups within the domains of history and mathematics. Students with more sophisticated belief profiles had higher levels of motivation and task performance’ (p. 967). These researchers took recourse to the study by Hofer and Pintrich (2002) which stipulated that beliefs about knowledge in general influence the domain-general epistemological beliefs which differentiate beliefs about different academic domains. They finally concluded that ‘the power of students’ beliefs about knowledge and knowing was situated in the classroom. What is significant about the present study is the finding that students operate from a complex epistemological belief system that also entails specific beliefs that can vary according to domain’ (Buehl and Alexander 2005, p. 721). It may be deduced from this research that besides treating knowledge as an entity, epistemologists have indicated towards the importance of varying of knowledge according to the context which includes the *tacit knowledge* as well.

### 2.3.1 *Knowledge as an Organizational Asset*

On the philosophical level of constructivism, we find that what is common to all constructivist approaches is that they examine the relationship to reality by dealing with constructive approaches in dealing with it. ‘For constructivists epistemology, and empirical research based on it, knowledge and the constructions it contains become the relevant means of access to the objects with which they are concerned’ (Flick 2004, p. 89). When we move from philosophical pedestal, we find that ‘over the last years, there has been an increasing focus on information architecture to help organizations distinguish and manage information as corporate resource’ (Xie et al. 2012, p. 125008-1). Initially, researchers were of the view in which information and knowledge were used interchangeably (Ross and Weil 2006). The trend of bifurcating the information and knowledge was started shortly thereafter by the scholars of Knowledge Management. Scholars started using various nomenclatures such as ‘Knowledge is the organizational critical asset’ (Chen et al. 2012). Dalkir (2011) had reported that even though knowledge cannot be managed as a conventional asset, it is possible to manage intellectual assets, organizational capabilities and processes with a focus on knowledge development and learning. This brought the concept of intellectual assets into the debate. Pacharapha and Ractam (2012) concluded that ‘A Company tries to leverage this valuable resource by transferring the existing knowledge within the Company itself as well as from external sources’ (p. 724). Since knowledge can reside in an organization and in individuals who are staff in an organization, transferring knowledge can be between organization,

between individuals or between individuals and organizations (Sveiby 2001). The knowledge that is embedded within the people and systems of an organization can result in sustainable competitive advantage for the firm because such knowledge is valuable, rare, inimitable and non-substitutable (Afouni 2007).

On a practical front, the knowledge economy is reality. Strategic value derived from Knowledge Management can be created only through collaborative efforts. The relational dimension of an organization, through effective and emotional influences, is an asset that is unique and cannot be replicated. Sustainable competitive advantages can be attributed not only to the ownership of knowledge, but also the ability to proliferate knowledge assets by encouraging knowledge sharing (Reus and Liu 2004). Beyond this, knowledge has also been reported as an intangible private asset which can seduce an individual to withhold knowledge instead of sharing it with others (Webster et al. 2008). By taking a cue from the same logic, knowledge-sharing behaviour implies a conscious act by an individual who participates in the knowledge exchange (Ipe 2003). When individuals perceive the knowledge they possess as a valuable asset, knowledge sharing becomes a process mediated by individuals' decisions about what knowledge will be shared, when to share and with whom to share (Andrews and Delahaye 2000). The other view as found in the literature depicts that knowledge is a strategic asset. It has been reported that 'how organizations develop, store and transfer knowledge is becoming a strategic asset' (Jones and Mahon 2012, p. 774). The researchers have also depicted that knowledge is a crucial organizational asset. The three aspects of knowledge for any organization involve considerations of how the knowledge is obtained, how it is stored and organized and, more importantly, how that knowledge is accessed and shared in real time. Coyte et al. (2012) undertook research of small and medium enterprises in Australia and concluded that knowledge asset can be used as a strategic resource. They concluded that 'SME activities in this area are asset based, since in general, they have less readymade 'infrastructure' for the measurement, management and development and knowledge and other intangible assets' (p. 792).

