CHAPTER-5
Organizational Culture and Knowledge Management in Indian R&D Organizations

This chapter discusses the findings of the research study on the relationship between Organizational Culture and Knowledge Management in the Indian R&D organizations.

5.1 Knowledge Management

Knowledge Management has emerged as very important discipline in the organizational management practices and has come to be recognized as very crucial and valuable for corporate entities as well as the economies of countries. By the literature survey as examined in chapter two the studies that have been conducted on the knowledge management and Organizational Culture and their inter-relation. It is noted that data and information simply cannot be termed as Knowledge. Knowledge management is ingrained in human understanding (Oltra, 2005) and social context (Alavi, 2001). But in the current context of advancement in technology and the widening of global socio-cultural interests, knowledge management cannot be done without giving due considerations to both the information technology and the culture of the people (Havens and Knapp, 1999).

The knowledge is of two types: explicit and tacit. Explicit knowledge can be more easily realized and can be easily expressed in words and symbols which can be shared. Examples include management guidelines, rule-books, office orders, policy manuals, and reference guides. This kind of knowledge can be readily distributed to everyone.

Tacit knowledge is highly personal and hard to put across in words, and cannot be shared with others. Personal Introspection, unconscious knowledge intuitions and hunches fall into this category of knowledge. Tacit knowledge can be harvested through personal
interactions, job following, narratives, idea exchanges and sharing of best practices and lessons learnt. This type of knowledge is rooted in an individual experiences, perceptions, insights, opinions also in an organization's collective value. The persons who are usually considered to be experts within their organizations are individuals possessing tacit knowledge. They are frequently sought out for guidance.

The tacit knowledge has two dimensions. The first is the "technical" dimension, which includes the kind of informal and hard-to-pin-down skills or dexterity often captured in the term "know-how". For example skilled workers, develop a wealth of expertise at their fingertips, through years of experience. But they often have difficulty to convey the technical or scientific principles behind what they know. Highly subjective and personal insights, hunches and brainwaves derived from bodily experience fall into this dimension.

The second dimension of tacit knowledge is cognitive dimension. It consists of beliefs, observations, morals, principles, sentiments and mental models so deep-rooted in us that we take them for granted. Though they cannot be uttered very easily, this dimension of tacit knowledge shapes the way we identify the world around us. (Edvinsson and Malone, 1997).

Knowledge management according to Bounfour (2003) involves a set of guidelines, to bring about best practices in automated systems, and technological and administrative tools, designed towards creating, sharing, leveraging information and knowledge within and across Organizations. The people, processes and technology determine the success of Knowledge Management in any organization. The success of any KM program depends upon the collective knowledge of an organization. The processes, workflow, learning and sharing which is a part of culture of the organization lead to accumulation of
organizational knowledge. People are the means to the success of any KM program. An environment of trust and cordial relationships among the members of the organization culminates in a culture where active experimentation is encouraged through involvement of all. The success or failure of the KM program can be traced by observing the key parameters and measuring the process outputs. The KM process can be harnessed in tandem with a strategic planning in place to achieve organizational objectives. The KM program is supported by technology. Sometimes it becomes a key factor in bringing the people together especially when they are geographically dispersed. The body of knowledge available to an organization can be codified using technology which helps in managing corporate governance. However technology will play an important role in the KM process only when appropriate people, a sound strategy and robust processes are in place. There is no clear well-known road map for the KM process. It is an iterative and continuous process which adjusts itself to the changing needs of the organization. Thus, KM goes through its curative actions. So how far the Organization is successful in its KM journey depends on its original vision and strategic approach and its sustenance through the vagaries of time.

The Knowledge Management in any Organization is a continuous process and becomes a spiral as more and more knowledge is added and managed over time (Parikh, 2001). The Knowledge Management cycle is divided into chronological and intersecting six processes such as Knowledge creation, Knowledge capture, knowledge Organization, knowledge storage, knowledge dissemination and knowledge application and value (Lawson, 2003).
Knowledge Creation – Organization makes conscious effort to search and define relevant knowledge and its sources from both within and outside. Knowledge is created through discovery that is by employees developing new ways of doing things or by bringing it from external sources.

Knowledge Capture - New knowledge is defined as relevant and valuable to current and future needs. It is represented in a reasonable way where it is easily accessed, extracted and shared.

Knowledge Organization – New Organization is refined and organized. This is done through filtering to identify and cross-list the useful dimensions of the knowledge for different products and services. The knowledge is placed in context so that it is actionable and it can be reviewed and kept current and relevant.

