CHAPTER 3

History of Knowledge Management

Knowledge management is a relatively new discipline and therefore has a short history. As a conscious discipline, it developed from the various published work of academics and pioneers such as Peter Drucker in the 1970s, Karl-Erik Sveiby in the late 1980s, and Nonaka and Takeuchi in the 1990s. It began when the concept of a "knowledge company" was introduced in published literature.

The 1970s

The early development of knowledge management came as a result of the work of a number of management theorists and practitioners. Among these early works were the papers published by Peter Drucker and Paul Strassman. In these papers they observed the growing importance of information and explicit knowledge as valuable assets of organizations. The work of Peter Senge, on the other hand, focused on the "learning organization" and emphasized the cultural dimension of managing knowledge. Other management experts and practitioners like Chris Argyris, Christoper Bartlett and Dorothy Leonard-Barton of Harvard Business School contributed significantly to the development of the theory of knowledge management and the growth of its practice by examining in their various works and publications the many facets of managing knowledge. In 1995, Leonard-Barton's book Wellsprings of Knowledge – Building and Sustaining Sources of Innovation was published by the Harvard Business School. In this book, she documented her case study of Chaparral Steel, a company which had an effective knowledge management strategy in place since the mid-1970s.

The pioneering studies made in the late 1970s by Everett Rogers at Stanford on the diffusion of innovation and by Thomas Allen at MIT on information and technology transfer were largely responsible for the current understanding of how knowledge is produced, used and diffused within

organizations. This growing recognition of the importance of organizational knowledge led to an increasing concern over how to deal with exponential increases in the amount of available knowledge and the complexity of products and processes. It was at this point that the computer technology, which in the first place contributed heavily to the great abundance of information, started to become part of the solution in a variety of ways.

Box 3.1 Banking on Knowledge

The World Bank has been dispensing loans to developing countries for over 50 years. In 1996, James Wolfensohn, then the new president, announced that the World Bank would strive to become the "Knowledge Bank". As usual with such Olympian pronouncements, the bank's staff scrambled to figure out what the heck Wolfensohn meant, and the skeptics argued that "this too shall pass".

But it did not. Instead, a large variety of initiatives appeared that penetrated almost every corner of the far-flung organization. Sure, there were the usual knowledge repositories, benchmarking efforts with other companies and consulting projects. But what the Bank has that few other organizations can boast is integration with the organization's basic mission and processes. The Bank's mission statement was modified to read: "To help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors." Its strategic plan included a major section on knowledge management that defined the concept and how it would be applied within the organization. By fiscal 2000 the Bank spent about $45 million, or 5 percent of operational expenditures, on knowledge management. Every staff member was expected to devote two weeks of time a year to knowledge creation, sharing and learning. "Communities of practice", or as the Bank quirkily called them, "thematic groups," were organized for the creation and sharing of knowledge in key content domains, such as early childhood development, school health and disaster relief. Presently, there are about 100 such groups, and almost half of the Bank's employees are active members of at least one group.

Box 3.1 Banking on Knowledge

Most important, the effort is showing results. The "Urban Slums and Upgrading" thematic group, for example, used knowledge management-based approaches to begin circulating ideas around the Bank for dealing with problems of slums in developing nations. They developed a CD-based "electronic tool kit" for those who need help in designing and implementing large-scale urban infrastructure projects. They also developed an approach to "tacit knowledge download" to help new staff members learn from experienced ones.

Source: Davenport, Tom, "The Last Big Thing", The CIO Service Center, <http//www/cio.com/archive/110100_davenport.html> (2000).

Two examples of technology solutions that were available for use in early knowledge management systems can be cited. One such solution was Augment (short for augmenting human intelligence), introduced in 1978 by Doug Engelbert, and other early hypertext/groupware application systems that were capable of interfacing with other applications and systems. Another notable example was the Knowledge Management Systems developed by Rob Acksyn and Don McCraken, which was an open distributed hypermedia tool that predated the World Wide Web by a decade.

The 1980s

Classical economic theory does not fully recognize the value of knowledge as an organizational asset. However, by the mid-1980s, the importance of knowledge as a competitive asset was already well-recognized, in particular, its expression in professional competence. Nevertheless, most organizations still did not have the strategies and methods for managing knowledge. It was during this period that Peter Drucker coined the term "knowledge worker". He, together with other foresighted writers like Matsuda and Sveiby, wrote in-depth about the role of knowledge in organization. Thus by the late 1980s, the ideas that they had developed together with the work done in artificial intelligence and expert systems gave rise to such concepts as "knowledge acquisition", "knowledge engineering" and "knowledge-based

systems" and other computer-based ontologies. These developments gave further impetus to the growth of systems for managing knowledge.