Researchers also concluded that knowledge is not only an asset, but it can also be measured by using financial techniques. Kamhawy (2012, p. 809) reported that 'Many studies have addressed issues related to evaluating KM performance in organizations. One classical approach... came from the idea of measuring intellectual capital and/or knowledge assets using accounting and finance techniques'. It corroborates that knowledge is treated like any other resource and it has been perceived as the same by scholars. Chatti (2012) conducted a research in Knowledge Management from the perspective of personal Knowledge Management and reported that 'early KM models in the early 1990s shared common emphasis on a static view of knowledge. The knowledge-as-a-thing-driven KM model focuses on the technology-based, predefined representations of knowledge. This model adopts the view of knowledge as an object that can be captured, stored and reused. Thereby, KM is often perceived as merely a technological solution, consequently a significant amount of attention is placed on implementing platforms and repositories to capture, store, control, manage and reuse structured knowledge' (p. 830).



Furthermore, knowledge has been identified as a sustainable competitive advantage which may not only result from tangible assets and resources, but also from knowledge that can be transferred, aggregated and appropriated and that is difficult to imitate (Earl 2001). Harvey (2012) took the knowledge asset to the realm of explicit knowledge, social construct and tacit knowledge and provided a new dimension to knowledge as an asset. He elaborated these aspects by taking cue from Empson (2001) and Brown and Duguid (2001). Since it is seen as an asset, explicit knowledge can be easily transferred from one actor to another and is often referred to as know-what. As a social construct, tacit knowledge comprises each individual's technical and interpersonal skills as well as groups' synergies. Tacit knowledge is commonly called know-how. Predominant in comparison with explicit knowledge, tacit knowledge specifically forms the background necessary to interpret and develop explicit knowledge. However, one should not conclude that there is a sharp division between tacit and explicit knowledge. It has also been reported by Harvey (2012) that each form of knowledge does work that the other cannot and each form of knowledge can often be used as an aid in acquiring the other. Therefore, although the retrieval of expert tacit knowledge is considered quite difficult, Knowledge Management strategies must take both perspectives into consideration. Studies suggest that retrieving, codifying and transferring tacit knowledge is well worth the effort. Among other things, it provides significant cost saving to organizations through improved know-how and increased innovation. However, in spite of recent advances, the dominant belief is still that knowledge can be codified, captured and manipulated instead of, at its core, comprising of the notion of individuals' interaction in which links or ties are considered the bridges by which knowledge transfer occurs between actors.

The one-on-one mentoring and the storytelling group meetings served as a rare instance of the development of a *Ba* (Nonaka et al. 2006). Both of these activities went beyond the mere codification of explicit knowledge as suggested by the 'knowledge as an asset' perspective (Empson 2001) and the source-recipient model. Paramsothy et al. (2013) further expanded this model by depicting its relevance in the banking industry and propagated 'to learn from the explicit and implicit knowledge it possess and turn it into knowledge assets that can generate income stream is a major factor for sustainable competitive advantage' (p. 1350015-1). Witherspoon et al. (2013) further studied the antecedents of knowledge as an asset and emphasized that the 'increasing recognition of the importance of intangible assets including organizational knowledge, to organizational success further motivates the investigation of KS as an organizational control process' (p. 250). It was further suggested that knowledge is the most strategically significant resource of the firm. These notions of the knowledge may, therefore, be considered as an extension of resource-based view of the firm. Bollinger and Smith (2001) and Goh (2002) suggest that knowledge is a strategic asset. Denford (2013) observed that 'A resource is an asset or input to production which an organization owns controls or has access to on a semi-permanent basis' (p. 176). Having reviewed the literature it can be deduced that on the one hand, 'knowledge' has been treated as an 'entity' by scholars and, on the other, it has also been christened



as an asset. At this juncture, it is proposed that it should be examined, in the context of a firm—a live case—as whether knowledge is an asset which can be managed as a resource. Therefore, it may be concluded that *If treated as resource knowledge is an asset which can be managed.*

## 2.4 Aspects of Knowledge Management Implementation

Knowledge Management has largely been reported as the responsibility of human resource management which is enabled by information and communication technology. However, this should be carried out through a suitable strategy. There are two basic strategies for Knowledge Management, and they are codification and personalization. The *codification strategy* uses existing knowledge to solve problems. This strategy uses procedures and knowledge as many times as possible to receive maximum benefits from it. The codification strategy makes more use of information technology (Bowman 2002). The *personalization strategy* uses solutions that are unique to their organization. This often includes customizing their KM tools and software. The investments made by organizations using the personalization strategy promote better ways of sharing between people. KM requires organizations to incorporate the strategy into the daily tasks of the employees. The key Enablers identified are leadership, strategy, culture, technology and measurement. There are KM strategies identified through research and trial and error. There are several valid strategies. Nonetheless, the high–high fit of KM and IT does not always yield positive organizational outcomes, since enough exceptions indicated that business strategy and knowledge strategy (e.g. Asoh 2004), as well as human resource management strategy (Shih and Chiang 2005), are interdependent. Shih and Chiang (2005) noted that fit between KM strategy, corporate strategy and HRM strategy is significantly associated with enhanced KM effectiveness, in terms of process outcome, learning capability and organizational outcomes.