Knowledge Storage – Codified knowledge is stored in a reasonable format so that others in the Organization can access it. Database management and data warehousing technologies can help in this process.

Knowledge Dissemination – Knowledge is personalized and distributed in a useful format to meet the specific needs of users. The knowledge is articulated in a common language and using tools that are understood by all users.

Knowledge Application – Knowledge is applied to new situations where users can learn and generate new knowledge. In the learning process there could be analyses and critical evaluations to generate new patterns and knowledge for future use.

Organizational Culture is one of the key elements of successful knowledge management practice (Martin, 2000; Knapp and Yu, 1999). Organizational Culture is extremely
extensive and all-encompassing in range. It comprises of an intricate, interconnected, across-the-board and vague set of factors (Quinn and Cameron, 1999). These factors include values, norms, standards of behavior, and common expectations that control the ways in which individuals and groups in an organization interact with each other and work to achieve organizational goals. Organizational Culture also encompasses the standards, viewpoints, customs and hopes widely held in an organization (Huber, 2001).

Asian Development Bank (ADB) planned a Long Term Strategic Framework for 2001-2015 for implementing the knowledge management. (Heeswijk, 2004) This framework lays out key actions that ADB must undertake in the next four years if it hopes to achieve results. The plan focuses on 5 action plans or programs:

- Improving Organizational Culture
- Improving research agenda
- Updating business processes and IT solutions for knowledge management
- Improving the functioning of 'Communities of Practice' and
- Expanding knowledge sharing with external stakeholders and other parties.

Organizational Culture is built around a set of laws, control, and chains of command. Changes come slow and decisions are from the top to down. All employees and managers can help to create—and can change—Organizational Culture. People at all levels can build skills to produce needed change for themselves, their work roles, and the Organization as a whole. Today’s fast-paced and changing world rewards groups that are flexible and focus on customer needs and satisfaction. Access to new information and quick response to change, and renewal of skills by way of workforce training and development can
reduce stress and facilitate needed change in Organizational Culture. Organizations of all kinds—including those that define their culture for the first time, join with facilitators to assess needs, and to plan for shaping a new culture, using the tools like electronic surveys and cultural audits, dialogues, future vision and strategic plans, workforce training and development, and putting in mechanisms for learning organizational skills (Holowetzki, 2002).

We have noted that Knowledge Management is not same as Information Management. Mistaking knowledge management for information management has led many organizations to the believe that developing an information-technology (IT) infrastructures will result in better knowledge management.

Knowledge management has to be viewed from a cultural perspective. For it begins and is operated in the minds of knowers who are people engrossed in social or organizational groups which have specific cultures. Thus, we see that in organizations, knowledge often becomes embedded not only in papers or database but also in organizational schedules, actions, habits, and traditions of the people working in the organizations.

Therefore, as we have seen, for the information is to become knowledge, humans must do almost all the work (Davenport and Prusak, 2000, p. 6). According to Malhotra (1997), knowledge that is enclosed in the brains of Organizational members is the greatest Organizational resource. Therefore, knowledge management is about managing knowledge resources, and administration of the interpersonal relations and executive procedures that impinge on human resources organizations. In a 1998 study, Malhotra further defines knowledge management as a synergistic combination of data and
information processing capacity of information technologies, and the creative and innovative capacity of human beings.

Organizational Culture is strengthened both by internal aspects, such as the vision, mission and ethics of the company, the know-how employed within the company, the organizational structure and the management style and the external attributes such as the social environment of the Organization (Lemon and Sahota, 2003). An average Organizational Culture could possibly be the most significant obstacle to effective knowledge management (Gold et al., 2001). Organizational Culture evolves over time as Organizations struggle to adapt to environmental contingencies. This is not an easy task as the process of cultural adaptation is complicated, emergent, and not unitary (Miller, 1995). This is especially true as the modern day corporate organizations operate in multicultural environments. Organizational Culture helps determine an Organization's formal and informal expectations of members, describes the types of people who will fit into the Organization, and influences how people interact with others both inside and outside the Organization. In this scenario, building an effective culture within which members operate in an Organization is a critical criterion for effective knowledge management (Gupta and Govindarajan, 2000; Gummer, 1998).

