KNOWLEDGE-DRIVEN ERA AND THE DAWN OF KNOWLEDGE PORTAL TECHNOLOGIES

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Abstract

Knowledge has been the staple source of competitive advantage for many organizations for hundreds of years. During the 1990s, the onset of Internet and Information Superhighway, allowed KM to take off. It provided more opportunities for knowledge sharing and knowledge transfer than there had been in the past. This paper discusses the paradigm shift from agricultural to industrial economy and then to new Knowledge Economy. Provides a conceptual view of Knowledge management and its key drivers- highlights the evolution and the functions of portals- also elucidates different tools and technologies which act as platform to bring people together to share knowledge in the form of expertise, competencies, skills irrespective of time and space constraints. Concludes that the future is for Knowledge Portals that provide flexible knowledge environment for large number of users.

Keywords : Knowledge Driven Era, Knowledge Portal Technologies

1. Introduction

Knowledge and innovation have played an important role in the development of society throughout history. The transformation from Agrarian to Industrial Society and now to the Information and Knowledge Society has largely been brought about as a result of the accumulation of Knowledge and the advances in Information and Communication Technologies. Digitization, open systems standards, and the development software and supporting technologies for the application of new computing and communication systems – including scanning and imaging technologies, memory and storage technologies display systems and copying technologies have intensified the move towards Knowledge codification, increased share of codified knowledge in the knowledge stock of advanced economies. All knowledge that can be codified and reduced to information can now be transmitted around the world.

2. Paradigm Shift

"There is a central difference between the old and the new economies: the old industrial economy was driven by economies of scale: the new information economy is driven by the economies of networks" – Carl Shapiro and Hal R. Verian – Information rules.

In an agricultural economy land is the key resource. In an industrial economy natural resource such as coal, iron ores are the main resources. A knowledge economy is one in which knowledge is the key resource. …One in which the generation and the exploitation of knowledge has come to play the pre dominant part in the creation of wealth. It is not simply about pushing back the

frontiers of knowledge; it is also about the more effective use and exploitation of all types of knowledge in all manners of economic activity.

The knowledge economy is emerging from two defining forces; the rise in the knowledge intensity or economic activities, and the increasing globalization of economic affairs. The combined forces of information technology revolution and the increasing pace of technological change are driving the rise in knowledge intensity. Globalization is being driven by national and international deregulation, and by the IT related communication revolution. *(Houghton, John and Sheehan, Peter)*

3. Knowledge Management *(Fantz, Ron-2001)*

Change is the order of the day. Increases in the organizational information and change have created a great need to manage knowledge to ensure effectiveness.

Knowledge management can be viewed as the process of identifying, organizing and managing knowledge resources. These include explicit knowledge (information), 'know how' (learning capacity), 'know who' (customer capacity) and tacit knowledge in the form of skills and competencies.
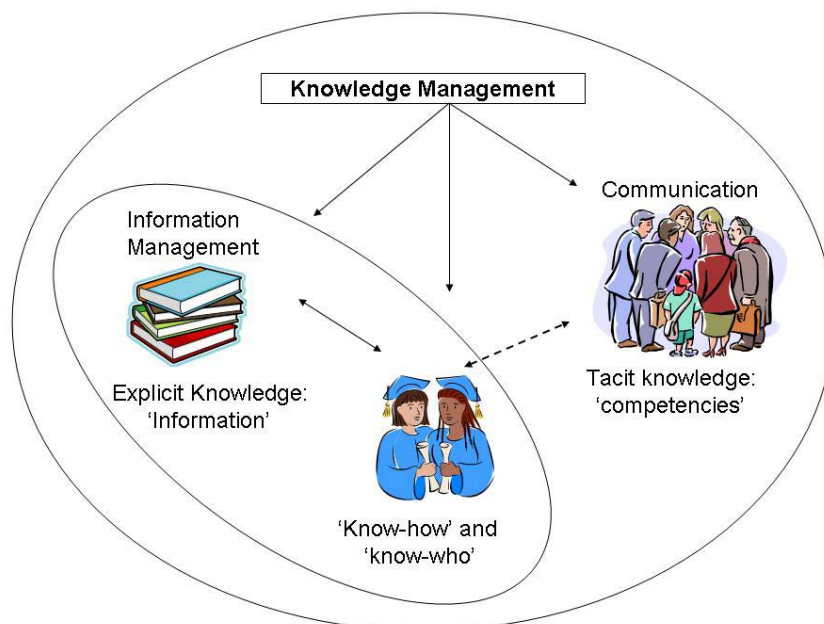
Key drivers for knowledge management *(Al-Hawandeh, Suliman, -2003)*