### 2.4.1 Stages of Knowledge Management Implementation

Organizations should advance through the same series of stages to increase their chances for a successful KM implementation (Dell et al. 2000). Organizations beginning to use the benefits of KM must first perform several tasks. Organizations should define what they want to carry out with the system. They should document what assets they currently have and how they will leverage them. This is *stage one*. The organization explores various choices and experiments with different technologies and strategies in *stage two*. This stage enables the organization to evaluate the strategy to decide how it fits within the culture. Organizations use many different strategies based on their corporate culture. The organization should perform several studies to discover which Enablers and tools work for them. This is *stage*

*three. Stage four* expands the KM strategy and analyses where improvements can occur. The implementation is typically enterprise wide and watched closely to ensure continued success. The final stage, *stage five*, incorporates KM into the everyday formation of the organization. Independent management of the KM infrastructures and the information technology infrastructure must occur (Soo et al. 2002). The departments may have the same head, but separated management of them must occur. This arrangement includes a KM department led by a Knowledge Management Officer (KMO). KMOs and other knowledge professional strategies are becoming more common with the increased importance of KM (Elliott and Jacobson 2002).

### **2.4.2 Categories of Knowledge Management Strategy Implementation**

While reviewing the literature, various approaches were found towards the Knowledge Management strategy implementation perspectives. Dufour and Steane (2007) conducted an exhaustive scanning of the approaches which had been in vogue so far as Knowledge Management strategy implementation is concerned. In their conceptual paper, they concluded following four categories of Knowledge Management strategy implementation:

1. The classical approach,
2. The contingency approach,
3. The political approach and
4. The behavioural approach

Since these four categories have been the hallmark of a robust model for Knowledge Management, it requires a little elaboration, which has been adapted from Dufour and Steane (2007). The *classical approach* exists in both the academic and the business practice KM literature. The classical position is founded on the unitarist view of strategy that formulation and implementation can be controlled from one centre of authority and that they are two sequential phases of knowing and effecting strategy. Successful implementation of KM strategy is through a high rational process. The *contingency approach* to KM implementation postures that leadership has a variety of unequal effective structural forms and organizational processes from which to choose in implementing KM strategies. In this approach, the role of the CEO is that of an architect, designing administrative systems to implement change in the management of information and work practices. The contribution of contingency theory applied to organizations was that the unitarist approach is flawed and that organizations comprise many interest groups. The *political approach* to Knowledge Management Implementation is primarily concerned with the impact of patterns of power and influence on the implementation processes and outcomes. The political approach is distinctive in seeing contestation

and bargaining as endemic rather than some exceptional or pathological dimension of organizations. Actors engaged in implementation are not so much exhorted to resolve conflict as they try to manage it, within the overall suite of tactics and strategies. The political approach assumes that a plurality of at least partly conflicting interests exists within organizations. The *behavioural approach* will always be an influence on what can be achieved in KM implementation. The behavioural approach incorporates individual and organizational sources of resistance in implementing KM strategies. There is a predominant reliance upon the use of reason or technology in KM implementation and change. However, the features that matter most are those that affect individual motivation, commitment and, in particular, interpersonal cooperation in implementation. Therefore, it may be propounded that *the attitude and behaviour of personnel help Knowledge Management Implementation positively*.

## 2.5 Factors of Human Resource Management

Human resource management covers areas such as culture, strategy, structure, training, systems, processes and management support apropos Knowledge Management Implementation in organizations. Chen et al. (2012) studied the ‘fit’ between Knowledge Management and business performance and concluded that human resource management has to play the most important role for Knowledge Management Implementation. Shih and Chiang (2005) also concluded in their research that human resource management is the most critical factor so far as the Knowledge Management Implementation is concerned. Therefore, the review of the literature was conducted with the view to delineate the HR factors including reward and recognition.