Another finding of the present study is that managing knowledge will only be possible if the organizations are willing to learn. As Aggestam (2006) has suggested, to be a learning organizational requires knowledge management, which in turn is dependent on organizational learning social routines, like group learning, are at least as important as technological tools. The knowledge management has close links to organizational learning and complexity theory. The complexity theory strengthens the understanding of
the interaction between organizational learning and organizational knowledge. It further simplifies the adaptive systems of how individuals and groups adjust and learn. The 'knowledge life cycle' model is based on both Organizational learning theory and complexity theory.

McElroy (2002) draws on complexity theory's understanding of complex adaptive systems to claim that the processing of knowledge is an emerging social activity that takes place anywhere, where groups of people gather, and this leads him to conclude that knowledge processing can be supported, but not controlled by management interventions.

Following Rastogi (2000) it is noted that knowledge management is "a systematic and integrative process of coordinating organization-wide activities of acquiring, creating, storing, sharing, diffusing, developing, and deploying knowledge by individuals and groups in pursuit of major organizational goals". In this process firms create and utilize their institutional and collective knowledge by amalgamating organizational learning, knowledge production, and knowledge distribution. Although there are differences in the various definitions of knowledge management in literature, researchers and practitioners agree that knowledge management is critical for businesses worldwide, whether it involves knowledge of markets, competitors, or processes (Martin, 2000; Nonaka and Takeuchi, 1995). The knowledge has gained in importance due to fast paced globalization and the interplay of technology and organizational change. Also it is realized that knowledge is not merely an input but it is also an important output and maybe an objective for which an organization strives. This has led to enhanced valuation of the knowledge. Earlier the economy was industrial in nature based on goods and services but
now it is increasingly getting replaced by a global knowledge economy, based on the production, distribution, and use of knowledge (Martin, 2000).

In this connection, we can follow Wallach (1983) in easily identifying three separate, measurable Organizational Cultures. These are bureaucratic, innovative and supportive. Bureaucratic cultures are highly organized and systematic where there are clear lines of authority and responsibility. Typical corporate organizations of the olden days belong to this category. They do not provide the workers with challenge and stimulation. Innovative cultures work in a result-oriented environment which provides workers with challenge and stimulation and also rewards for risk-taking and creativity. Workers however may experience high levels of stress and exhaustion as time limits are laid down to accomplish the results. Supportive cultures promote the values of harmony, openness, friendship, collaboration and trust which inculcate the values of friendliness, fairness and helpfulness among the workers and towards the organization. The supportive cultures can give maximum the management level support for a knowledge management system to succeed. A fair understanding of these differences in Organizational Cultures is critical in order to increase the chances of success while applying knowledge management.

The most conducive Organizational Culture for efficient Knowledge management is to me that identifies what knowledge is important and then builds up processes to put that knowledge into action. Knowledge management aims at creating and adding value for customers through the acquisition, creation, sharing, and reuse of any aspect of knowledge relevant to the Organization and its environment, internal and external. It has also been recognized that Organizations need to visualize beyond what works today.
They need to think outside the boundaries of current practices, products, services, organizations, and industries in order to keep up with the rapid pace of change (Rastogi, 2000). The new business environment requires Organizations to be creative and innovative more than ever before not only to grow but even survive (Lahti and Beyerlein, 2000; Rastogi, 2000). This requires organizations to take stock of their business strategies in terms of the knowledge they currently possess and the knowledge they will need for future business processes (Cross and Baird, 2000). The Organizations need to identify and formalize existing knowledge, acquire new knowledge for future use, archive it in Organizational memories, and create systems that enable effective and efficient application of the knowledge within the Organization (Cross and Baird, 2000).

Knowledge management approaches have been found to be broadly of two kinds. One based on organizing communities and the second focused on the process of knowledge creation, sharing and distribution. Organizations have been found to be adopting a mix of both these approaches, but each of this approach creates different sets of challenges. Culture has been a challenge in knowledge management initiatives.

5.2 Organizational Culture in world globalization

Large scale workforce diversity is witnessed in global businesses in the wake of globalization of the world economy that began in early nineties.

The cultural differences from country to country require corporate organizations to align their differences in management practices to specific cultures of each country. As a result, the success or failure of knowledge management within an organization depends on a willingness and capacity to adapt to a new culture which has become an inevitable pre-requisite for effective knowledge management.
In the competitive environment of the modern world, the organizations have to change their culture in order to simply survive (Jex, 2003).

