Chapter 6: Knowledge Sharing Systems: Systems that Organize and Distribute Knowledge

- **Knowledge sharing systems** can be described as **systems** that enable members of an organization to acquire tacit and explicit **knowledge** from each other.
- Systems that enable members of an organization to acquire tacit and explicit knowledge from each other
- knowledge markets that must attract a critical volume of knowledge seekers and knowledge owners in order to be effective.
- support the process through which explicit or tacit **knowledge** is communicated to other individuals.
- are also referred to as **knowledge** repositories or expertise locator **systems**.

Knowledge owners may:

- Want to share their K with a trusted and controllable group
- Decide when to share and the conditions of sharing
- Seek a fair exchange, reward for sharing K

Knowledge seekers may:

- Not be aware of all possibilities for sharing, so knowledge repository helps them searching / ranking
- Want to decide on the conditions of knowledge acquisition

The Computer as a Medium for Sharing Knowledge

- knowledge bases benefit from widespread contributions which are only possible through wide-ranging communications.
- The emergence of the Internet and the **World Wide Web** (WWW) using computers facilitate communication of nonverbal multimedia information such as documents, photos, drawings, videos, and others.
- The Internet is the underpinning infrastructure that allows the information exchange between computers in remote and heterogeneous networks. The Internet enables the secure transport of information packets. The WWW provides the required format so that a large-scale storage of documents may be accessed by a specialized software package called the *browser.* WWW servers are computers whose main objectives are to serve as repositories of multimedia information.
- The **Client** refers to that computer their clients through Web pages. Web pages are hypermedia documents that express, in
- an organized and often highly artistic and dynamic fashion, the contents of the server.

- Web pages are files expressed in **Hypertext Markup Language (HTML).** HTML is a standard representation that enables the browser to interpret both text and graphics stored on the Web page. Client browsers process the request for information via the **Uniform Resource Locator (URL)** of a server to be accessed. The URL is of the form

protocol://computer_name:port/document name

- where computer name refers to the address of the computer acting as the server, and protocol is the format used by the Web page (typically http, which stands for hypertext transfer protocol). This request causes the file to be displayed to the client. In short, the function of the server is to send the requested file to the client. The browser displays the files received. One important aspect of Web pages is to provide the ability for the client to download documents. This is a critical aspect of knowledge management where documents can be easily shared among a knowledge community.

Designing the Knowledge Sharing System

- The main function of a knowledge sharing system is "to enhance the organization's competitiveness by improving the way it manages its knowledge"
- The creation of a knowledge sharing system is based on the organization of digital media, including documents, Web-links, and the like, which represent the explicit organizational knowledge.

The crucial requirements for the success of a knowledge sharing system in industrial practice include :

1. Collection and systematic organization of information from various sources

- Most organizational business processes require information and data including Computer-aided design(CAD) drawings, e-mails, electronic documents such as specifications, and even paper documents.
- This requisite information may be dispersed through the organization. This first step requires the organization and collection of this information throughout the organization.

2. Minimization of up-front knowledge engineering

- Knowledge sharing systems must take advantage of explicit organizational information and data such that these systems can be built quickly, generate returns on investment, and adapt to new requirements.
- This information and data is mostly found in databases and documents.

3. Exploiting user feedback for maintenance and evolution

- Knowledge sharing systems should concentrate on capturing the knowledge of the organization's members.

- This includes options for maintenance and user feedback so the knowledge can be kept fresh and relevant. Furthermore, knowledge sharing systems should be designed to support user's needs and their business process workflows.

4. Integration into existing environment

- Knowledge sharing systems must be integrated into an organization's information flow by integrating with the IT tools currently used to perform the business tasks. Humans, by nature, will tend to avoid efforts to formalize knowledge (ever met a computer programmer that enjoys adding comments to her code?)
- In fact, as a rule-of-thumb, if the effort required in formalizing knowledge is too high, it should be left informal to be described by humans and not attempt to be made explicit. For instance, consider the possibility of capturing the "how-to" knowledge, of how to ride a bicycle.
- Clearly an understanding of the laws of physics can help explain why a person stays on the bicycle while it's moving, but few of us recall these laws while we ride.
- Other than the proverbial "keep your feet on the pedals" which doesn't explicate much about the riding process, most of us learned to ride a bicycle through hours of practice, and many falls, when we were kids.

