CHAPTER - 1

INTRODUCTION TO KNOWLEDGE AND COLLABORATIVE KNOWLEDGE SHARING IN ACADEMIC INSTITUTIONS

Where the mind is without fear
and the head is held high
Where the knowledge is free
Where the world has not been broken up into fragments….  
My father let my country awake

-Rabindranath Tagore

“Knowledge has always been the prime mover of prosperity and power. The acquisition of knowledge has therefore been the thrust area throughout the world. Additionally in India, there has been a culture of sharing it, not only through the tradition of guru-shishya but also by its spread to neighbouring countries through travellers who came to Nalanda and other universities drawn by their reputation as centres of learning”.¹ The researcher is deeply influenced by the views of the former President of India, Hon.Dr.Abdul Kalam that the initial evolution of knowledge sharing originated from ancient learning centres. The knowledge was passed on by gurus to their disciples and followers through one to one contact in Gurukul ambience where the disciples resided with the guru and his family and learned multi-disciplinary skills resulting in their overall development. Vedas and Upanishads were the ancient repositories where the knowledge was formally collected and managed to share with the future generations. So, the researcher realized that it would be appropriate and even necessary to acknowledge the non-corporate origins of Knowledge sharing. Academic institutes are non-corporate structures which are the sources of knowledge and there is a great scope to apply knowledge sharing practices to accumulate, communicate and share the knowledge.
Information Technology (IT) is a highly knowledge intensive field and faculty members teaching IT subjects constantly need to adopt new technologies and improve the practices. It also requires collaborative problem solving because the efforts sometimes exceed the capacity of an individual. Faculty members with diverse skills, experience and technical expertise should be able to exchange and share knowledge among them to achieve their collective goal. There is a need for collaborative knowledge sharing to make teaching more effective by enabling integration of knowledge across individual’s as well organizational boundaries. Collaboration is the basis for bringing people together as the knowledge, experience and skills of multiple team members to can contribute to organizational development more effectively than individual team members, performing their narrow tasks. Organizational learning builds organizational knowledge and is a basic element in the evolution of academic institutes.

Collaborative knowledge sharing links the learning and knowledge processes to enhance organizational learning in academic institutes.

Collaborative knowledge sharing augments the productivity, competence and resource allocation in an organization. It helps in collaborative decision making of individuals and groups, to create more economic value for the organization.

This thesis describes the assessment of collaborative knowledge sharing culture in an academic organization with special reference to Information Technology (IT) education under management faculty of University of Pune. Further it also describes the practices for collaborative knowledge sharing to enhance organizational learning.

The main concern is that the academic institutes have to implement innovative learning systems and be able to match up to the expectations of the IT industry for knowledge support. In order to get the better view of the current situation, a field research was conducted. This part of the research resulted in identification of the following problems such as lack of faculty
participation in online discussion forums and low interaction of faculty even at intra institute level (group of institutes under the same management). Further, the absence of reward system to recognize the individual faculty members in academic institutes for their efforts towards knowledge sharing. The analysis of the all the problems led to the identification of five performance indicators which influence collaborative knowledge sharing culture in an academic institute. These include Work culture, Interaction, Willingness to share, Recognition and Information Technology.

a. **Work culture**: Indicates whether the academic organization encourages effective knowledge sharing.

b. **Interaction**: Indicates whether the faculty interacts at various levels.

c. **Willingness to share knowledge**: Indicates whether the faculty is willing to share knowledge in an academic organization.

d. **Recognition**: Indicates whether the effective knowledge sharing is recognized and rewarded in an academic organization.

e. **Information Technology**: Whether the academic organization uses IT tools towards communication and collaborative knowledge sharing.

The topic “An Empirical study of collaborative knowledge sharing strategy to enhance organizational learning with special reference to IT Education under management faculty of University of Pune” led to the focus on ‘Collaborative knowledge sharing to enhance organizational learning’. In order to support the recommendations with input from scientific literature, a desk research is performed. The research starts with the role of collaborative knowledge sharing in the growth and development of academic institutes. The performance indicators influencing the collaborative knowledge sharing culture in academic institutes have been identified and studied. Further it was studied and formulated that collaborative knowledge sharing strategy focuses on collective learning and allows greater interaction through practices such as Faculty Development Program (FDP), Communities Of Practice (COP) and Industry Institute Interaction which connect students, faculty and industry thereby enhancing organizational learning. The recommendations are based on the desk research and the field research of academic institutes. The observations based on the desk research and field research lead to a series
of findings. The final conclusion gives the short description of the problems identified in collaborative knowledge sharing and the recommended solutions. This thesis concludes with a chapter on implemented recommendation and future research.