Box 3.2 Development of Knowledge Management at Microsoft

Vision:

1. Increase organizational effectiveness by enabling users to intuitively find, share and connect to relevant information, processes and people.
2. Enable information workers to work together to solve business problems more effectively and rapidly through software and services.

Microsoft circa 1997:

- Multiple, disparate business systems
- Lack of worldwide revenue information
- Inability to track people and position
- 250,000 hard copy financial reports distributed worldwide, available 14 days after end period
- Hundreds of paper forms for purchasing, benefits, pensions, policies, etc.
- Excessive resources focused on transaction processing, not adding business value
- Difficulty sharing knowledge, ideas and content effectively.

Microsoft today with knowledge management:

- Single transaction system worldwide
- Consistent business policies and processes
- Key financial and operational metrics available real time including:
  (a) revenue and inventory by product, customer, location, channel;
  (b) organization headcount and possible detail worldwide; and
  (c) transaction cost detail worldwide
- All financial reports distributed electronically 4 days following month end
- Over 90% of all procurement processed electronically
- All employee services are web based
- Integrated platform for sharing knowledge and collaboration

Source: Kushner, J. and Rijpra, G., "Transforming to a Knowledge Management Paradigm", (2004).

As more thinkers and scholars publish their work, the phrase "knowledge management" formally became part of the lexicon of management. And in order to provide a technological base for managing knowledge, a consortium of U.S. companies started in 1989 the "Initiative for Managing Knowledge Assets". As a result, numerous knowledge management-related articles began appearing in journals like Sloan Management Review, Harvard Business Review, and others. Simultaneously, the first books on organizational learning and knowledge management were published, including Senge's The Fifth Discipline and Sakaiya's The Knowledge Value Revolution.

The 1990s

By 1990 a growing number of academics and consultants had started talking about knowledge management as the new business practice. At the same time, a significant number of large management consulting firms had begun in-house knowledge management activities and several well established U.S., European and Japanese firms instituted focused knowledge management programs. And more and more articles on knowledge management began to appear in an increasing number of business journals. The agenda of many conferences also started to include knowledge management as a main item for discussion. But the introduction of knowledge management did not come until 1991 when Tom Stewart published the article "Brainpower" in Fortune magazine. This was followed by many more articles in widely read publications, most notably articles written by Nonaka, Stewart, and others. Nevertheless, business executives and professionals did not yet show widespread interest in the subject.

It was only in 1995 when knowledge management in its current form first received significant attention among corporations and organizations. This came about as a result of the publication of the seminal book of Ikujiro Nonaka and Hirotaka Takeuchi titled The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation. In September of the same year, Arthur Andersen and the American Productivity and Quality Center (APQC) co-sponsored the Knowledge Imperative Symposium in Houston,

which was followed by many more similar conferences and publications. Of the many publications that came out, the more popular titles include Tom Stewart's Intellectual Capital, Karl Erik Sveiby's The New Organizational Wealth, and Verna Alle's The Knowledge Revolution. Butterworth-Heinemann also launched a series – Resources for the Knowledge-based Economy – and started publishing an annual yearbook.

By the mid-1990s, it became widely recognized that the competitive edge of some of the world's leading companies was for the most part due to the robust knowledge assets of those companies. With this realization, the management of knowledge suddenly became a mainstream business objective. At the same time, nurturing knowledge assets such as competencies, customer relationships and innovations became a focus of attention of many corporations. And other companies started emulating the knowledge management practices of the market leaders.

The International Knowledge Management Network (IKMN), which started in Europe in 1989, went online in 1994. It was soon joined by the Knowledge Management Forum, based in the United States. Shortly thereafter, many other KM-related groups and publications started appearing. There was a tremendous increase in the number of knowledge management conferences and seminars as organizations focused on managing explicit and tacit knowledge and leveraging these resources to achieve competitive advantage. In the same year, IKMN published the results of a knowledge management survey conducted among European firms. In 1995 the European Community began offering funding for KM-related projects through its ESPRIT program.

By the end of the 1990s, big businesses started implementing "knowledge management solutions". Knowledge management became a rage and came to be seen as a highly desirable alternative to the failed Total Quality Management (TQM) and business process re-engineering initiatives. As a result, knowledge management projects became big business and source of revenue for major international consulting firms such as Ernst & Young, Arthur Andersen, and Booz-Allen & Hamilton. In addition, a number of professional organizations interested in such related areas as benchmarking, best practices,

risk management, and change management began exploring the relationship between knowledge management and their areas of special expertise. These included reputable organizations like the American Productivity and Quality Council and the American Society for Information Science.