Organizational Culture has been defined in literature as a set of shared values which help Organizational members understand Organizational functioning and thus guide their thinking and behavior (Deshpande and Webster, 1989). Researchers argued that culture is a complex system of norms and values that is shaped over time and affects the types and variance of Organizational processes and behaviors (Barney, 1986). Organizational Culture as a concept is identified to be a key element of managing organizational change and renewal (Pettigrew, 1990). Thus, culture is a sort of glue that bonds the social structure of an Organization together. Hofstede, (1991) called culture the “Software of the mind”. In the competitive environment the organizations have to change their culture in order to survive otherwise, it may be even counterproductive (Jex, 2003).

There have been some studies that identified specific cultural factors that influence organizational knowledge management in different countries. The findings of these studies have brought out that in spite of south Asian culture independence from British rulers passive management culture borrowed from the British colonial rulers has continued to persist in south Asian public sector organizations. This replica of the colonial Organizational Culture was in the main bureaucratic, centralized and non responsive to customer needs (Khilji, 2002). This is true of India also. Large corporate organization emerged in India after the British came into power. The culture of British-promoted organizations was of bureaucratic in nature where officers in management and other higher positions kept aloof from other employees and exercised strict control over the subordinates. The latter, especially, who were largely Indians in the lower and lowest
ranks saw work as duty. The "duty" for the Indians was "karma" to be performed both in the family and in inter-caste framework (Sinha and Sinha, 1990). Such socio-religious attitudes were carried over to formal sector organizations, namely, corporate organizations. Thus an Indian employee was fearful of people in power, obedient to superiors, dependent on others, fatalistic, submissive, and caste-conscious and more law abiding than the English employees (Tayeb, 1987). But Indians are also status conscious which relates to the traditional notion of high castes. Thus both hierarchy and inequality, deeply rooted in Indian traditions were present in the formal Organizational Culture of India (Roland, 1980).

In this study, I would like to point out the fact that inspite of the above aspects of Indian work culture, it is also clear that of recently the features of Indian Organizational Culture are changing more as a result of democratization and modernization effects of post-independence developments in education, global interactions and anti-caste consciousness, self respect and individual freedom of expression and creativity. As a result of this steady transformation of Indians working in an organizational milieu, they have been able to achieve tangible results. The case of R&D organizations in India is a testimony to this achievement for today a large number of global organizations are sourcing their R&D requirements from India. The main reason of this is the generation of a large talent bank of professionals across different sectors and disciplines. Yet there are still constricting factors such as those in the area of confidentiality and intellectual property rights. Indian organizations management and governance need to overcome these limitations through further improvements in the approaches to Organizational Culture.
It has been posited in literature that there are some values of a culture that help in an
effective knowledge management and these are expertise, formalization, innovativeness,
collaboration and autonomy (Alavi et al., 2005).

5.3 Organizational Culture and Knowledge Management

There are two fundamental approaches to Knowledge Management: the process approach
and the practice approach. The process approach attempts to codify organizational
knowledge through formalized controls, processes, and technologies (Hansen et al.,
1999). Firms following the process approach may implement unambiguous policies
governing how knowledge is to be collected, stored, and disseminated throughout the
organization. The process approach often requires the use of information technologies,
such as intranets, data warehousing, knowledge repositories, decision support tools, and
groupware to improve the quality and speed of knowledge creation and distribution
within the organization (Ruggles, 1998). We have found following Farsi (2009) that
incorporation of knowledge sharing culture among the members of the organizations will
enable and support exchange of tacit knowledge between individuals and groups/teams,
which would be an effective means in development for innovators in organizational
processes for product development, market realization and customer satisfaction.

As the connections between Knowledge Management and Organizational Culture have
become obvious, in the current knowledge intensive era, organizations consider human
resource as the most crucial asset in contemporary business. Therefore, organizations
have started to manage their intellectual capital and knowledge as most valued assets of
the Organization. Similarly, as the value of sharing knowledge in an effective manner has
become extremely important, organizations have embraced the group approach to work processes.

5.4 Knowledge Management and Organizational Culture with respect to the R&D Base of India
India has a strong set of Science & Technology (S&T) policies and extensive network of about 2500 Research and Development organizations, mostly Government supported. These organizations cover virtually every branch and facet of research and technology ranging from paleo-botany to spacecraft. These organizations generally follow the traditional approach of Research and Development. The traditional approach to Research and Development is to employ experts in the field, provide adequate funds with a motivating environment and have a supportive management. The outcome may be in the form of prototypes, and publications. The disadvantage faced here is that the post research coordination activities for commercialization are found lacking, which needs to be enhanced. Besides, organizational arrangements for transfer of technology developed must be established. Then only can the results of R&D be truly available to those organizations for which these are intended. Patents, not publications, are important. There should be focus on specific objectives, to be achieved within stipulated time frames and estimated costs etc.

