Knowledge Management: A Learning Perspective At NIIT

Krishna K Bhardwaj
Strategic Initiatives in Development of Education (STRIDE), Centre for Research on Cognitive Systems(CRCS),
Indian Institute of Technology Campus, New Delhi 110 016, India

The present paper discusses the importance of knowledge management, and views it from the learning perspective of a knowledge corporation. The process of knowledge acquisition, information distribution, and information interpretation in the context of knowledge creation has been discussed. Further the paper discusses the importance of learning infrastructure and the in-house organization learning structures that are critical for knowledge creation and knowledge sharing in the context of a knowledge intensive organization. The paper also discusses various attempts to build forums for the collaborative encoding, sharing, and creation of knowledge, which requires multidisciplinary expertise and mutual learning in order to achieve a complex synthesis of knowledge intensive business environment. It also discusses cultural issues of knowledge sharing among members in an organization, to promote organizational achievements rather than individual achievements. Nonetheless the paper leans towards tacit or implicit knowledge in an organization that is not amenable to codification and retrieval processes rather than explicit knowledge, which can be codified, stored, and retrieved with the help of IT tools.

Knowledge Management Hype

Knowledge Management (KM) suddenly is the new kid on the block. Everyone is talking about it. There are over a dozen conferences on the subject; there are several books and journals on the topic. Strangely one of the archaic meanings of the word knowledge is copulation. We shall take the word knowledge to mean the range of what has been perceived, discovered, or inferred. Its synonyms include learning, information, and wisdom. The traditional view of knowledge management focuses on information, whereas the knowledge ecology adds the context, synergy and trust necessary for translating such information into actionable knowledge. In a simplistic sense KM is the process of identifying, capturing, and leveraging knowledge. Hence, the central focus of KM is leveraging human capital. Nonaka and Tekeuchi have emphasized that only human beings can take the central role in knowledge creation; they are of the view that computers, however great their information-processing capabilities, are mere tools. In a similar view, Sveiby and Lloyd have observed that the confusion between 'knowledge' and 'information' has caused organizations to invest billions of dollars in technology ventures that have yielded marginal results. They are of the opinion that unlike information, knowledge is embedded in people and knowledge creation occurs in the process of social interaction.

Reasons for KM gaining prominence

One of the reasons, knowledge management is becoming very important is that there is an increasing realization about the importance of knowledge in the global economy. A decade ago, Drucker called attention to the primacy of knowledge assets in the future success of companies. With the easy access to technology and information worldwide, organizations are finding it difficult to compete in the global market without much differentiation from competing products. Knowledge may be very handy in creating the difference. Further, with the use of information technology, knowledge management is more feasible than ever before. However, there is a very real danger of the IT dimension of knowledge management gaining prominence at the expense of the others. Weick warns us that as they do more EDP, organizations will progressively bump up against the limits of human-processing capacity. The key to overcoming these limits is meaning; it increases processing capacity. And meanings that free up capacity usually originate outside the data processing system in the form of different assumptions and contexts. Information itself is the meaning we assign to data in a specific context. Information cannot be interpreted without its context. There are two kinds of knowledge: declarative knowledge and procedural knowledge. The latter is sometimes also called contextual knowledge.
Organizations can no longer be assured of success in the future based on what they know today. Therefore, processes for creating knowledge are extremely important. Rose and Nicholl talk about fast learning and clear thinking as the key 21st century skills for individuals. At the risk of anthropomorphism, they suggest that for organizations too these skills will be the key for survival. Marshall et al. squarely blame the spectacular downfall of Barings, one of the oldest banks of UK, to its failure to recognize and resolve the insufficiency of the knowledge base in a critical area of its operations. The authors go on to say that in financial services “risk management is knowledge management”. Is it any surprise then that Knowledge Management is already a multi-billion dollar industry? They go on to “propose a framework for knowledge management that integrates the firm’s culture, the skills of its employees, and their day-to-day actions into an effective risk management competence.”