1.1 Preface:
The researcher is an executive member of the Management Association of MCA Institutes (MAMI) in Maharashtra. MAMI is state level Association and the chief role is that of a significant contributor to the field of IT and to the cause of revolutionizing the study of Computer Applications at the postgraduate level. In the capacity of Chairman, Pune chapter of MAMI the researcher had co-ordinated a paper presentation contest for faculty members teaching MCA course under University Of Pune in the year 2006. As a part of the contest, eight themes related to field of IT have been identified namely Information System Security, Knowledge Management, Geographical Information Systems, Business Process Outsourcing, Cyber law, Mobile Computing, E-Learning and E-Banking. All were the contemporary subjects in the development of IT and IT enabled services. The contestants were informed to submit the abstract and the full paper on any one of the themes on-line through e-mail. The complete co-ordination of the event was done in an interactive way. Finally, 18 faculty members out of 250 faculty members from various MCA Institutes participated in the paper presentation contest. During the above process, it has been observed that online participation rate was lowest amongst the faculty members of academic institutes related to IT education. The researcher felt that the faculty members were reluctant to exploit the IT tools for knowledge sharing in academic institutes in spite of having access to the latest and best forms of IT infrastructure. Further it was found that there was no interaction amongst the faculty members of various institutes even at intra institute level. However, little was known about the determinants of the knowledge sharing culture in academic institutes. Then the researcher realized the need of collaborative knowledge sharing from the outcome of the above event and has made it a basis to study collaborative knowledge sharing strategy to enhance organizational learning with special reference to IT Education under management faculty of University of Pune.
1.2 The Basics of Knowledge and Knowledge Sharing:
Knowledge is one of the most important intangible assets possessed by human beings. Unlike the economist’s finite resources like land, capital and labour, knowledge is an infinite resource that can generate increasing returns through its systematic use and application. In the 21st century, Knowledge is being considered to be the primary production resource instead of capital and labour and managing knowledge resources is the main focus of modern organizations.

Knowledge Management is the process of creating value from an organization’s intangible assets. Knowledge management cycle involves: (1) Knowledge Capture; (2) Knowledge Sharing; (3) Knowledge Application, and Knowledge Creation.

Figure 1.1: Knowledge Management Lifecycle
Simply possessing knowledge by an academic organization is not enough to enhance its growth and development unless it is managed and shared among its faculty members. To make sure that the knowledge captured is applied in to work place, Knowledge sharing becomes the critical step in the knowledge management cycle.

Knowledge sharing is “window of opportunity” and the source of knowledge is ‘Sharing’. Today, Knowledge sharing is widely acknowledged for the growth and development of any organization but successful managers have always realized its value. Long before terms such as expert systems, core competencies, best practices, learning organizations, and corporate memory were in vogue, successful businesses knew that their key assets were not its buildings, its market share or its products, but they lay in the heads of its people. The concept of Knowledge management and knowledge sharing has been in practice for a long time (Figure 1.2).
### The 2000s
- Knowledge Management
- Intellectual Capital
- Enterprise Integration
- Knowledge Sharing Culture

### The 1990s
- Core Competencies
- The learning Organization
- Reengineering
- Strategic Information Systems, Intranets & Extranets
- Market Valuation

### The 1980s
- Total Quality Management (TQM)
- Management by Walking Around (MBO)
- Corporate Culture
- Theory Z
- Downsizing

### The 1970s
- Strategic Planning – Mintzberg & Porter
- The Experience Curve
- Portfolio Management
- Automation

### The 1960s
- Theory Y
- Conglomeration
- T-Groups
- Centralization and Decentralization

### The 1950s
- Management by Objectives (MBO)
- Program Evaluation and Review Technique (PERT)
- Diversification
- Quantitative Management
- Electronic Data Processing

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**Figure 1.2: Managers’ tools through the decades: Knowledge Management**

Knowledge Management has been in existence since the 1950s
Data, Information, Knowledge & Wisdom (D,I,K,W)

- **Data** is discrete content and does not make much sense by itself
- **Information** relates to description, definition, or perspective (what, who, when, where)
- **Knowledge** comprises strategy, practice, method or approach (how)
- **Wisdom** embodies principle, insight, moral, or archetype (why)

![Diagram of Data to Wisdom]

**Figure 1.3: Data to Wisdom**

Davenport and Prusak have distinguished knowledge from information, and information from data, on the basis of value-adding processes, which transform collected facts and figures into communicable message and then into knowledge and wisdom. Knowledge is defined as “fluid-mix of framed experience, values, contextual information and expert insights that provide a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of the knower. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.” 5
This definition brings out two important characteristics:

(a) Knowledge is highly contextualized information enriched with individual interpretation and expertise.