### 2.5.1 Culture

Culture is the collection of central norms that characterize an organization. A corporate culture is reflected in the attitude and values, management style and problem-solving behaviour of its employees. An organization’s values, principles, norms and procedures are its cultural knowledge resource (Holsapple and Joshi 2001). An organization’s culture is one of the most important factors in effective KM. As will be discussed below, most researchers believe that it is difficult to change the culture, and yet it is almost a priori requirement of effective KM. Two common aspects of culture that have been extensively researched are culture in the national sense of the word and culture in organization often referred to as *corporate culture*. Several researchers have looked at culture in the national sense of the word to better understand how differences in national culture affect information system (Tan et al. 2003). Other researchers have examined culture with respect to the

norms and mores within an organization. This research will focus on the second aspect of organizational culture and its interaction with KM programmes and will examine the importance of corporate culture as all pervasive and superimposing over other human resource factors.

Innovation, support, rules and goals were foundation of a cultural Questionnaire focusing on description and evaluation of organizational culture (van Muijen et al. 1999). A study of four survey instruments for organizational culture found the following five factors: *satisfaction needs* to include behavioural norms and values, *task-oriented organizational growth* defined as a technocratic approach to organizational development, *people orientation* defined as the human factor in a bureaucratic culture, *task orientation* defined as the resistance to new ideas and *positive social relations* in the work place. This and other research using survey instruments for organizational culture studies have somewhat gained acceptance with many scholars in the discipline. If an organization's culture is not appropriate for a knowledge project, no amount of technology, content or project management skills will make the project successful (Davenport and Klahr 1998). In a study of 71 practitioners at KM presentations, culture was perceived to be the biggest barrier to KM implementation (Mason and Pauleen 2003). In their study, Mason and Pauleen operationalized culture as organizational culture, trust, sharing and communication. A culture that supports knowledge is one that values learning and rates experience, expertise and innovation higher than hierarchy (Davenport and Klahr 1998). Organizational culture can influence the adoption of technology (Huang et al. 2003), while cultural drag can dramatically inhibit organizational change efforts (Robey and Boudreau 1999). A culture aligned with organizational objectives benefits all change projects.

Culture is separate from infrastructure (structural and technological), yet culture can still be influenced by infrastructure, as infrastructure can constrain or promote cultural evolution (Holsapple and Joshi 2001). Information technology induced cultural change can be dangerous to an organization when there is a mismatch between the organization's culture and the proposed system (Doherty and Doig 2003). However, the difficulties in changing an organization's culture suggest the cultural limitations on structure and technology may be higher than the infrastructure's limitations on culture. An appropriate knowledge-oriented culture should show a positive orientation towards knowledge sharing and an innovative nature (Davenport and Prusak 1998). A knowledge-sharing culture should already exist if a KMS is to be effective (Damodaran and Olphert 2000). In one study, the authors operationalized culture based on the organization's encouragement of knowledge sharing between employees (Al-Busaidi and Olphert 2005). Most researches that study the elements of a knowledge culture (Levin and Cross 2004; Renzi 2008; Bock et al. 2005) focus on knowledge processes in general without distinguishing between different knowledge processes. Wang et al. (2011) have made a first attempt to focus knowledge culture studies explicitly on the knowledge creation process. Ferraresi et al. (2012) conducted a research regarding innovativeness and performance brought by Knowledge Management and strategic orientation and concluded that 'Thus effective KM can be understood as a set of processes that are

embedded in organizational culture and contribute to strategic orientation and innovativeness. The presence of such processes indicates that KM practices are, to a large extent, integrated to the work routines of many companies and can be viewed as part of their culture' (p. 697). Therefore, it may be summarized that *culture is the prime mover of Knowledge Management Implementation*.