Generations of Knowledge Management

For many large innovative corporations such as Microsoft and international organizations such as the World Bank, knowledge management has become a standard feature of conducting business. Knowledge management is reflected in the organization's mission statement. There are now also a large number of practitioners in the field of knowledge management and a phenomenal growth in the number of periodicals and magazines with knowledge management in their title. These include publications like Knowledge Management, Knowledge Management Magazine, Knowledge Management Review and the Journal of Knowledge Management, which all provide valuable and timely information for knowledge managers, including case studies and guidance from various experts.

It is possible to distinguish two generations of knowledge management applications: the first generation when the emphasis was on technology; and the second generation when the emphasis was on people.

First generation knowledge management

Many of the early knowledge management initiatives met with only limited success. As a consequence, questions were asked whether knowledge management was not simply another fad that on paper looked great, but in actual application failed to deliver. In fact, for a while, it looked as if knowledge management was destined to be confined to the "management fad graveyard". However, on closer scrutiny, companies realized that it was not the concept of knowledge management that was the problem as such, but rather the way that they had gone about approaching it. Thus at the dawn of the new millennium, knowledge management mysteriously vanished from the agenda of the top corporations. It is only now that knowledge management has started to reappear.

Box 3.3 First and second generation knowledge management

First generation knowledge management

- Focus on knowledge management (limited concept of knowledge lifecycle)
- Better and faster storage, indexing and retrieving of content to help knowledge sharing
- Improving individual performance and learning capability
- Origins in information retrieval, intranet and internet
- Technology focus – sometimes obsessive

Second generation knowledge management

- Focus is knowledge process management (full use of knowledge lifecycle concept)
- Better and faster knowledge creation and innovation plus the sharing of such knowledge
- Improving organizational performance and learning
- Origins in first generation knowledge management plus organizational learning and systems thinking (with ideas from complexity theory still to come)
- May or may not use technology

Source : "Second Generation Knowledge Management", <http://www.unicom.co.uk/3in/issue5/1.Asp> (2004).

The reasons for this loss of confidence in knowledge management include the following:

- The hype associated with knowledge management was too much with consultants and technology vendors making too much money on the latest management fad.
- Many corporations spent too much financial resources usually on exotic technologies with little or no return on their investments. The fact that the measurement of ROI of knowledge management projects is difficult even for the best planned projects let alone with those that are badly envisioned was greatly overlooked.

- Most published materials on knowledge management were very conceptual and lack practical applications. This led to frustration at the inability to translate the theory into practice. Thus many asked the question: "It all makes so much sense but why is it not working?"

Many companies also suffered from what is called the "Air Flight In-house Magazine Syndrome". What this means is that the busy executive (with a budget) reads an article on knowledge management while traveling (perhaps in a magazine provided by the airline) and upon arriving at the office immediately gives orders for the implementation of some sexy knowledge management technology.

This approach is of course likely to result in failure (as did better planned initiatives) for the following reasons:

- Knowledge management was not tied into business processes or ways of working. It was seen as another laborious overhead activity such as completing timesheets – something that might get done at 5 p.m. on the last Friday of the month.
- A lack of incentives – employees quite rightly asked the "What is in it for me?" question. To further complicate matters, their personal objectives probably encouraged individualistic rather than collaborative activity.
- The people who used it most were not the people who want or need to use it – the time factor (as with most communities, how do you encourage the experts to share knowledge when they receive very little new knowledge back?)
- There was not senior executive-level buy-in.
- The focus was on the technology rather than the business and its people. This is reinforced by a McKinsey survey of 40 companies in Europe, Japan and the United States, which showed that many executives think that knowledge management begins and ends with building sophisticated IT systems.

The first generation knowledge management involved mainly the capture of information and experience to make them easily accessible to other users within the organization. Thus knowledge management was primarily about "knowledge capture". By properly managing this capture of knowledge makes possible the growth of the system into a powerful information asset.