(b) Knowledge is highly person specific and gained through experience, reasoning, intuition and learning.

New knowledge is created when one’s knowledge is combined with the knowledge of others. So, effective Knowledge sharing enhances individual learning.

“Knowledge sharing is a set of behaviours that involves the exchange of information or provision of assistance to others.”

Knowledge sharing is widely acknowledged as indispensable for the growth and development of any organization in the light of rapid advancements in Information Technology across the world.

1.3 Knowledge sharing process:

Knowledge sharing removes the information gaps, establishes knowledge network, set of protocols to solve problems and innovative practices for organizational development. However, much knowledge is not being shared. The reason is the distinction between explicit knowledge and tacit knowledge forms.

‘Explicit Knowledge’ is knowledge that individuals are able to express fairly easily using language or other communication forms for dissemination.

Tacit Knowledge is knowledge that an individual is unable to articulate and thereby convert into information. This marks the difference in sharing. Either sharing cannot be done or not being done effectively. Tacit knowledge is more useful to an organizational system if it can be transferred to others so they too can use it. However the diversity of knowledge forms is the main factor that
critically affects the process of sharing. According to Nonaka and Reinmoeller, these forms of knowledge sharing can be represented as:  

**Tacit to Tacit (Socialization):** the most typical way in which tacit knowledge is built and shared in face to face meetings and sharing experiences, in an informal environment, where the Information Technology (IT) plays a minimal role.

**Tacit to Explicit (Externalization):** Online discussion databases and basic blogs are potential tools to detain tacit knowledge for business application like decision making or solving the problems. To be most effective for externalization, the discussion should be such as to allow the formulation and sharing of metaphors and analogies, which probably requires a fairly informal and even freewheeling style.

**Explicit to Explicit (Combination):** Once tacit knowledge has been conceptualized and articulated, thus converting it to explicit knowledge, capturing it in a persistent form as a report, an email, a presentation, or a Web page makes it available to the rest of the organization. One way to motivate people to capture knowledge is to reward them for doing so. If rewards are to be linked to quality rather than quantity, some way to measure the quality of the output is needed. But the term quality, being abstract, is extremely difficult to assess, since it depends on the potential use to which the document is to be put.

The most important technology for the manipulation of explicit knowledge helps people with the most basic task of ‘finding it’. Since the trend in most organizations is essentially for all documents to become available in electronic form on line, the challenge of online access has been transformed into the challenge of finding the materials relevant for some task. Portals are also a popular approach to reducing the complexity of the user’s task. The key aspect that allows a portal to do this is that it maintains its own meta-data about the information to which it gives access. Similarly, an explicit to explicit
knowledge transfer can be necessitated in the form of report, an e-mail, a presentation, or a web page available to the organization.

**Explicit to Tacit (Internalization)**: Technology to help users form new tacit knowledge, for example, by better appreciating and understanding explicit knowledge, is a challenge of particular importance in knowledge management, since acquisition of tacit knowledge is a necessary precursor to taking constructive action.

The people of an organization possess certain types of knowledge and in order to benefit from it at individual and organization level people need to be aware of what kind of knowledge they possess and how they can convert and share it with other people. Therefore it is important to acknowledge the forms of knowledge sharing and related conversion processes.

The knowledge sharing is effective if it does not stop with this stage but gets completed only if it’s shared, accessed and exploited to get a complete form of knowledge.

