
Towards knowledge management: a case study

R.P. Mohanty

Human Resources Division,
The Associated Cement Companies Ltd (ACC), Cement House,
121, Maharshi Karve Road, Mumbai – 400 020, India
Fax: 231 7453 E-mail: Rpmohanty@accement.com

Abstract: Knowledge is the unique resource for value creation and maintenance in the emerging global economy. Contemporary organisations require diverse knowledge workers to develop knowledge competencies and also collaborate in multiple ways to create new knowledge that enhances the performance of the organisations. The key issues in knowledge management are how to continuously generate, develop, deploy, utilise and sustain the knowledge potentials within an enterprise and share between enterprises. Knowledge management has thus far been addressed at either a philosophical or a technological level, with little pragmatic discussion on how knowledge can be managed and used more effectively on a daily basis. This paper makes an attempt to amplify understanding about operational aspects of knowledge management based on Indian experiences. We find that effective knowledge management requires a long-term vision and commitment coupled with strategic emphasis for application, which should be at the core of Indian organisations, supporting learning, sharing, deploying, and sustaining individual and corporate knowledge and lessons learned. A knowledge-driven company case is presented.

Keywords: Knowledge-driven organisation; learning strategy; knowledge management.

Reference to this paper should be made as follows: Mohanty, R.P. (2003) 'Towards knowledge management: a case study', *Int. J. Information Technology Management*, Vol. 2, No. 3, pp.197-213.

Biographical notes: Professor R.P. Mohanty has worked for 28 years in academics, including as visiting professor to international institutes and universities, and eight years at ACC in the top management position at the corporate level. He is a recipient of the Outstanding Academician Award and the Lillian Gilbreth Award, and also an Outstanding Research Award for his significant contributions to the field of knowledge from various professional institutions. He has received a Distinguished Leadership Award in academics from the American Biographical Institute. He has published five textbooks and 250 research papers in international journals of repute, and chaired and presented papers at leading national and international conferences.

1 Introduction

Very intense levels of competition coupled with the ever-increasing use of technology and significant emphasis on Knowledge Management (KM) characterise contemporary organisations across the globe. Competitive organisations only make a

nation competitive [1]. The increasing reliance on knowledge for competitive advantage is becoming the order of the day. The World Competitiveness Report [2] establishes that:

$$\text{Competitiveness} = [\text{Competitive Assets}] \times [\text{Competitive Processes}] \quad (1)$$

$$\text{Competitive Assets} = F [\text{Technology, Knowledge Resources, Regulatory Assets, Functional Assets, Positional Assets, Cultural Assets}] \quad (2)$$

$$\text{Competitive Process} = F [\text{Quality, Speed, Responsiveness, Productivity, Innovations}] \quad (3)$$

We can draw the following inferences out of the above relationships:

- The competitiveness of an economy rests on knowledge resource as the most important asset [3]. All other assets and resources revolve around it. Knowledge is rapidly displacing capital, monetary prowess, natural resources, and labour as the quintessential economic resource [4].
- The market economy will die in its infancy, if it is not grounded in strong knowledge management systems. Michellone and Zollo [5] are of the view that knowledge management systems will play a very dominant role in future organisations and will expand the span of our actions, in terms of power, efficiency, effectiveness and range.
- Those organisations recognising the need for investment in knowledge resource and acting with a fast pace will be the winners in the corporate business Olympic [6]. Knowledge is the only competitive differentiator between organisations and national economies.
- The only long-term competitive advantage which companies possess, is the ingenuity, skills and assimilative and absorptive capabilities of the people they employ. Increasing the skills and capabilities of workers is the key to economic success in an increasingly integrated and competitive global economy.
- Knowledge assets are the know-why, know-what, know-how regarding markets, products, technologies and organisations, that a business owns or needs to own and which enable its business processes to generate value adding outcomes/ profits.
- KM involves the identification and analysis of available and required knowledge, and the subsequent planning and control of actions to develop knowledge assets so as to fulfil organisational objectives.
- An accelerated rate of growth in knowledge is making organisations reflect on mechanisms to cope with them. As the usage of technology continues to grow, there will also be a simultaneous need for growth in the knowledge base of the organisations.

Historically, knowledge has always been managed, at least implicitly. However, effective and active knowledge management requires many new perspectives and techniques and touches on almost all facets of an organisation. We need to develop a new discipline and prepare a cadre of knowledge professionals with a blend of expertise that we have not previously seen. This is our challenge!