Some of the key drivers for knowledge management are mentioned below:

- **Achieving organizational efficiency**

Knowledge management plays a significant role in achieving organizational efficiency. In the new economy, speed and responsiveness are determining success factors. Indeed, in the Internet world where customers expect services to be available on a 24-hour basis, firms have no choice but to make a quantum-leap improvement in various aspects of their services. This in turn has created the need for organizational to have organized information to facilitate their operations, information that is timely, accurate, useful and, more importantly, tailored to the organization's need.

- **Staying ahead of the competition**

In order to stay ahead of the competition, firms nowadays understand fully the need to know their customers and their competitors' very well. Lee, Wee and Bambang-Walujo (1991) highlighted that intelligence gathering/market intelligence is a crucial activity that companies must undertake in today's competitive business world.

- **Maximizing Organizational potential**

The ability of an organization to innovate and create knowledge will depend largely on its ability to capture and manage knowledge. However, knowledge creation is an incremental process that requires the existence of a knowledge infrastructure. Knowledge management is about identifying and managing existing knowledge resources. It is also about making these resources available for knowledge workers to use in their work Knowledge management professionals can play an important role in facilitating the knowledge creation process by facilitating knowledge-sharing and providing access to knowledge resources as and when these resources are needed.

- **Managing intellectual capital**

In the knowledge-based economy, the value of an organization is largely measured by the value of its knowledge (or intangible) assets. Intellectual capital involves human capital, customers' capital, structural capital and business intelligence capital. Each of these categories relies heavily on the creation and management of knowledge assets.
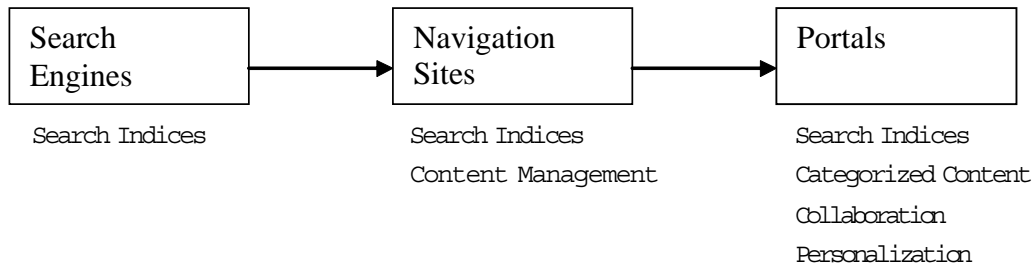
4. Knowledge Portal Technologies *(Subba Rao, Siriginidi -2001)*

The World Wide Web (WWW) has paved the way for the information age. With a competitive market demanding more information from various quarters, the Web has turned out to be a variable resource. In the early days Web surfers were frustrated by the delay in finding the information they needed. The first major information retrieval leap came from the development of Web search engines such as Lycos, Excite, AltaVista, etc.

While everyone lauds the Web for offering unbridled opportunities to explore and discover new thins, many still want someone else to aggregate a variety of interesting content in one place instead of creating massive and unwieldy bookmark files in their browser. These new online services

are Web sites, delivering the old formula of content, community and core services, but in a new package and transformed as Web portals.

Evolution of portals

Search Engines	→	Navigation Sites	→	Portals

Search Indices   Search Indices   Search Indices

                                      Content Management   Categorized Content

                                                                  Collaboration

                                                                   Personalization

Key Functions *(Awad, Elias M. and Ghaziri, Hassan M.-2004)*

The main goal of a portal is to provide a single point of access to all information sources. Therefore portals must be the ultimate tools for universal integration of all enterprise applications. At the same because every individual has different information needs and knowledge uses, portals have to deliver a personalized interface. Keeping in view the complexity of these challenges portals must include the following functionalities:

- *Gathering*: Documents created by knowledge workers are stored in a variety of locations. In order to be accessible data and documents need to be captured in a common repository.
- *Categorization*: This category profiles the information in the repository and organizes it in meaningful ways for navigating and searching. Portal should support categorization at all levels, including the knowledge worker and customer levels.
- *Distribution:* This facility supports the distribution of structured and unstructured information in the form of electronic or paper documents.
- *Publish:* This facility publishes information to a broader audience, including individuals outside the organization.
- *Personalization:* This is a key component of portal architectures because it allows individuals to enhance their productivity. It is becoming a necessity for successful portals. This is due to the proliferation of information available through the portal. To take advantage of this facility knowledge workers must be able to manage or prioritize the delivery of information on task function or interest basis.
- *Search/Navigate:* This component provides tools for identifying and accessing information. The knowledge worker can either browse or submit a query.

Collaboration *(Suliman Al-Hawamdeh-2003)*

Knowledge portals provide a platform for people to engage in discussion and exchange information. The framework includes interactive facilities such as chat sessions, bulletin boards, and application

sharing together with shared workspaces, whiteboards, and collaboration and authoring tools.

Collaboration in the knowledge management context is the ability for two or more people to work together in a coordinated manner over time and space using electronic devices. One has to distinguish between two types of Collaborations:

- Asynchronous collaboration
- Synchronous Collaboration.

Below are given few advantages and disadvantages of Synchronous and Asynchronous Collaboration tools *(Awad, Elias M. and Ghaziri, Hassan M.-2004)*
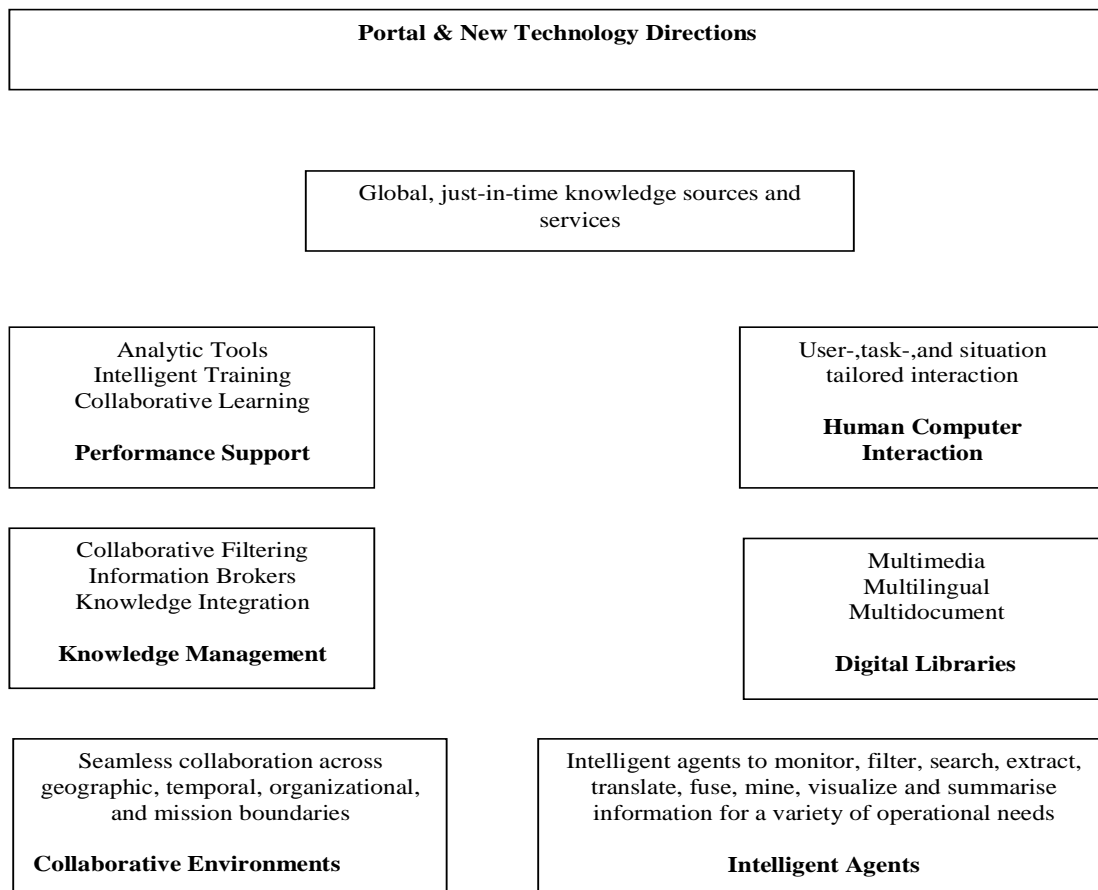
"*Synchronous Collaboration*	*Asynchronous Collaboration*
Teleconferencing	**Electronic Mailing Lists**
In use extensively by senior management and staff, conference telephone calls represent an effective (if relatively expensive) collaboration technology.*Advantages*: personal, immediate feedback*Disadvantages*: expensive, often does not work well across time zones	Lists have been in use for a number of years and represent an extremely cost effective collaboration technology. *Advantages*: cheap *Desadvantages*: limited communication medium
Computer Video/Teleconferencing	**Web-Based Discussion Forums**
Computer-based teleconferencing and video- teleconferencing is a rapidly evolving technology that has tremendous potential for distributed organizations. connection.	There are a number of different online discussions forum applications in use. *Advantages* : same as electronic mailing lists except requires slightly faster Internet connection. *Disadvantages* : cultural resistance Web-Based Discussion Forums
Online Chat Forums	**Lotus Notes**
Allow multiple users to communicate simultaneously by typing messages on a computer screen ment	Lotus notes is a compreshensive collaboration tool that includes e-mail and groupware. *Advantages*: comprehensive collaborative solution employing state-of-the-art technolo-gies for communication, document manage- and work flow. *Disadvantages*: expensive to deploy when compared with other collaboration technologies.