**Figure 1.4 Represents the various forms of Knowledge sharing.**

<table>
<thead>
<tr>
<th>Socialization</th>
<th>Externalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tacit - Tacit</td>
<td>3. Tacit - Explicit</td>
</tr>
<tr>
<td>Face to face communication</td>
<td>Examples are:</td>
</tr>
<tr>
<td>Video – Teleconferencing</td>
<td>Process capture tools</td>
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<tr>
<td>Virtual Reality Tools</td>
<td>Traceability</td>
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<td></td>
<td>Reflective peer-to-peer networks</td>
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<td></td>
<td>Expert Systems</td>
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<td></td>
<td>Discussion Platforms</td>
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<tr>
<td>Internalization</td>
<td>Combination</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>2. Explicit -: Tacit Examples are:</td>
<td>4. Explicit -: Explicit Examples are</td>
</tr>
<tr>
<td>Collective Knowledge networks Notes databases/</td>
<td>System knowledge Tools</td>
</tr>
<tr>
<td>Organization Memory</td>
<td>Collaborative Computing tools</td>
</tr>
<tr>
<td>Pattern Recognition Neural Networks</td>
<td>Intranets, Groupware</td>
</tr>
<tr>
<td></td>
<td>Discussion Lists</td>
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<td></td>
<td>Web Forums</td>
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<tr>
<td></td>
<td>Best Practice Databases</td>
</tr>
</tbody>
</table>

![Figure 1.4: Forms of Knowledge Sharing](image)

Source: Nonaka and Reinmoeller 1998

1.4 Linking organizational learning and Collaborative Knowledge sharing:

The extraction and creation of new knowledge involves learning. In general, learning is the acquisition and application of new knowledge. So learning is one of the aspects which can be achieved through knowledge sharing. Each aspect of knowledge has a corresponding learning activity that supports it. Learning leads to changes in the behaviour and performance.

“ The effective learning processes associated with exploration, exploitation and sharing of human knowledge (tacit and explicit) that use appropriate technology and cultural environments to enhance an organization’s intellectual capital and performance” 9
This definition links the knowledge sharing and organizational learning which are applicable in the study. Obsolescence of technical skills in the field of IT is a serious issue. So, managing knowledge in an academic institute related to IT education is an important activity because there are two critical issues involved: one, the need to evolve learning technologies that help the faculty to harness new skills and knowledge at a fast pace as per growth in the IT industry and second, transforming the individual learning into organizational learning. Organizational learning can be defined as the capacity or processes within an organization to maintain or improve performance based on experience. Learning is a systems-level phenomenon because it stays within the organization, even if individuals change.

Individual learning is a prerequisite for organizational learning.\textsuperscript{10} According to Senge,\textsuperscript{11} “Organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning but without it no organizational learning occurs”. The notion here is that there is a need to expand our attention beyond individual learning processes to collaborative learning and knowledge sharing. Most of our cognitive sciences focus on individual learners and little attention is paid as to how groups or learners acquire and build knowledge together. There is also a need to distinguish between individual and organizational knowledge. Organizational knowledge is distinctive to the firm, is more than sum of the expertise of those distinctive to the firm, is more than the sum of those who work in the firm, and not available to other firms. Here, knowledge is thought to be profoundly collective, above and beyond discrete pieces of information individuals may possess; it is a pattern formed within and draw upon a firm, over time.\textsuperscript{12}

According to Nonaka and Takeuchi,\textsuperscript{13} “Knowledge is created only by individuals. An organization cannot create knowledge on it’s own without individuals. Organization knowledge creation should be understood as a process that organizationally amplifies the knowledge created by individuals and crystallizes it at the group level through dialogue, discussion, experience sharing or observation.” Organizational learning theories provide rich perspectives and the processes that generate and change organizational
knowledge. Knowledge sharing provides a basis for organizational learning and to enhance organizational learning the model of knowledge sharing need to be interactive and collaborative.

Collaboration is a process through which people who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible.  

The only way to enable sharing of tacit knowledge is by bringing people together through collaboration. Therefore developing individual and team competency through collaboration is the key to effective knowledge sharing. Collaborative knowledge sharing is the most vital source of value addition.