### 2.5.2 Strategy

So far as the strategy for Knowledge Management is concerned, the literature has shown various trends. Chen et al. (2012) studied the 'fit' between the business and Knowledge Management and reported the research regarding investigation of various strategies of the organization which is not sufficient. In addition, it is crucial for the analysis and design of the organization as a whole to achieve organizational benefits. In the practical terms, the basic alignment mechanism is by 'strategy', and it is thought that a match between strategy and organization is the key driver to effectiveness at realizing intended strategies. Therefore, this study focuses on three types of strategies discussed previously that are critical to business in today's knowledge-based organization, that is Knowledge Management (KM) strategy and information technology (IT) strategy and human resource management (HRM) strategy (Chen et al. 2012, p. 672). In the literature, it has been found that the firms which use human-oriented (personalization) KM strategies must have reward systems that encourage workers to share knowledge directly with others; instead of providing intensive training within the Company, employees are encouraged to develop social networks, so that tacit knowledge can be shared. That is, when human KM strategy is adopted, only the fit between human KM strategy and reward systems of HR strategy is found to have a significant impact on business performance in terms of growth. One possible explanation may be that the strategy a firm used on knowledge sharing in human KM strategy is mainly by members' face-to-face conversation in private. Ferraresi et al. (2012) in their study reported that 'the implementation of effective Knowledge Management practices also depends on deliberate efforts to coordinate the diverse KM processes with the management of organizational resources as a whole, in alignment with a strategic vision' (p. 697).

Ding et al. (2013) in their research on knowledge transfer strategies reported that 'First, firms should choose their internal knowledge transfer strategies based on their knowledge storage forms, if firms mainly store knowledge using a systematization method, they should stress a codification strategy and encourage workers to access knowledge embodied in firms' documents, IT systems and so on. On the other hand, if firms' knowledge is mainly stored in employees' brains, firms should stress a rich-media strategy and encourage people to communicate and share knowledge. For example, firms should create culture promoting collaboration and develop places or facilities supporting workers contact' (p. 81). Lopez and Esteves (2013) conducted a research and reported that 'On one hand, companies apply the codification strategy, where knowledge is carefully codified and stored in an

appropriate repository, enabling easy access and use by anyone in the Company. On the other hand, the personalization strategy should be applied when knowledge is closely tied to person who developed it and is shared mainly through direct person-to-person contacts' (p. 89). In view of the above, it is clear that strategy should be focusing around the people and consequently, it may be said that a suitable *strategy directs KM implementation favourably*.

### 2.5.3 Structure

While reviewing the literature, it was found that those organizations which are learning organizations are typically 'conceptualized as having a relatively flat structure, open communication systems, limited top-down control, and autonomous working conditions (Driver 2002). Handzic and Ozlen (2013) carried out a research on clinical service environments from Knowledge Management success and reported that the structures of 'both private and public healthcare organizations are increasingly implementing Knowledge Management solutions (KMS) to acquire, convert and provide access to relevant information and knowledge' (p. 1350011-1). In an exhaustive study on Knowledge Management, Hislop (2013) discussed the 'hypertext organization' and argued that this form of organization facilitates knowledge creation by synthesizing the efficiency achievable in hierarchical organizations with the adaptability of more flexible organizational structures (p. 106). In a case study, Kase et al. (2009) found that the design of work processes which encourage and facilitate collaboration (such as team working, job rotation), and team-/group-based pay which encourages/rewards people on the basis of group performance will provide a suitable structure for a Company. Husted et al. (2012) had conducted an empirical test of hostility and governance mechanisms and concluded that the governance mechanisms range from organizational forms such as partnership (Felin et al. 2009), project and organizational structure in hierarchies, communities and networks (Foss and Michailova 2009), work designs, training and development programmes, compensation systems, socialization techniques (Cabrera et al. 2006; Husted and Michailova 2009; Minbaeva and Pedersen 2010; Lopez-Cebrates et al. 2009; Simonin and Ozsomer 2009), and identity and identification (Argote and Kane 2009). The mechanisms are deployed with the expectations that influencing the conditions of individual actions in a certain manner will lead those individuals to make decisions that, when aggregated, lead to favourable organizational outcomes (Foss 2007). Mueller (2012) conducted a research on knowledge sharing between project teams and their cultural antecedents and described project teams, their departments and networks to show that they enable individual knowledge sharing. Therefore, it is concluded that *team-based matrix structure affects Knowledge Management Implementation*.