The development and growth of the knowledge base in an organisation are being enabled and facilitated by the accelerating usage of information technology and systems. In such a dynamically evolving environment, which is characterised by an information

explosion and competitive pressures due to liberalisation and globalisation, it is highly imperative that an organisation has mechanisms both formal and informal for encouraging the learning process. Knowledge - the insights, understandings, and practical know-how that we all possess - is the fundamental resource that allows us to function intelligently. Over time, considerable knowledge is also transformed to other manifestations - such as books, technology, practices, culture and traditions - within organisations of all kinds and in society in general. These transformations result in cumulated expertise and, when used appropriately, increased effectiveness. Knowledge is one, if not the, principal factor that makes personal, organisational, and societal intelligent behaviour possible. Knowledge management tends to focus on learning organisations, which enhance the ability and competencies of people to create and retain value.

Senge [7] has elaborated extensively about learning organisations. Garvin [8] has pointed out that a learning organisation must have a framework for management and measurement of the learning process along with the 'meaning' of the process itself. A learning organisation should be an organisation skilled at creating, acquiring, and transforming knowledge, and at reforming the behaviour patterns of decision makers to reflect new knowledge and insights so as to evaluate total quality in every endeavour [9]. The basic concern in organisational learning is how to develop capacity or processes for quality decision making to maintain or to improve decisions based on knowledge. All organisations do engage in some form of collective learning as part of their development [10]. Collective learning may take place through accumulation of knowledge and experience through actionable learning.

In this context, it is interesting to study the case of a knowledge-driven organisation. First, we will discuss the knowledge imperatives for Indian organisations and subsequently describe a case study of a knowledge-driven company.

2 Knowledge management in Indian organisations: some issues

Adams [11] pointed out that India needs to redirect its attentions towards education-knowledge building. The truth of organisational knowledge building depends on a very complex proposition: how do we envision 21st century corporations and the organic changes in the associated work systems and co-evolving participative style of human resource development and management. Given the current socio-economic climate, many corporations view the existing knowledge base as entirely inadequate for innovation and improvement in sustaining their competitive potential [12]. Indian organisations of the future will make a quantum paradigm shift [6]:

- from manual work to knowledge work
- from the efficient motion of work to value innovation
- from a closed system to more permeable and flexible boundaries: knowledge networking
- from vertical command to horizontal knowledge-driven work processes: the new organisation
- from homogeneity to diversity: the new work force skills

- from status and command rights to competencies and relationships: the new power source
- from authoritarianism to empowerment: the new pattern of decision-making
- from ritualistic performance assessment to relativistic benchmarking
- from organisational capital to intellectual capital: the career asset
- from stand-alone competition to simultaneous strategic collaboration and knowledge sharing
- From the relatively stable hegemony of financial factor-ruled to the dominance of knowledge as the driving force

Mascitelli [13] mentions that traditional competitiveness factors cannot provide a sustainable advantage in a highly dynamic, knowledge-driven global marketplace. The scarcest resources in any organisation are the performing people endowed with knowledge. Knowledge within the organisation is living, developmental, and synergistic, if it is applied and internalised in organisational activities. Given the importance of knowledge in virtually all aspects of daily and commercial life, two knowledge-related aspects are vital for the viability and success of Indian organisations at any level:

- 1 Knowledge assets - the valuable knowledge available to be used or exploited - must be nurtured, preserved, and used to the greatest extent possible by both individuals and organisations.
- 2 Knowledge-related processes - to create, build, compile, organise, transform, transfer, pool, apply and safeguard knowledge - must be carefully and explicitly managed in all areas affected.

However, some of the significant problems Indian companies face are as follows:

2.1 Indian companies fail to understand the importance of human capital

Why do some companies succeed, while others fail? This is the defining issue for the contemporary field of knowledge management. Knowledge management examines the process of value creation through the human resources. Value generation from resources is characterised by creating the locus of knowledge and the flow of knowledge across organisational boundaries in each activity. For example: customer satisfaction, process cost, process quality, process speed, shareholder value, process capital creation, strategic leadership, quality in decision making, collaborative team working, organic partnership, responsive behaviour, action orientation, change in value system, generic problem solving and collective creativity and efficiency are some of the variables of human capital formation.