For any R&D Organization to be successful in achieving the above objectives and to keep abreast with latest developments as well as to maintain the organizations' competitiveness there is a challenging need to successfully implement knowledge management strategies. The Knowledge must be collected from both internal and external sources of an Organization. Every individual and Organization manages knowledge in one form or another. An expert mentoring a junior employee, two employees sharing
their experiences at the water cooler, an intranet repository of best practices, and a continuous learning program are all examples of knowledge management. KM is a necessary requirement for any R&D activity which requires its personnel to continuously enrich their knowledge and use it to develop new information and knowledge. Knowledge Management helps collect relevant knowledge from multiple areas and integrate it with organizational objectives. Indian R&D Organizations need to invest in acquiring relevant knowledge and people engaged in research should be able to make use of a variety of knowledge sources which will enhance their ability to innovate.

Many people are afraid that by sharing knowledge they will lose their importance. A major component of the implementation of Knowledge Management is to change this culture of monopolization and encourage knowledge sharing rather than hoarding. In order to promote the flow of tacit knowledge there should be a mechanism to access to people’s information. As proposed by Ambrecht (2001) that R&D organizations should build an accommodating culture to enable knowledge flow, support creativity, encapsulate knowledge of experts and accelerate the R&D processes. Knowledge Management should address Organizational level issues such as creating new processes or revising old processes to generate knowledge, and developing incentives to encourage knowledge sharing. It should utilize both formal Organizational memory (such as databases, repositories and networks) and informal Organizational memory (like culture and personal relationships) to store knowledge. Sharing knowledge through communities of practice consisting of individuals with similar skills and responsibilities can be effective. Knowledge Management can help connect people who will otherwise not be able to meet.
The schema of R&D organizations in the fast emerging knowledge society is to either introduce new ideas and innovate or fade away. Competitiveness will be achievable only by exploiting intellectual capital in ways that are more valuable, distinctive and hard for rivals to copy in the global economy. This can be done by finding ideas that can be developed quickly and cheaply, by leveraging the breadth of knowledge, by promoting a strong team culture with enhanced use of technology. The output of any R&D is materialized in new products, processes and prototypes that can be protected by a patent.

The Knowledge processes in R&D organizations are accessing and importing knowledge, creating new knowledge through projects, capturing and sharing explicit knowledge in a reusable form (with sufficient generalization) to be used in new contexts, and re-using knowledge in fresh contexts to create new offerings and growth. The Implicit Knowledge processes in R&D are sharing knowledge, providing knowledge to the breadth of the organization, building internal and external networks and relationships, measuring the value of intellectual assets, benchmarking the best sources of knowledge, both internal and external, and also sustaining knowledge when experts leave.

The types of knowledge / intellectual capital in R&D organizations are environment (technologies, standards, competitors, suppliers, partners), tacit knowledge (experts, teams, networks...), processes and best practices, Explicit knowledge (reports, knowledge store...), Vendors (brand, reputation, client relationships, current and future needs).

The personnel in R&D make the knowledge management successful using networks built by shared tasks of the integrated project teams, jointly finding solutions to customer needs, exploiting proximity, cross discipline teams, job rotation etc. The Organizational
Culture must nurture reciprocal trust, openness, cooperation and taking time to help others. It must have performance metrics that encourage this desired behavior. The Organizational Culture must have ambitious targets that encourage openness to external knowledge, and discourage “not invented here” attitude. The active application, sharing and cultivation of new knowledge through Knowledge Management practices facilitated by a strong Organizational Culture, can achieve lasting improvements in an organization’s performance and in the value and competitiveness of its products and services.

The analysis of our study also support and validate the previous stated relationship between Organizational Culture and the success of Knowledge Management in an R&D Organization. In the previous chapter IV, with some statistical measures (t-test, Pearson chi-square test and descriptive statistics), it was proved that the Organizational Culture plays a very important role in the implementation of knowledge management. The regression analysis also corroborated the influence of Organizational Culture on the success of Knowledge Management. Thus, organizations, which have good scores in their Organizational Culture scale, will be able to successfully implement knowledge management in their respective organizations.