One of the most important issues in KM is the issue of implicit versus explicit knowledge. Over the last few decades the exponential increase in the explicit codified knowledge has been accompanied by an increased human propensity to deal in symbols, numbers, and figures. Things have reached a stage where instead of land and natural resources we have come to view knowledge as key to human growth and survival. A knowledge revolution is on. However, as it becomes a red-hot fad, there are going to be practical problems that everybody will face in implementing KM in the workplace.

KM and Instructional Design

KM is concerned with the best use of an organization’s collective knowledge in order to fulfill its mission or gain a competitive edge. Knowledge is the most important asset of an organization. The process of organizational learning is linked to knowledge acquisition, information distribution, information interpretation, and organizational memory. Education, in general, and instruction, in particular, are devoted to the inculcation of knowledge in individuals, and instructional design is the method that fashions instructional materials for use in learning and instructional systems. Organizations learn through individuals acting as agents and are facilitated or inhibited by an ecological system of factors that may be called an organizational learning system.

Knowledge and learning are inextricably linked and can be confused. Knowledge is a resource, whereas learning is an ongoing activity. Learning infrastructure ought to be in place if people are to access, interpret, and apply knowledge effectively to business challenges. For the organization to benefit, learning must be pertinent to the mission of the organization and be shared and developed into learning systems that enable the organization to act in a smarter fashion as a pay-off from its investment in learning.

The corporate virtual university (CVU) is an instructional system that caters to all these aspects of an organizational learning system. It is for this reason the CVU is attracting much attention for its ability to use technology to reach out to members located at distant geographies, to engage them in knowledge-related activities, and facilitate their development and growth. Organizations need to create in-house organization learning structures that build on and share this knowledge, and transform them into learning organizations. Creation of a CVU, includes a concerted effort to develop programs that recognize and accredit this learning, provide access to the generic base of published literature together with the experience and opinions of those outside the organization.

KM at NIIT

KM at NIIT has been driven by the attempts to come to grips with shortening cycle for meeting customer requests, growth of the Internet, relative inability of large monolithic factory systems to transform into sense-and-respond systems to meet challenges of accelerating change, and the emergence of small effective players who took on the challenge of providing services that customers want in double quick time. About one-fifth of NIIT’s business comes from creation of learning materials where modularity has recently become all-important because time to market can be reduced through modularity. The trend was shifting from building CD-ROM titles to building Learning Objects on the web. There also seemed to be a trend away from building for a specific platform like Windows 3.1 to building for a cross-platform audience because of uncertainties about which platform will dominate. NIIT’s Learning Technologies Business struggled to transform its static structure, assumptions, and paradigms to dynamic ones successfully.

NIIT’s Culture

KM includes an organization’s shared beliefs, its vision of the future, expectations created in shareholders
etc. The organizational culture is therefore a part of the scope of KM. It is important also to realize that knowledge is distributed across the organization in almost anything that you can think of, the structure, the stories, the old timers, etc. As far as NIIT's experience is concerned, the organizational culture provides a fair amount of tacit knowledge that emphasizes the spirit of doing new things, pioneering technology, and the importance of making mistakes in the interests of learning. These are important because they are a vital input into an individual's actions besides the knowledge constructed by an individual from organizational knowledge.

Walsh and Ungson define organizational memory as interpretations of the past decisions, problems solved, and their consequences embedded into groups and organizational artifacts like systems. They make two important points in this regard. First, only individuals have the cognitive capability to fully understand the why of a decision in the context of an organization's history even though it decays and distorts as it goes from one person to another as a part of the organization's culture. Secondly, they emphasize supra-individual collectivity consistent with Durkheim's proposition (1938) that sharing in groups helps them retain knowledge in a way that goes far beyond the cognitive capability of a single individual. Organizational artifacts like structures, transformations, and ecology inhabit an organization's response to a decision stimulus. A lot of it is the tacit or implicit knowledge.

Walsh and Ungson also talk about misuse of organizational memory when automatic or controlled retrieval of information is applied to shape a routine or non-routine response inappropriately. They also go on to propose that "the self-serving manipulation of organizational memory's acquisition, retention, and retrieval processes by an organization's members will enable their autocratic entrenchment and, thus, compromise the organization's sustained viability." And such process comprises sharing and collaborating through interactions of individuals.