The notion of human capital is currently receiving great attention in knowledge management circles. People are now beginning to realise that wealth can be derived from contacts, connections, and the ability to work well with others. Often an organisation's most valuable knowledge resides not in explicit forms such as documents, database records and web pages, but in employees' experiences and know-how. How can we start to think about invisible assets? They include three classes [14]:

- Employee competence (the capacity of employees to act in a wide variety of situations). Mohanty [12] suggests that it is the individuals in organisations who create external and internal structures to express themselves.
- Internal structure (everything that does not leave at night: models, concepts, computer and administrative systems, the 'culture' or 'spirit' of the organisation). The internal structure and the employees together constitute what is generally called 'the organisation'.
- External structure (relationships with customers and suppliers, networks, brand names and reputation or 'image').

Indian organisations have to make a head-start on larger companies where social capital is concerned. Large companies, can, indeed, learn from globally successful companies. Larger-sized companies are well poised to extend their knowledge processes to customers and suppliers without feeling that their business intelligence is threatened.

There seems little doubt that larger-sized companies in India have an intrinsically great appreciation of knowledge as a corporate asset. Traditionally, their business practices have had a greater reliance and dependency on tacit knowledge than have larger businesses. In a knowledge-centric business environment, larger-sized Indian companies have to embrace knowledge management tools that will help them leverage that tacit knowledge within the business and across the enterprises.

While it is true to say that Indian companies have traditionally had a great understanding of the importance of tacit knowledge for their business enhancement, they have fallen behind when it comes to managing or leveraging the knowledge assets they possess. They have failed to fully exploit these highly valued knowledge assets, in order to help their businesses gain the kind of competitive edge that is so vital in this fast-paced knowledge-driven economy. The challenge for Indian companies of deploying knowledge assets to create the necessary competitive advantage has become increasingly business critical. The knowledge driven, rocket-paced, global marketplace in which the Indian companies must operate in a globalised economy is more vibrant and competitive than at any previous time in recorded history. In addition, technological innovation improves at such a rapid rate, that to remain viable in the global market place, they must quickly capture, assimilate, deploy, and absorb effectively 'just in time' knowledge. Indian corporations now have to operate as customer/client-centric businesses, and have to organise their operations with a focus on creating customer/client value.

Successful companies all over the world are replacing the informal knowledge management of the staff function with formal methods in customer-aligned business processes. Knowledge is perishable. The shelf life of expertise is limited because new technologies, products, and services continually pour into the marketplace. No one company or individual can hoard knowledge. People and companies must constantly renew, replenish, expand, and create more knowledge. Knowledge within companies resides in many different places such as: on computers in databases, filing systems and in the heads of employees. Very often one part of an enterprise repeats the work of another part simply because it is impossible to keep track of, and make use of, knowledge in other parts. Within most Indian companies this is indeed a problem area.

Indian companies have a strong belief in the fact that it takes a long time for employees to gain the level of experience of the company's key processes to be able to translate them into valuable explicit and tacit knowledge. They also realise that their

employees no longer have the luxury of time to acquire knowledge. Even within large, 'stable' companies that offer much opportunity for personal development, the 'job for life culture' is fast disappearing through 'early employee separation programmes'. Highly innovative, experienced and knowledgeable employees are taking advantage of the new opportunities, in a globally shrunk, highly accessible market place. The knowledge loss resulting from this culture change is going to be phenomenal, and companies have to take action to capture and store the knowledge assets of their employees before they leave the company.

2.2 Unequal access to knowledge management tools

History shows that Indian civilisation is most ancient and moved towards growth during the English rule. For hundreds of years, owners of family businesses have passed their wisdom on to their children, master craftsmen and farmers have exchanged ideas and know-how on the job. But knowledge management was not in a documented form even though it was in action. Knowledge management is currently being marketed as a 'new' business intelligence-enabling tool. We are led to believe that knowledge management is an invention of the last decade, but in fact it has been part of the core administrative/business process/strategies as far back as one cares to venture. Academics and other knowledgeable persons are of the opinion that knowledge assets within organisations have long been considered vital and these assets have not been formally and strategically managed. Knowledge assets are essentially the knowledge regarding markets, products, technologies and organisations that an organisation owns or needs to own and which enable its business processes to generate profits and add value. It therefore comes as no surprise that managing these assets have been key priorities for all business models over the centuries. The important difference with modern day, 'new style' knowledge management is the changed environment in which businesses operate, and the high technology enabling tools that are available to help the knowledge management process. Unquestionably Indian companies need knowledge management just as much as the giant global enterprises. The current demand for knowledge management is the result of the high uptake by large business houses. Some of the innovative organisations are now placing great emphasis on knowledge management as part of their core business processes. These corporations have embraced knowledge management as part of their business strategy, including examining how they can better manage their intellectual capital. There is one overriding reason why corporate giants have implemented knowledge management strategies; it is essentially to gain a competitive advantage in the knowledge economy. They seek the best methods to audit and capture knowledge regarding both explicit and tacit knowledge within the enterprise. They also want to improve their ability to acquire and create new knowledge quickly. However, many do not even know that knowledge management exists. Of those who are aware of the power of knowledge management, very few feel they have the necessary 'infrastructure' to implement the knowledge management systems and many feel they have far more pressing priorities and needs. Foremost in the minds of senior managers of Indian organisations is the financial feasibility. Most feel that knowledge management returns on investment figures do not generally add up, so knowledge management is relegated to the level of a luxury item, and a deliberate wasteful expenditure. In the meantime, they continue in the way they know best: losing vital knowledge capital and competitive advantages daily. Indian companies can no longer excuse their tardiness or