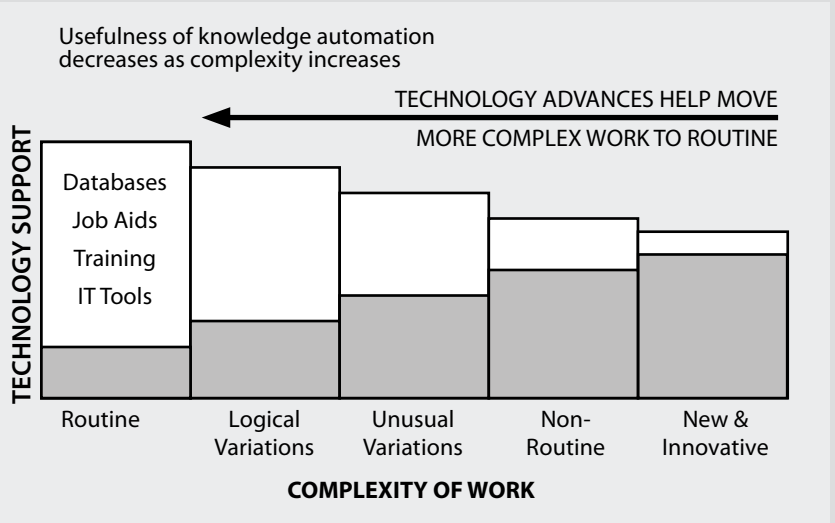
Second generation knowledge management

In the light of the many practical failures of first generation knowledge management techniques and their inability to live up to their promises, theorists began to study and scrutinize more closely the ways by which knowledge is created and shared. As a result there was a dramatic shift in metaphor. Organizations came to be viewed as capable of learning. Consequently, a link between learning theory and management started to develop and more organic models began to replace hierarchical models of organizational structure. Thus effective organizations were seen as capable of structural changes in response to their environment.

In view of the growing recognition of the early mistakes and learning from them, companies have started to take a different approach to knowledge management. In this new approach the emphasis is more on people, behaviors and ways of working rather than on the application of technology. While there are still some skeptics who believe that knowledge management is just a fad, they are now in a minority. The more popular view is that knowledge management may not remain a distinct discipline but may become an integral part of the way organizations work. A similar example is what happened to Total Quality Management. TQM was the "fad" in the 1980s but today nobody talks about "TQM" any more. However, many of its principles and practices have become integral part of how organizations operate. Many experts predict that this could also be the future for knowledge management.

Box 3.4 People over technology: usefulness of technology decreases as complexity increases

Top companies have learned that technology is the easy part of supporting knowledge creation and sharing. The really hard part is working with people to improve collaboration and knowledge sharing. What becomes clear very quickly to those supporting knowledge initiatives is that as knowledge complexity increases the degree to which technology can be counted on to assist with the task is reduced. On the up side, though, as we learn how to build smarter technologies that can assist with more complex tasks, we move the complex to the routine. This in turn frees up people's intelligence to address more complex questions.



Source: Allee, V., "Knowledge Networks and Communities of Practice", <http://www.odnetwork.org/odponline/vol32n4/knowledgenets.html> (2005).

Box 3.5a – Implementing the Knowledge Bank: Chronology	
1996	James Wolfensohn announces Knowledge Bank Matrix Organizational Structure Thematic Groups launched and Advisory Services created
1997	Strategic Compact approved Global Knowledge Conference convenes
1998	All World Bank offices linked to a global communications system Innovation Marketplace launched Knowledge sharing becomes part of the Overall Performance Evaluation
1999	The World Development Report on Knowledge for Development published Action Review of Knowledge Management released
2000	The Global Development Learning Network launched The Development Gateway launched Knowledge for Development program established
2001	Strategic Compact Assessment released
2002	Three pillars of knowledge sharing at the Bank firmly established World Bank Institute given mandate to lead/facilitate
2003	KM job standards introduced Evaluation of Knowledge Sharing (OED)
Source: World Bank, "Knowledge Sharing at the World Bank" (2005)	

Box 3.5b – Implementing the Knowledge Bank: Level of Difficulty	
Easier  **More difficult**	Collecting (Knowledge repositories) 1997 … Connecting internally (Knowledge Communities or Thematic Groups) 1998 … Connecting externally (Knowledge Partnerships, Gateway, GDLN) 1999 … Brokering global knowledge, Facilitating adaptation to local knowledge, Connecting stakeholders, and acting as a catalyst for change 2002 …
Source: World Bank, "Knowledge Sharing at the World Bank" (2005)	

Box 3.5c – Implementing the Knowledge Bank: Results

Within 7 years

- **Thematic Groups** (80 communities of practice)
- **Advisory Services** (25 help desk facilities)
- **Sector Knowledge Collections** (Web)
- **Country/Sector Statistics** (Live Database)
- **Directories** (People Page)
- **Debriefing** (tacit knowledge download)
- **Indigenous Knowledge (**Africa IK)
- **Global Development Gateway**
- **Development Forum** (Discussion Groups)
- **B-SPAN** (webcasting)
- **Dissemination** (formal/informal learning)

Source: World Bank, "Knowledge Sharing at the World Bank" (2005)