### 2.5.4 Systems

Organizational capital comprises of systems, processes and systemic routines. While reviewing the literature, it came to the fore that taking into account the effect of the organizational variables (i.e. delegation and extrinsic/intrinsic rewards) on knowledge transfer, organizational design has a significant impact in the achievement of organizational mission and, thus, on the efficiency of the organization (Matrin-Péres et al. 2012). In effect, the level of efficiency determines the survival of all organizations. The survival of the organization is largely dependent on the robust systems. Andries and Wastyn (2012) undertook a research in value-enhancing and cost-increasing effects of Knowledge Management and found out that the systems should include the tools and drivers of a written Policy regarding KM: incentives for employees to share information within the Company; specific resources to detect and acquire knowledge outside the Company; a Policy to involve external experts from universities, research institutes or other companies in projects if necessary; and regular updating of internal databases or manuals regarding common practices, lessons learned or expert advice are required. To test the hypothesis, the authors used structural equation modelling with manifest variables comprising of research and development, procurement of relevant software, obtaining licences from external sources, investing in the training of personnel to operationalise the licences, developing activities honed for introducing new products in the market and performing other activities for the implementation of new services and products to the market. The authors concluded that ‘firms increasingly adopt KM techniques to spur the generation and acquisition of new knowledge by adopting the systems which can ensure a sustainable competitive advantage by putting tenable systems in place’ (pp. 387–397). According to the outcome of review of the literature, it may be highlighted that *well-laid systems enable KM implementation suitably*.

### 2.5.5 Processes

The review of the literature has resulted in enumeration of a number of processes related with Knowledge Management. Gupta and Govindrajan (2000) while studying a case of Nucor Steel, talked about *creating* as KM process in order to hold the new knowledge inside the firm for exploration of new knowledge and its various recombinations. The process of creating knowledge was also brought out by Miller et al. (2007) while studying the patents in the realm of intellectual capital. Lenox and King (2004) propounded *integrating* as a KM process while studying the information and communication industries with a purpose of recognizing sources of knowledge and absorbing and integrating the knowledge within the firm. The authors specified the utilization of existing resources to generate economic rents’ indefensible configurations and found that it is very important. Knowledge process comes into existence because of integration of groups and lateral and



vertical socialization of groups. In addition to this, *reconfiguring* was reported as a result of study of Canon's AE-1 camera and the study of examination of Yahoo, which established itself as a Knowledge Management Process for use of familiar components and decrease of knowledge due to uncertainty in innovation. It was having the purpose to combine and deploy existing resources within the firm to reduce a competitive advantage (Denford 2013; Rindova and Kotha 2001). *Replicating* was established as another Knowledge Management Process to recognize, assimilate and apply existing resources elsewhere within the organization to ensure organization growth based upon knowledge redeployment. The process of replicating was reported by Winter and Szulanski (2001) as a result of the study of Banc One.

Dyer and Nobeoka (2000) studied Toyota and survey of strategic alliances conducted by Heimeriks and Duyster (2007) who propounded *developing* as a Knowledge Management Process because this could provide the benefit of mutual firm learning, resulting in new knowledge besides generating new knowledge outside the firm through recombination of firm and partner knowledge. *Assimilating* was discovered as a Knowledge Management Process which could serve for information outside the firm to absorb the knowledge into the firm and apply it to commercial means. It was having the benefit of growth of the firm through acquisition or inclusion of knowledge into industry networks (Lane and Lubatkin 1998). Macpherson et al. (2004) studied the supply network of British firms and found that the leveraging partners' resources to better exploit own resources in new configurations with the purpose of combining and redeploying existing firms and partner knowledge to create competitive advantage could be possible by *synthesizing*. The 'people' angle was brought into the Knowledge Management Processes by Denford (2013) while studying the Hollywood motion picture industry, when he used the word *imitating*. This was earlier reinforced by Cockburn et al. (2000), when they studied pharmaceutical industry. Thus, it may be inferred that *predefined processes help Knowledge Management Implementation*.

### 2.5.6 Management Support

Management support can be studied on two levels: (i) as a catalyst to Knowledge Management as part of change management and (ii) by providing the conducive leadership for implementation of Knowledge Management. The first role was studied by Kamhawy (2012), and he concluded his research by pointing out that without the help of the management the chance to 'work on only few ones and postpone some of the efforts and use of resources on other areas that KM needs, to some future stages may not work. Second, it also gives the management the opportunity to divide their whole KM-based change program into more consistent and smaller programs or projects. This may make the KM-based change programs more manageable and effective' (p. 820). The members of the management team are key informants for Knowledge Management purposes, and managers can be those

managers in the organization that have access to, and use of, the organization's knowledge. This can be virtually possible to have KM by the help of managers in the organization (Gold et al. 2001). The role of middle managers is to take the high-level vision of organizational leaders and translate it into concepts and frameworks that are relevant to the workers they are responsible for. Thus, they are not passive conduits for passing on the ideas of leaders, but actively translate them into different terms. 'Middle managers have responsibility for communicating this translated vision to workers and motivating them to create knowledge in pursuit of it' (Hislop 2013, p. 114).