procrastination where implementation of knowledge management is concerned, as in all likelihood, if they delay the gate will shut on them, and they will be permanently locked out of the global knowledge-led business market.

2.3 *A strategic framework for learning is missing*

Knowledge building i.e. creation, development, maintenance, and deployment is a systemic process. It involves three kinds of understanding i.e. know-how (the state of knowledge), know-why (the process of knowledge), know-what (the purpose of knowledge). Know-how is learning by doing. Know-why is theoretically directed learning by doing. Know-what is strategic understanding i.e. learning both top down and bottom up. Buckler [15] explains these three kinds of understanding in the context of a learning organisation. Knowledge building is the foundation of the concepts of skills, capabilities, and competence [16].

In any learning process, the following phases can be identified [17]:

A-priori articulations: These articulations may be based on prior experience, historic database and prior knowledge of the processes. The knowledge base of the managers based on their perceptions, value system and exposure to a variety of situations would be of immense value.

Articulations during the process: These are the articulations expressed during the process. For example, in any decision making situation, the discussions and deliberations about the environment, decision criteria, and ways and means of characterising the alternatives will qualify for these articulations.

Posteriori articulations: These articulations are expressed based on additional knowledge gained, and on performance feedback and the intrinsic desire of an individual to discover their potentialities and limitations. This may also be governed by an intrinsic urge of the decision makers to learn from the past and thereby continuously improve.

At each phase, the individual or group may attempt to learn more and more. The process of learning is iterative and dynamically evolving. The commitment to learning of an individual may manifest in many ways: his behaviour, change in attitude, value system and so on. Brown *et al.* [18] attempted to characterise the interrelationship between the workplace, innovation and learning. According to them, these three are inseparable and a unified view needs to be developed using communities of practice approach, which will promote continual learning.

Indian organisations, in general, have a very low rating towards learning and innovations [12]. Employers' actions are in response to special circumstances or needs. Programmatic actions towards learning are sparingly observed in professionally managed companies. Some companies perceive that the learning is a voluntary action on the part of the employees. Most people have a fundamental desire to learn in order to become more proficient in their vocation or discipline, but the individual attention and investment that a company dedicates to an employee's development is very low. The amount of training and education that a company makes available and encourages employees to use is insignificant. Very few companies offer concentrated growth and learning experiences to employees. Furthermore, there is no collective attempt by Indian firms to share learning in various forums seriously. Indian firms are yet to realise very systematically that learning can foster the rapid transfer of knowledge that can be applied in a productive

manner across firms and geographic boundaries. Today, it has become an imperative for Indian firms - large or small - to use systematic processes and frameworks of learning.

3 A case study

Companies that have enjoyed enduring success during the last several years have been learning organisations centred around people who have transformed business strategies and practices by endlessly adapting to a changing world. If the core purpose of an organisation is to remain in business in a competitive world, the organisational members collectively accomplish certain tasks, which ultimately should result in making a product, or service, which is of value to the human system [9]. The basic dynamics of successful companies in recent years has been in terms of decisions to build the strength of the organisation and its people, or in other words creating and nurturing a learning organisation where people are capable and competent enough to perpetually make effective decisions. For example, Proctor and Gamble, 3M, Hewlett-Packard, Toyota etc., being able to renew and revitalise their people through knowledge, have become global trendsetters and have achieved superior long-term performance. All these outstanding achievements of several companies across the globe really do come from the organisational members who are apt at providing high quality decision rules and strategic leadership to their work systems and to the associated environment. Learning is not only essential for sustaining today's competition but the only differentiator in a relativistic world to become purposefully opportunistic. Organisations following the philosophy of Total Quality Management (TQM) implicitly follow and value learning as characterised by their emphasis on a continuous improvement process [19]. Nonaka and Takeuchi [20] attempted to characterise the knowledge creating company. Wenger and Snyder [21] propounded the community practice approach, which will promote continual learning. Hansen *et al.* [22] concluded that an organisation's knowledge management strategy is dependent upon and driven by its competitive strategy. Day and Wendler [23] highlight some of the best practices used by leading knowledge creating organisations.