There are cultural issues of sharing of information because most organizations promote individual achievement. There are no incentives for sharing of information. Therefore, information hoarding occurs and there is reluctance to share the so-called secrets. Not only is the world becoming too complex for the single individual to deal with it all by himself, there are also issues of organization being left in the lurch when this person resigns. Trust in these cases is a very important paradigm. Systems need to be devised for ensuring that information sharing is rewarded and does not go unrecognized. Ability to share information freely should be considered an important leadership trait and would normally indicate long-term vision and security of the individual.

Tools for facilitation of knowledge creation abound. Discussion forums facilitate collaborative generation of knowledge. Such collaborative, ongoing, mutual learning by the team is required because of the complexities involved in learning material creation and innovation that characterize knowledge intensive firms are unsolvable by any one person and require insights from various perspectives. It requires a process of mutual “perspective taking” where distinctive individual knowledge is exchanged, evaluated, and integrated with that of others in the organization.

Similarly, group-ware helps both collaboration and access of knowledge. In a paper on Knowledge Intensive Firms, Starbuc talks about it being difficult to distinguish between creating and applying knowledge. We would like to discuss the creation of an organization called Stride, where the author works, as an exemplification of this concept. NIIT is not merely a knowledge intensive firm. Half of its business has to do with applying its knowledge of the software industry to its clients' problems (software solutions business) and the remaining half has to do with sharing its knowledge of software with individuals and corporations to equip them with the ability to solve their problems. The organizational model deals with learning as a part of ongoing projects for customers followed up by application and addition of value. A recent cover story on NIIT in a leading business magazine of India covered NIIT as a knowledge corporation.

**Evolution of NIIT as a Knowledge Corporation**

NIIT was founded as a company in 1981. The founders envisioned the absence of software expertise as a key impediment to the growth of the computer industry in India, of which they were a part. Having decided to launch the courses for individuals using material bought from an international training firm they quickly felt the need to adapt it to Indian conditions. This was the company's first brush with the field of in-
structional design. They held the first International Computer Based Training conference jointly with IIT, Delhi in 1983, recognizing the need for acquiring this expertise. Gradually their students began to get jobs in the corporate sector and many companies began to approach NIIT for training their employees. This led to acquisition and application of knowledge on corporate training. As the corporate sector came within the ambit of NIIT's customers, and the need for outsourcing software development arose, they asked NIIT, if it could handle that. In the process, NIIT learned about issues of software quality, software process management, software project management, and a myriad other issues related to contract software development. With the diversification of the customer base, this ultimately led to the company becoming one of the largest software exporters of India with SEI Level 5 rating.

The training half of the company followed a similar path, where customers began to demand customization of existing IT courses and in some cases new development of training courses based on their own subject matter expertise. This led to the need for consolidating and refining of the instructional design skills and since India did not have expertise in this area, part of the knowledge acquisition need for this was fulfilled by getting a Professor (Late Glenn Knudsvig) of The University of Michigan to run training programs.

A formal instructional design methodology was created and NIIT became one of the first companies to get ISO 9001 certification for the processes for design and development of multimedia learning materials. In time, clients across the world demanded material in non-Instructor Led formats and NIIT created its own authoring engines to build learning materials in Interactive Video Disk based, CD-ROM based, and Web based formats on DOS and Windows platforms.

In the process, NIIT became one of the largest sites for development of learning materials worldwide, and developed hundreds of multimedia titles under its own brand and for other American brands. At this stage the Learning Solutions Business was structured as a set of factories doing large-scale production of learning materials. The growing base of knowledge regarding the client's needs, standards, requirements, checklists, methodology, etc., began to be embedded through training programs, procedures, and project plans. Also, there was an attempt to build forums for collaborative encoding, sharing, and creation of knowledge. Many tools and utilities were built to reflect the growing knowledge about the work being done for the client. Similarly, there was a factory that was building the materials under NIIT's own brand of CD-ROM titles and it had its own methodology, deadlines, processes, checklists, tools, training, etc. Another group built the classroom training for NIIT to sell worldwide. At one stage, NIIT realized that there was no cross-pollination of knowledge between the different groups. Especially, since NIIT's business was knowledge creation and sharing, redundancies in this process harmed productivity and prevented marketing of products across media. NIIT did path-breaking work in the area of single-parsing instructional design for building learning materials across media. For doing this, NIIT consulted with some leading figures in instructional design again from an American University. A paper in an academic journal on this effort was awarded the best paper of the year in its International Section.