The second level of the management support is that of the leadership because the senior management team holds a position of respect among members of the organization, which provides objectives to the pursuant and also provides a sound judgmental trait without showing any favouritism to any special group (Fullwood et al. 2013). It has also been reported that the top management can use HRM practices to facilitate Knowledge Management initiatives by dealing with the problems and challenges that can often make workers unwilling to participate in Knowledge Management activities. In the study of leadership undertaken by Lee (2011), one of the ways team leaders developed intra-team trust and knowledge sharing was via a process of mentoring that involves linking experienced team members with less experienced ones. Thus, setting up of facilitating the establishment of both coaching and mentoring activities represents another way for organizational management to facilitate interpersonal knowledge sharing. Consequently, it proves that *management support is a prerequisite for Knowledge Management*.

### 2.5.7 Training

Training and development are the two areas which have got bearing on Knowledge Management, especially its implementation aspect. Jones and Mehon (2012) had studied the knowledge transfer in high velocity and turbulent environment and found that training is the recourse that can be taken to sell the Knowledge Management Implementation in an organization. They finally reported that in high-velocity environment, good training helps people work with ambiguity in rapidly changing environments as well as how to access the information and knowledge needed in real time with different communication methods. Training also helps people adapt in many different situations, with contingency planning, shared processes and shared understanding of situation and outcomes. Continual training and simulation also help people to anticipate and share knowledge. Other dimensions include the need to create social networks, develop a learning organization, develop knowledge maps to find the expertise needed plus mentoring programmes and understand social networks where the culture supports and facilitates multiple learning in collaborative social networks.

The training should be taken on organizational level so that the institutionalization at organization level of changes in behaviour could be ensured. Bui and

Baruch (2011) identified particular antecedents linked to each of these disciplines, with, for example, the antecedents of team learning being suggested as being team commitment, leadership, goal setting, development and training, organizational culture and individual learning. The training can be facilitated via the creation of 'learning cultures', where learning, reflection, debate and discussion are encouraged (Lopez et al. 2004; Raz and Fadlon 2006); the embedding of learning opportunities in organizational decision-making process could be possible (Carroll et al. 2006); project-based work is common, via processes such as post-project reviews (Ron et al. 2006; von Zedtwitz 2002). As a part of this discussion, self-development opportunity for all also included because they provide self-development opportunity to all staff to develop themselves as they see appropriate. During the review of literature, we found that the enormous literature has been produced on 'learning since mid-1990s and they are of great relevance to understand the dynamics of organizational knowledge processes' (Hislop 2013, p. 98). Consequently, it appears that *relevant training to personnel is a must for Knowledge Management Implementation.*

### 2.5.8 Reward and Recognition

The review of the literature regarding reward and recognition has brought to light the extrinsic and intrinsic motivation also. Kamhawy (2012) has concluded that there is a positive relation between Knowledge Management Implementation, and reward and recognition. Availability of proper reward systems is one of these non-IT-related factors (Kulkarni et al. 2007). It is claimed that such systems can be used to promote, at least in the beginning; applying KM initiatives, employees' levels of cooperation and collaboration, which are crucial aspects for Knowledge Management Awards in organizations (Bennett and Gabriel 1999; Goh 2002; Lee et al. 2005). It requires that the rewards and recognition should be structured in such a way that employees feel motivated towards Knowledge Management efforts of an organization. In talking about motivation, it is necessary to distinguish between intrinsic and extrinsic motivation. Intrinsic motivation refers to the pleasures and positive feelings people can derive from simply carrying out a task or activity, rather than for any reward derived from doing so (Hislop 2013, p. 222).