XYZ is a leading company in India with an annual turnover of Rs. 300,000 million and assets worth Rs. 254,655 million. The company is in the business of manufacturing and marketing a variety of products and services; such as cement, refractory and other construction materials along with consulting services in the fields of geology, mining, project engineering, environmental management. It has an annual cement production capacity of 15.0 million tonnes. The company's operations are spread throughout the country – with 12 cement manufacturing units, three refractory plants, 12 regional marketing offices, 42 area offices, and about 10,000 employees. The company's various businesses are supported by a powerful research and development centre, which indicates that it's the only one of its kind in the Indian cement industry. This ensures not only consistency in product quality but also continuous improvements in products, processes, and application areas. The competitive strategy of the company lays a strong emphasis on cost leadership and excellent customer service, through total productivity and quality management.

The mission statement of the company includes the following:

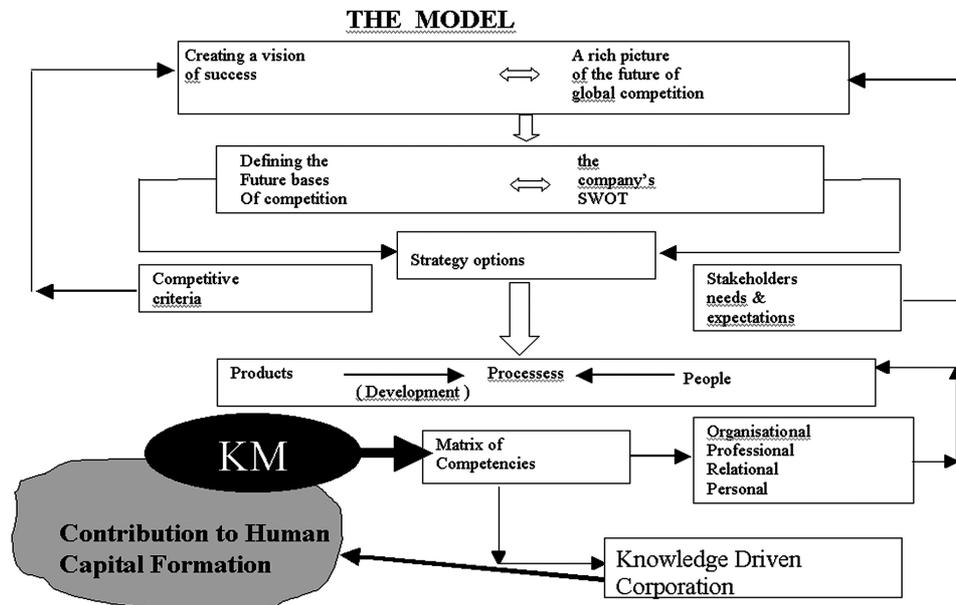
“The company’s works will be profitable, efficient, and environmentally aware, and be an innovative leader in the national and international market with the aim of providing all customers, internal and external, with quality products and services, and ongoing continuous improvement process, keeping in mind the vision, which was to build a strong and unified cement industry that would not only withstand all difficulties but also fulfil its responsibilities to the nation.”

3.1 The vision of the company is to be a Knowledge-Driven Organisation (KDO)

3.1.1 Attributes of a knowledge-driven organisation

The model for a knowledge-driven organisation is shown in Figure 1.

Figure 1 The knowledge-driven organisation



Vision and commitment cascade – this involves learning at several levels, corporate, business unit, R&D, etc. This encourages alignment throughout the organisation – products, processes, outputs and consequences - to minimise the time required to learn from mistakes and focusing on behaviour for human involvement and empowering the workforce.