- It would be impractical to try to codify this knowledge and make it explicit.
- On the other hand, it might be useful to know who's a good bicycle rider, in particular if one is looking to put together a cycling team.

5. Active presentation of relevant information

- Finally, the goal of an active knowledge sharing system is to present its users with the required information when and wherever it's needed.
- These systems are envisioned as intelligent assistants, automatically eliciting and providing knowledge that may be useful in solving the current task whenever and wherever it's needed.

Barriers to The Use of Knowledge Sharing Systems

- Knowledge sharing is the corner-stone of many organisations' knowledge-management (KM) strategy.
- Despite the growing significance of knowledge sharing's practices for organizations' competitiveness and market performance, several barriers make it difficult for KM to achieve the goals and deliver a positive return on investment.
- Many organizations, specifically science and engineering-oriented firms, are characterized by a culture known as the not-invented-here syndrome**(NIH)**.
- **Not invented here** (**NIH**) is a stance adopted by social, corporate, or institutional cultures that avoids using or buying already existing products, research, standards, or knowledge because of their external origins and costs, such as royalties. In other words, solutions that are not invented at the organizational subunit are considered worthless.
- Organizations suffering from this syndrome tend to essentially reward employees for 'inventing' new solutions, rather than re-using solutions developed within and outside the organization.
- Organizations that foster the not-invented-here syndrome discourage knowledge seekers from participating in the knowledge market, since the organizational rewards are tied to creating knowledge and not necessarily to sharing and applying existing knowledge.

knowledge-sharing barriers include:

1. Personal knowledge sharing barriers

- general lack of time to share knowledge, and time to identify colleagues in need of specific knowledge;
- apprehension of fear that sharing may reduce or jeopardise people's job security;
- low awareness and realisation of the value and benefit of possessed knowledge to others;
- dominance in sharing explicit over tacit knowledge such as know-how and experience that requires hands-on learning, observation, dialogue and interactive problem solving;
- use of strong hierarchy, position-based status, and formal power ("pull rank");
- insufficient capture, evaluation, feedback, communication, and tolerance of past mistakes that would enhance individual and organisational learning effects;
- differences in experience levels;
- lack of contact time and interaction between knowledge sources and recipients;

- poor verbal/written communication and interpersonal skills;
- age differences;
- gender differences;
- lack of social network;
- differences in education levels; taking ownership of intellectual property due to fear of not receiving just recognition and accreditation from managers and colleagues;
- lack of trust in people because they misuse knowledge or take unjust credit for it;
- lack of trust in the accuracy and credibility of knowledge due to the source; and
- differences in national culture or ethnic background;
- and values and beliefs associated with it (language is part of this).

2. Organisational knowledge sharing barriers

- integration of KM strategy and sharing initiatives into the company's goals and strategic approach is missing or unclear;

- lack of leadership and managerial direction in terms of clearly communicating the benefits and values of knowledge sharing practices;
- shortage of formal and informal spaces to share, reflect and generate (new) knowledge;
- lack of transparent rewards and recognition systems that would motivate people to share more of their knowledge;
- existing corporate culture does not provide sufficient support for sharing practices;
- deficiency of company resources that would provide adequate sharing opportunities;
- external competitiveness within business units or functional areas and between subsidiaries can be high (e.g. not invented here syndrome);
- communication and knowledge flows are restricted into certain directions (e.g. top-down);
- physical work environment and layout of work areas restrict effect sharing practices;
- internal competitiveness within business units, functional areas, and subsidiaries can be high;
- hierarchical organization structure inhibits or slows down most sharing practices; and
- size of business units often is not small enough and unmanageable to enhance contact and facilitate ease of sharing.