Quigley et al. (2007) stress the necessity of consideration of both intrinsic and extrinsic rewards when addressing the issue of knowledge transfer. Though extrinsic rewards help stability and continuity of the work force, it also has been found that monetary remuneration and perquisites given to the personal may facilitate motivation besides salary. The research has reported that recognition provides intrinsic reward and motivation. Intrinsic rewards are, therefore, powerful tools to overcome knowledge transfer barriers. Specifically, intrinsic rewards enable the development of informal group outside formal organizational structures, which allows rapid problem-solving, the transfer of improved practices and the creation of professional abilities. Furthermore, intrinsic rewards promote a working

environment that expedites both formal and informal communication, which entails stronger organizational learning behaviours. Intrinsic rewards also may increase employees' commitment to the organization by creating self-improvement desires as a means to support the organization, bringing about the development of 'learn-to-learn' capabilities (Matrin-Péres 2012). Thus, intrinsic rewards perform two significant roles in the knowledge transfer process. First, they contribute to and promote employee participation in the knowledge transfer process. Second, they are a natural by-product generated by the process itself (Locus and Ogalivie 2006). From the above, it may be deduced that *rewards and recognition are motivators for effective Knowledge Management*.

## 2.6 Information and Communication Technology and Tools

The tools enabled by the information and communication technology and the information technology itself have largely been researched by scholars. However initially, it was reported that the management of knowledge tends to happen in an informal way 'rarely supported by purposely designed ICT systems' (Nunes et al. 2006). However, the researchers had investigated this issue further. IT strategies can be classified into two general categories: IT environment scanning and strategic use of IT (Bergeron et al. 2004). System KM strategy requires IT tools that allow for explicit knowledge to be formalized and articulated in documents, and shared electronically through IT infrastructures such as intranet. It has also been concluded by researchers that organizational culture influences not only the types of knowledge that should be transferred, e.g. norms of communication and knowledge sharing, (Zaidman and Brock 2009) but also attitudes towards using IT to share knowledge and advocate the creation of organizational cultures that encourage employees to use IT for knowledge sharing.

Knowledge can be shared via several means such as meetings, manuals, telephone conversations, seminars, conferences and on-the-job training. The intention to share knowledge should thus drive not only the use of IT to share knowledge but also the use of other means they may, in some instances, be more efficient than IT. It is a major enabler of Knowledge Management and a powerful means for sharing knowledge (Mitchell 2003). IT such as intranets, databases, e-mail, Web pages, bulletin boards and electronic forums provides effective knowledge-sharing mediums (Song 2001). Some of the scholars had focused on KM mainly as a technology issue (Davenport et al. 2008; Delmonte and Aronson 2004; Malhotra 2005), and the heavy emphasis on knowledge as a thing and/or process. By 2013, the definition of information and communication technology was codified by Hislop (2013) as ICTs are 'technologies which allow/facilitate the management and/or sharing of knowledge and information, thus, the term covers an enormous diversity of heterogeneous technologies including computers, telephones, e-mail, databases, data-mining systems, search engines, the internet, and video-conferencing equipment' (p. 203).

Therefore, it can be concluded that ICT is an important factor and it contributes to the Knowledge Management as an enabler. It is expected that *information and communication technology is an enabler for KM implementation*.

In addition to information and communication technology, various tools enabled by ICT also help implementation of Knowledge Management and they are intranets, data warehouses, decision support tools and groupware (i.e. technologies that support collaboration and communications). Scarbrough and Swan (2001) found that this emphasis was also reflected in academic research on Knowledge Management, with the vast majority of published search focusing on information technology-related issues. Since the mid-2000s, there has been a significant amount of research on this broad topic (Chiravuri et al. 2011; Ho et al. 2011; Faraj et al. 2011). In addition to these ‘instant messenger’ or ‘chat’ and expert database, corporate yellow pages (Directory of Subject Matter Experts), ‘Blogging’ has also been reported as KM tools for implementation of Knowledge Management (Matthews 2000). The review of the literature has brought in focus the Knowledge Map as an important tool which may be enabled by ICT or may not be enabled by it, but which helps Knowledge Management Implementation in an organization (Tiwana 2000). Since KM tools enabled or not enabled by ICT have also been reported as important drivers for Knowledge Management Implementation, it may be summarized that *tools related with communication are helpful for effective KM*.

## 2.7 Research Model Development

Having completed the review of the literature from the point of view of Knowledge Management, especially the implementation, it can be seen that culture is all pervasive and it is the most important factor in Knowledge Management and rest of the factors are having interface with culture. Not only this may ‘fit’ with the culture, it will be certainly successful. Therefore, the research model depicts culture as an influencing factor of Knowledge Management, overpowering every other factor. Thus, culture has been given the superimposition on every other factor. It has also been found that human resource management tools are mostly required rather than the tools provided by information and communication technology. This model has been further elaborated subsequently in research methodology chapter.

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