- strengthening investments in R&D and HRD to enhance managerial capabilities; combinative capability; integrative capability; absorptive capability
- providing the right tools for the right jobs
- concept creation
- pursuit of management efficiency (automation, productivity improvement, systematisation, etc.)
- pursuit of management reforms (business creation, market development, and integration of technological developments in work systems)

3.1.2 The dynamic momentum of knowledge management

- Momentum has a profound structural relationship with value-adding strategies of human resource management and development
- Products are actively being developed
- Processes are being re-engineered
- Management systems are undergoing novel experiments and changes
- Momentum has been generated through a religious leadership which believes in truth, trust, authenticity, inclusiveness, accessibility, vulnerability and sensitivity
- Momentum has regenerated the corporate vitality
- Momentum is being sustained by human resource development by creating conditions such that: employees internalise the company vision and goals; employees view their work systems as the locus of self-expression for meaningful contribution; employees express a cheerful autonomy in the work place
- Momentum is being influenced to a large extent by the growth potentials: market share; production capacity; new product development
- Momentum is being enhanced by establishing a high degree of connectivity between: top management and strategic business units/divisions; internal organisations and functions; the company and society.

3.1.3 Initiatives for knowledge management

Table 1 demonstrates the results of a questionnaire survey administered in the company to over 1000 executives and 2500 workers.

Table 1 Knowledge management initiatives: a survey

<i>Initiatives</i>	<i>Measures</i>	<i>Percentage of employees using the measure</i>
Use of team processes	• Number of team activities	70%
	• Perceived effectiveness of team processes	65%
	• Outcomes of team activities	60%
Focus on internal customers	• Awareness about internal customers among staff	70%
	• Perception of internal customers about quality service	60%
Common understanding of quality as satisfying the needs of external customer	• Awareness of concept	95%
	• Ability to express customer needs	55%
Understanding of the customer need	• Ability to express customers needs in decisions in terms of internal activities and measurements	80%
Ability to meet the needs of the customer	• Improvements in customer satisfaction measures	80%
Emphasis on the use of the data and understanding variation in decision-making	• Extent of training in use of data	95%
	• Extent of application of data analysis	80%
	• Understanding of the impact of variation on decision making	65%
	• Evidence of impact of variation on decision made	55%
Understanding of the organisational processes	• Documentation of processes	75%
	• Awareness and understanding of documentation	85%
	• Knowledge of undocumented features of processes	80
Understanding techniques of improvement, and ability to improve	• Training in techniques of improvement	90%
	• Application of techniques	80%
	• Understanding of how techniques can be applied to major processes, with the aim of improvement in customer satisfaction	75%
	• Evidence of improvement	65%
Ability to reduce the variability of products and services to provide greater reliability	• Evidence of reduced variation and increased reliability	70%
Ability to reduce waste	• Evidence of reduction in waste	70%

3.1.4 Tangible values generic from knowledge management

- manpower reduction by 31%
- man-hour per tonne reduction by 48%
- thermal efficiency increase by 23%
- electrical efficiency increase by 11.5%
- sales volume increase by 20.3%
- reduction in variable cost of cement by Rs. 16/tonne in spite of the inflationary effect
- stores and spares inventory reduction by 21%
- blended cement production is 73% vis-à-vis 24% for the industry
- accident rate reduced by 50% from 4.5 accidents/ million man-hrs .

3.1.5 Knowledge management value-adding strategies

- alignment with corporate mission and objectives and partnership with line management
- organisational restructuring
- new organisational design
- rightsizing
- optimisation, job enlargement, delayering, outsourcing, decentralisation
- self managing team: flexible productive action teams
- identification of Critical Mass and formulation of strategies for their development
- off- the- job [4.5 man days/annum] knowledge development: analytical skills development; productive action team development; managerial skills development; management competence development; strategic leadership development
- on-the-job knowledge development: job rotation; functional rotation; unit rotation; deputation; mentoring; self development; knowledge networking; community of practices.

3.2 The future of knowledge management

The industrial sector is undergoing a major transformation in anticipation of the global competition and hence the company has enumerated a 3-pronged strategy for the future:

- Strengthening research and all developmental activities in all business areas by establishing corporate linkages through the melding of divergent knowledge and pluralistic cultures to establish the supremacy as a knowledge-driven modern corporation and to engage in fair competition in the market place

- Preserving the sense of mission over two principal goals: the value of work; the product quality – the singular determinant of product value
- Appreciating human capital by encouraging new knowledge to come forward; tapping everyone's knowledge; encouraging people to learn; allowing free flow of knowledge and people to share and learn; creating and maintain loyalty among people.

Leveraging and creating value from knowledge management – and how to develop the right potential and desired value-adding outcomes - are the keys to future success.