NIIT created a special R&D group called STRIDE to bridge the gap between work being done in research laboratories across the world in the area of learning and the learning experience being provided in the market place by the leading vendors, NIIT being one of them. This group was given a charter named fifty-fifty rule and had the unenviable job of improving learning effectiveness by a factor of two while improving the productivity of development and delivery by a factor of two. This group evolved a new learning architecture called MCLA (Model Centered Learning Architecture) to improve learning effectiveness of NIIT's materials and created ELMS, a new enterprise learning management system. They also built tools for creations and deployment of multimedia learning materials.

STRIDE was responsible for creating new knowledge in the area of learning, thereby piloting and proving improvements in development of learning materials. NIIT created an interdisciplinary core team of about 25 people comprising programmers, project managers, instructional designers, and graphic designers, etc. Upon completion of a prototype or demonstration, a project team from other parts of the organization would be assembled for trying the new method or environment or software out in a real project.

Once that was concluded, a full-fledged methodology, environment, or software would be built, and run through beta programs before full-scale deployment in
The world of instructional design is moving towards learning objects. This brings it closer to the world of KM as it gets away from the paradigm of courses that instructional development has focused on so far. Standards like IMS, have begun to take root and will soon affect development, storage, retrieval, and access of knowledge (see their website at www.imsproject.com for details). A crucial component of IMS is specification of metadata that enables knowledge from multiple vendors or sources to be combined. In our view, there are times when the metadata for a piece of knowledge may be more important than the knowledge itself, simply because it is the metadata that facilitates appropriate use of the knowledge.

Another interesting issue arises as the knowledge base is developed. Often experts find that the process of demonstrating and articulating their expertise, in fact, makes their invisible expertise visible, sometimes even to themselves. So the methodology is one way of making the tacit knowledge explicit. Michael Polanyi talks of the crucial importance of this tacit knowledge and any knowledge management system that focuses on only the explicit part of knowledge is missing the bus almost entirely as far as value to an organization is concerned.

Frequently, NIIT, demonstrates the methodology and the tools for capturing the knowledge to clients to demonstrate expertise in this area. There are complex issues of monopolies here since there are frequent demands from clients for buying the methodology and the tools. There is some measure of arm-twisting too that happens when a customer asks for these as a package deal along with the services for design and development of the learning materials. NIIT has to consider doing this and even sharing the intellectual property even though this might neutralize their competitive edge sometimes.

Conclusion

The features of NIIT, outlined above, in our opinion, seem to characterize much of what goes on in a learning organization. A critical feature of knowledge work is that it requires multidisciplinary expertise and mutual learning in order to achieve a complex synthesis of highly specialized state-of-the-art technologies and knowledge domains. Unlike explicit knowledge — which can be codified, stored, and retrieved with the help of an IT tool — tacit or implicit knowledge is distributed in an organization and is not amenable to codification and retrieval processes. However, it can be shared and people
can collaborate to exploit its potential through various processes. Like other organizational processes, these processes take time to evolve into the culture of an organization that believes in collaboration and sharing through interactions of individuals for building synergy.

References


About the author

Krishna K Bhhardwaj, having completed B Tech from IIT and MBA from IIM, Bangalore, joined the Reserve Bank of India. He currently heads the STRIDE (Strategic Initiatives in Development of Education) Department in the Center for Research on Cognitive Systems (CRCS) of the NIIT, located inside the Campus of IIT, Delhi. He is responsible for managing NIIT’s R&D initiatives in the development and delivery of education and training. He has published several research papers in international journals. He can be contacted at kkb@niit.com or kkbstride@usa.net.