Content Management *(Mack, Ravin & Byrd-2001)*

Another important issue handled by content management is the way documents are analyzed, stored and categorized. Once the documents have been gathered, they must be analyzed so that their content is available for retrieval and use by the system or end users. As documents enter the portal system, they are stored for later retrieval and display. However, it is not useful to simply put the documents away in their raw form. Systems typically analyze the documents content and store the results of that analysis so that subsequent use of the documents by the system and users will be more effective and efficient.

As the number of documents under management grows, it becomes increasingly important to gather similar documents into smaller groups and to name the groups. This option is called *categorizing.*

Figure shows the new technology trends in implementing portals:

Portal & New Technology Directions

Global, just-in-time knowledge sources and services

Analytic Tools Intelligent Training Collaborative Learning **Performance Support**	User-,task-,and situation tailored interaction **Human Computer Interaction**
Collaborative Filtering Information Brokers Knowledge Integration **Knowledge Management**	Multimedia Multilingual Multidocument **Digital Libraries**
Seamless collaboration across geographic, temporal, organizational, and mission boundaries **Collaborative Environments**	Intelligent agents to monitor, filter, search, extract, translate, fuse, mine, visualize and summarise information for a variety of operational needs **Intelligent Agents**

Examples of Knowledge Portals *(http://www.unesco.org)*

UNESCO has a vital role in gathering, transfer, dissemination and sharing of data, information and knowledge. UNESCO has created public domain portals for diverse groups of users with very rich contents.

UNESCO Libraries Portal
http://www.unesco.org/cgi-bin/webworld/portal_bib2/cgi/page.cgi?d=1

Web-World: Communication and information sector's portal
www.unesco.org/webworld/

UNESCO Archives Portal
www.unesco.org/webworld/portal_archives/

UNESCO Portal Discussion Forum
www.portal.unesco.org/ci/forum/

UNESCO – SALIS
http://portal.unesco.org/ci/en/ev.php-

Conclusion

Knowledge is the key source of a postindustrial society and telecommunication is the key technology. The advances in information and communication technologies, the Internet revolution, and the move towards the Information and Knowledge Society have highlighted the importance of knowledge and need for Knowledge management. Collaborative applications such as e-mail, calendaring, scheduling, shared folders and threaded discussions promote knowledge sharing and knowledge transfer. Both software vendors and knowledge-aware companies are investing huge sums in the development of efficient Knowledge Management solutions. These investments and the potentials of new technologies, additional bandwidth, and future Internet services will allow for a completely new form of process-oriented, user-centered portals that will cater for sophisticated users and provide knowledge for competitiveness.

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