4 Some significant learning points:

- The company has a very pragmatic knowledge agenda, which is as follows:
 - 1 a strong link to a business strategy
 - 2 an inspiring vision and commitment cascade
 - 3 knowledge leadership
 - 4 dedicated learning and sharing culture
 - 5 a systematic organisational knowledge creating process.
- The company is increasingly using electronic group collaboration tools to support teamwork, which has fuelled interest in the ways by which what goes on when people use those tools can be captured, stored, and re-used by others. This is a defining moment for organisational computing. By understanding such tools, appreciating the capabilities of available technologies, and then knowing how to build virtual teaming skills and create knowledge management strategies, the company can seize this moment and dramatically increase its ability to compete in the future.
- The company recognises that knowledge is a human capability rather than a property of an inanimate object such as a book or computer record. It sees knowledge as a personal capability such as a skill, experience, or intelligence: a capability to do or to judge something, now or in the future. This capability can be acquired by an individual as a result of reading, seeing, listening to, or feeling (physically or emotionally) something. What is read, seen, heard or felt is not the knowledge; rather it is the medium through which knowledge may be transferred. In the company's language they recognise that knowledge is the result of a personal transformation.
- The company considers that knowledge acquisition is dynamic; this means that knowledge management tools don't really manage knowledge, but help capture, organise, store and transmit source material from which an individual may acquire knowledge. Knowledge does not come in sound bites. It is transferred through courses or books or workshops, or acquired through training and experience. The expectation is that people acquire knowledge (learn) over days or weeks rather than minutes and hours. Knowledge about work is best acquired through work. With increasing emphasis on knowledge-based business rather than administration-based

business, management is seeking ways to get that knowledge to be effectively deployed and absorbed. The goal is to manage this aspect of the enterprise in the same way as its physical and financial assets. Charged with this are the new roles of managers with performance responsibility for creating an environment for innovations and transfer of skills and competencies from top to bottom and processes for dealing with knowledge as a corporate asset [24].

- Significantly, the knowledge management process in the company involves: capture; organisation and storage; distribution, or better, sharing; application or leverage [25]. Every manager in the company uses computer-mediated communications, all their team dialogue takes place in the team electronic workspace, and not through private e-mail, even when that dialogue is informal. A culture is formed online which reinforces knowledge sharing and continuous communication, team members are encouraged to learn from each other and from outside the team, the structure of that electronic workspace remains tuned to the emerging structure of the knowledge that the team is handling.
- Typically, the case company is actively engaged in integrating knowledge in every work place and in exploiting feedback for maintenance and evolution [26].
- According to Garvin [8], a learning organisation is an organisation skilled at creating, acquiring and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights. It is imperative that an organisation must place a very high value on acquiring skills and enhancing the knowledge base of its employees. The process of knowledge enhancement can be understood by following Garvin's guidelines. Garvin mentions that there are three overlapping stages: cognitive, behavioural and performance improvement for knowledge enhancement. Viewed from the above perspective, the company has been able to achieve the following:
 - 1 To increase the level of mutual collaboration in the decision-making process
 - 2 To increase the incidence of confrontation of an organisation's strategy formulation and implementation and to increase the group responsibility in planning and implementation
 - 3 To encourage the development of synergistic solutions to problems with a high degree of confidence.
- Knowledge management in the case company must be considered from three perspectives with different horizons and purposes (and, require very different expertise) although they to a large extent rely on the same insights into the organisation's knowledge status. These perspectives are:
 - 1 Business Perspective - which focuses on why, where, and to what extent the organisation must invest in or exploit knowledge. Which strategies, products and services, alliances, acquisitions, or divestments should be considered from knowledge-related points of view?
 - 2 Management Perspective - which focuses on determining, organising, directing, and monitoring knowledge-related activities required to achieve the desired business strategies and objectives.

- 3 Hands-On Operational Perspective - which focuses on applying the expertise to conduct explicit knowledge-related work and tasks.

These perspectives have helped in making knowledge visible within the company, increasing knowledge intensity, building knowledge infrastructure, and developing a knowledge culture [27]. Specifically, the company has adhered to the following fundamentals:

- 1 Encouraging the creation of knowledge assets
- 2 Establishing an organisation-wide vocabulary to ensure that value creation efficiency concepts and practices are well understood
- 3 Identifying issues related to knowledge management
- 4 Identifying the key ideas for gaining commitment among employees
- 5 Establishing a new performance management system involving innovations and knowledge sharing as important parameters
- 6 Standardising a KM methodology for organisation-wide deployment.

The following conclusions can be derived from this case study:

Principle 1

- Make KM an organisation-driven value-creating management process not a compliance-oriented support function.

Principle 2

- Make KM decisions like other business decisions - on the basis of value.

Principle 3

- Drive knowledge across and between work systems.