1.5 Need for collaborative knowledge sharing in academic Institutes related to IT education:
Knowledge building in the academic environment has changed with the globalization of education. The survival of the academic institutes not only depends on the acquisition, storage, publication and retrieval but also how the knowledge is filtered, organized and communicated to achieve vision and mission. Academic institutes related to IT education are facing lot of challenges to process, manage and communicate knowledge in the dynamic environment. One of the most important organizational learning activities of academic institute is to collect, disseminate and communicate through knowledge sharing in the organization. Research shows that faculty at most academic institutes offering IT education are becoming increasingly isolated, resulting in low effectiveness, academic dissatisfaction ultimately leading to high faculty turnover. Collaborative knowledge sharing can play a critical role in providing access to new or emerging technical know-how. Collaboration is the basis for bringing people together for knowledge, experience and skills of multiple team members to contribute to organizational development more effectively than individual team members performing their narrow tasks. Organizational learning builds organizational knowledge and is a basic element in the evolution of academic institutes.
If an academic institute succeeds in capturing and dispersing knowledge through collaborative knowledge sharing among faculty members, the benefits will be endless. The knowledge grows more with communication, sharing of ideas and transfer of knowledge through face to face communication, discussions, faculty development programs, industry institute interactions. Efforts are required on the part of the academic institutes towards providing conducive work environment to the faculty members for working together in a connected dialog with each other. Transfer of academic environment to knowledge based organizations requires good practices of knowledge sharing. Through collaborative knowledge sharing, the academic institute can become more productive and responsive. An essential part of collaborative knowledge sharing is knowledge distribution. Sharing becomes impossible without distribution of knowledge. Knowledge distribution is the actual 'transfer' of knowledge from one individual to other and one team to another. By distributing and sharing the knowledge in a collaborative way, individuals and teams will learn from each other, increase their capability and thus improve their work.

The need of collaborative knowledge sharing to enhance organizational learning can be emphasized by exploring strengths, weaknesses opportunities and threats (SWOT) as internal and external factors through knowledge based SWOT for academic Institutes running Information Technology (IT) related courses.

The knowledge based SWOT helps to propose the commencement of collaborative knowledge sharing strategy among academic institutes to transfer them into smart schools.
### Strengths
1. Small enough to be able to share information readily.
2. Culture of sharing information.
3. Faculty already have large number of sources both internal and external to obtain knowledge.

### Weaknesses
1. Knowledge sharing compromised by lack of time due to workload.
2. Online communities are receiving lowest participative rate.
3. There is no interaction of faculty even at intra institute level.
4. No protocols for sharing explicit knowledge.

### Opportunities
1. New Knowledge opportunities thorough new competent staff.
2. To gain more knowledge through IT enabled services.
3. To develop collaborative knowledge sharing culture in academic institutes before serious problems develop.

### Threats
1. Staff turnover might result in loss of knowledge.
2. Increasing work load might further compromise ability to share knowledge.

To identify, develop and exploit potential opportunities to learn, collaborative knowledge sharing strategy is being proposed by the researcher which is of vital importance to enhance organizational learning with special reference to IT Education under management faculty of University of Pune.
1.6 Collaborative knowledge sharing method: Human Processes, Collaboration and Technology

Zack\textsuperscript{15} has identified a five stage process that captures the experience of many organizations. Table 1.1 presents these stages.

<table>
<thead>
<tr>
<th>Process</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>An organization either creates information and knowledge or acquires it from various internal and external sources.</td>
</tr>
<tr>
<td>Refinement</td>
<td>Before adding captured knowledge to a repository, an organization subjects it to value adding processes (refining) such as cleansing, labelling, indexing, sorting, abstracting, standardizing, integrating re-categorizing.</td>
</tr>
<tr>
<td>Storage/Retrieval</td>
<td>This stage bridges upstream repository creation and downstream knowledge distribution.</td>
</tr>
<tr>
<td>Distribution</td>
<td>This stage comprises the mechanisms an organization uses to make repository content accessible.</td>
</tr>
<tr>
<td>Presentation</td>
<td>The context in which an organization uses knowledge pervasively influences its value. Firms must develop capabilities that enable flexibility in arranging, selecting and integrating knowledge content.</td>
</tr>
</tbody>
</table>

Table 1.1: Stages of creating and distributing knowledge  
(Source: Zack, 1999)
The people within an organization should collaborate together by taking the support of technology to complete the stages of creating and distributing knowledge.

**Figure 1.5 Elements of collaboration**

**The changing forms of collaboration:**
“Collaborative behaviours in knowledge work underline non-formal, bottom-up communities of practice as well as more formal team management and task execution. Collaborative tools can facilitate a practice (how people work together to get the job done) as well as a process (the explicit or formal definition of how work should be done).”\(^{16}\) Basically there are two types of collaborations which are informal and formal collaboration.

**Informal collaboration**
Informal collaboration includes simple social tasks, such as arranging a team event or ad hoc discussions on specific issues. These tasks generally require little more than some form of messaging. Informal collaboration also has an important role in industry institute interaction and inter-institute interaction. Individuals may require support from others on ad hoc basis, for example, the provision of online support through chat or voice/videoconferencing embedded in an application as an alternative to the traditional “hotline”
telephone support. This may also include screen sharing within an organization, across organizations and even within Internet based transactions. The screen sharing may also be used to deliver presentations to potentially very large groups of people dispersed worldwide, within a single organization, or across multiple organizations. In this case, the “team” simply consists of the participants in the presentations and may only exist for less than an hour.

One of the most valuable forms of informal collaboration is that embodied in the concept of communities of practice. The knowledge management movement has long identified the importance of informal relationships among workers that support key business processes. We are now seeing these communities being given explicit approval and support within many organizations, as they realise the value of this type of intangible and strongly differentiating social capital that is hard to replicate. It is therefore important for collaboration software to support communities of practice and help the organization realize and (where relevant) capture the expertise embedded in these communities and their interactions.

**Formal Collaboration**

While informal collaboration is typically defined bottom-up by the requirements of the team or community supported, formal collaboration is more often defined top down in accordance with the needs of organization for process control.

At the intermediate level, most teams need to be managed. This includes the task planning and scheduling, task monitoring, scheduling of meetings and passing work around the team for comment and approval. All team members need to be fully aware of what is expected of them and how their work fits with the rest of the team. The tracking of progress can be made substantially easier if all work in progress and completed tasks are executed in a centrally managed location. This will ensure that everyone has access to consistent information and will provide an effective audit trail.
In its most developed form, formal collaboration becomes strongly process driven, with clear management of tasks and responsibilities.

**The Changing Balance: Informal/ Formal – Practice / Process**
The need for balance between informal and formal collaboration can also be understood as a relationship between practice (how people work together to get the job done) and process (the explicit or formal definition of how work should be done). At best, there is a creative tension between these two aspects of work; however, too often, they are in conflict and thereby undermine the effectiveness of the organization.

The goal for the collaborative enterprise is to combine the best of both aspects as shown in Figure 1.6.

**Figure 1.6: Effective collaboration is a balance between practice and process**

![Figure 1.6](image_url)

Source: Ovum

**1.7 Technology Tools for Collaborative knowledge sharing:**
The tools of collaborative knowledge sharing also have relevant significance in dissemination of information. Information Technology enabled tools and infrastructure play remarkable role in information supply with speedier delivery which not only reduces the cost of information transfer, but has scope of processing much better than any other means. Common tools are e-mails,
logs and information systems. However the cost of installation of hi-tech and hi-touch environment has constraint of high investments and resistance to adoption of new technology. The ultimate aim for shared knowledge is creation of information networks of loops and nodes as a mechanism for transfer and communication. It is to be noted that technology is an enabler but technology alone is not enough.

Information Technology as tool for collaborative knowledge sharing\(^{18}\)

1. **B2E Enterprise Information Portal (EIP):** Provides a single point access to all relevant information and applications, while also functioning as a gateway to communities of interest best practices etc. EIP can also function as a platform for knowledge networks.

2. **Federated Search:** The ability to search across all organization structured (database) and unstructured (documents, records, e-mails, video and audio file, etc) information sources via a single technology (search engine).

3. **Taxonomy, Classification, Indexing of information sources:** Indexing of information sources and establishment and / or automation of information taxonomy for industry specific or organizationally specific information.

4. **Document/ Information Management System:** Organization and archiving of documents, emails, files, illustrations, policies, procedures, records, audio files, video files, etc.

5. **Collaborative e-commerce application environment and / or workspaces:** Enable organization to create virtual team rooms, and/or communities of best practice by allowing team members to collaboratively develop and store documents, tasks and schedules in a secure virtual environment.(Figure 1.7)
6. **Simultaneous Collaboration:** Allow workgroups and project team members to share information in real time.

![Diagram of enterprise collaboration platforms](image-url)

**Figure 1.7:** The evolution of the enterprise collaboration platform.

*Source: Ovum*

7. **Business Process Management Community of interest Building:** Facilitates best practices and communities of interest building by leveraging an EIP front end with threaded discussion groups and collaborative technologies through an EIP.

8. **Intelligent agents, Web Crawlers, Know bots:** Enable relevant information derived from automated searching to be pushed to the desktop or added to a repository.

9. **Network news and threaded discussion groups:** One of the first technologies of the web to be employed as KM system for sharing information on projects and topics. It can also serve as a key technology for facilitating e-meetings.
10. **Chat/Internet Messaging**: A real-time person to person interaction.

Hence, technologies can be applied to knowledge management to assess their actual or potential contribution to the basic processes of knowledge creation and sharing within organizations.\(^\text{19}\)

The step to collaborative knowledge sharing starts with (a) prioritizing the critical knowledge issues (b) defining the learning patterns within the organization (c) identify and percolate best practices (e) increase innovation and creativity (f) increase collaborative activities and knowledge sharing culture

### 1.8 Collaborative Knowledge Sharing as Source of Innovation

Competitiveness depends upon the innovative and best practices that an organization has adapted to enhance its performance. However the level of innovation in an academic institute is directly proportional to the ways in which the faculty members create and share their knowledge in order to benefit the institute. To ensure this, faculty need to be provided with appropriate environment and physical infrastructure i.e. social information system. Such information system also provides the scope for informal communication. It has been found that knowledge can be entrenched in the work through social activities of the group who set knowledge wholly explicit, set down in databases and manuals to form information and facilitate sharing through network known as ‘Community Of Practice’.\(^\text{20}\) Therefore, managing and sharing knowledge can be attributed as highly intellectual activity and whose most prominent function is to infuse innovation. This reflects upon the people of the organization in the form of knowledge community that forms, leads and control groups; holds good working technical understanding; motivated internally with matured behaviour, contributes to knowledge processing and sharing in departments; works in team hierarchy and exercise parameter based approach to enhance productivity by formulating and establishing best practices within an organization.
1.9 Barriers to knowledge sharing

Timely sharing of information, results in faster establishment of knowledge. IT enabled tools provide for simultaneous alteration and upgradation of information which otherwise could not be possible. Information processing i.e. codification provides for faster learning, and effective knowledge. However resistance to change and high costs of environmental setup reduces the scope of faster information sharing, and thus establishing an effective knowledge system.

Real time training, motivation and time to learning are three components that can help any organization in promoting a hi-tech and hi-touch work culture. And out of these three, motivation remains the most influencing variable in the sense that, high level of excitement to learn invokes quicker response to willingness and ability of the learner. Motivation, in terms of such hi-tech learning, usually has negative impression. Similarly the organization must evaluate the time-to-learn for its personnel, failing which it may face loss of the experienced, and their loyalty with the organization. One way to motivate people to share and access knowledge is to reward them for doing so. The incentives can be tied up with the performance.

1.10 Implication and benefits of Collaborative Knowledge Sharing

Collaborative Knowledge sharing allows us to lead change. It provides organization and its personnel to develop ability to exploit knowledge for competitive change. It is the culture (of sharing) driven on technology. With knowledge dissemination, technology automatically upgrades to next higher level to facilitate the objective of speedier sharing for timely use of information.

According to Beckman,\textsuperscript{21} the most important characteristics of the Knowledge Organization are:

- High performance
- Customer-Driven
➢ Improvement-Driven
➢ Excellence-Driven
➢ High flexibility and adaptiveness
➢ High levels of expertise and knowledge
➢ High rate of learning and innovation
➢ Innovative IT-enabled
➢ Self-directed & Managed
➢ Proactive and Futurist

The Collaborative knowledge sharing culture can transform the academic institute into knowledge organization by incorporating the above characteristics.

**Benefits of Collaborative Knowledge Sharing:**
A Collaborative knowledge sharing system would help in connecting persons identifying the gaps, exploring the tacit side of knowledge form, benchmarking of best practices and creating a learning organization. This system thus, would establish an innovative approach than merely a problem solving approach.

Collaboration leads to series of optimal results for the completion of any complex or composite task and reduces duplication of work where everyone invents the same thing over and over again, rather than working and improving quality

**Summing Up**
The success story of any IT industry is closely linked to the manpower talent made available by the academic institutions. There in order to service the needs of the industry in tune with rapidly changing trends, academic institutions have to implement innovative learning systems and be able to match up to the expectations of the industry for knowledge support. Collaborative Knowledge sharing links the learning and knowledge processes
to enhance organizational learning. Academic organizations should align their human resource strategies, practices and processes in such a way that collaborative knowledge sharing becomes a part of the work culture and overcome the barriers to knowledge sharing. There is need to develop systems that can recognize and reward the efforts of employees who share their knowledge. This can empower collaborative knowledge sharing culture in an academic organization.
REFERENCES