Principle 4

- Demand near-term results from knowledge development efforts through operational productivity improvements.

Principle 5

- Build a knowledge-smart organisation structure and people-smart business organisation.

References

- 1 Porter, M.E. (1990) *The Competitive Advantages of Nations*, McMillan, Basingstoke.
- 2 (1993) *The World Competitiveness Report*, IMD and World Economic Forum.
- 3 Huang, K.T. (1998) 'Capitalizing on intellectual assets' *IBM Systems Journal*, Vol. 37, No. 4.
- 4 Tiwana, T. (2000) *The Knowledge Management Toolkit*, Pearson Education, New Jersey.
- 5 Michellone, G. and Zollo, G. (2000) 'Competencies management in knowledge-based firms', *Int. J. Technology Management*, Vol. 20, Nos. 1/2.
- 6 Mohanty, R.P. (2001) 'Building knowledge base for Indian Corporations', *International Journal of Human Resource Development and Management*, (IN PRESS).
- 7 Senge, P.M. (1990) *The Fifth Discipline – the Art and Practice of the Learning Organization*, Century Business, New York.
- 8 Garvin, D.A. (1993) 'Building a learning organization', *Harvard Business Review*, Vol. 76, No. 1, pp.78–91.
- 9 Mohanty, R.P. and Deshmukh, S.G. (1999) 'Evaluating manufacturing strategy for a learning organization: a case' *International Journal of Operations and Production Management*, Vol. 19, No. 3.
- 10 Navis, E.C., Diballe, J. and Gold, J.M. (1995) 'Understanding organizations as a learning systems', *Sloan Management Review*, Vol. 75, No. 1, pp.73–85.
- 11 Adams, J. (1996) *Current History*, April, Current History Inc. USA.
- 12 Mohanty, R.P. (1999) 'Value innovation perspective in Indian organizations, participation and empowerment', *An International Journal*, Vol. 7, No. 4.
- 13 Mascitelli, R. (1999) 'A framework for sustainable advantage in global high-tech markets', *International Journal of Technology Management*, Vol. 17, No. 3.
- 14 Seviby, K.E. (1997) 'The intangible assets monitor', *Journal of Human Resource Costing and Accounting*, Vol. 2, No. 1, Spring.
- 15 Buckler, B. (1998) 'Practical steps towards a learning organization: applying academic knowledge to improvement and innovation in business processes', *The Learning Organization*, Vol. 5, No. 1.
- 16 Sanchez, R., Heene, A. and Thomas, H. (1996) *Dynamics of Competencies and Competition: Theory and Practice in the New Strategic Management*, Elsevier, Oxford.
- 17 Mohanty, R.P. and Deshmukh, S.G. (2001) 'Business process reengineering: value innovations in industrial engineering practices', *International Journal of Computer Applications in Technology*, (IN PRESS).
- 18 Brown, J.S., Collins, A. and Duguid, P. (1989) 'Situated cognition and the culture of learning', *Education Researcher*, Vol. 18, No. 1, (Also available in a fuller version as IRL Report 88-0008, Palo Alto, CA: Institute for Research on Learning).
- 19 Mohanty, R.P. and Lakhe, R.R. (1994) 'Understanding TQM', *Production Planning and Control*, Vol. 5, No. 5.
- 20 Nonaka, I. and Takeuchi, H. (1995) *The Knowledge-Creating Company*, Oxford University Press, New York, Oxford.
- 21 Wenger, E.C. and Snyder, W.M. (2000) 'Communities of practice: the organizational frontier', *Harvard Business Review*, January-February.
- 22 Hansen, M.T., Nohria, N. and Tierney, T. (1999) 'What's your strategy for managing knowledge?', *Harvard Business Review*, March-April.
- 23 Day, J.D. and Wendler, J.C. (1998) 'Best practice and beyond: knowledge strategies', *Mckinsey Quarterly*, Vol. 1, pp.19–25.
- 24 Coates, D. (1996) 'Putting core competency thinking into practice', *Int. J. Technological Management*, Vol. 11, Nos. 3/4.

- 25 Bengston, D. and Lesser, E. (1998) 'Turbo charging business processes with knowledge' *Journal of Innovative Management*, Vol. 4, No.1.
- 26 Kuhn, T. and Becker, A. (1997) 'Corporate memories for knowledge management in industrial practice: prospects and challenges', *J. Universal Computer Science*, Special Issue on Information Technology for Knowledge Management, Vol. 3, No. 8.
- 27 Davenport, T.H and Prusak, L. (1998) *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston.