Recent Trends in Knowledge Management

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Abstract: *This paper presents information about the recent trends in knowledge management and explains how the knowledge plays a major role in decision making and sustaining competitive advantage. Knowledge is currently considered as the most important strategic resource as it allows transforming knowledge from one organization to another in various disciplines. It focuses on two basic approaches viz, tacit and explicit knowledge for the growth of an organization. The sharing of knowledge is made easy through Enterprise 2.0, providing platform for the employees to get organized and share their expertise. As the amount of data continues to grow rapidly, semantics aims at finding effective ways of capturing and making use of informal communication. It explains how the administration is done with the aid of people through E-Governance. It also focuses on E-Office which provides simplified, effective and transparent working to all government offices. Then focusing on the most recent trend of knowledge management is National Knowledge Network. It allows students and researchers to move towards a new paradigm of education and research based on virtual platform. A winning knowledge management techniques increases decision making, staff productivity and service quality by capitalizing on intellectual and knowledge based assets.*

Keywords - *Database, explicit knowledge, knowledge base, Knowledge management, tacit knowledge.*

I.   INTRODUCTION

Knowledge management is one of the emerging disciplines in today's world. The world economy has transitioned from the industrial age to Information age and now, the knowledge age has started playing the role in the later 1990s by using technologies such as knowledge bases, Knowledge repositories and intranets. The recent trends like web 2.0, Enterprise 2.0, Semantics and their applications in E-governance, E-office and National knowledge Network has come to face the critical challenges of the twenty-first century. In an era of knowledge revolution, all organizations need to be expert at identifying, codifying, retrieving and sharing knowledge to secure substantial competitive advantage. In a knowledge based economy, intellectual capital is considered as the prime asset in any organization. The need and importance of knowledge in the field of business, research and in various industries has risen dramatically and so the management of this new knowledge is very essential. The need for the foundation of an organization is not only money or capital or technology but also knowledge and education.

II.   TRANSFORMATION OF DATA TO KNOWLEDGE

In 1955, English –American economist Kenneth Boulding presented the variation on the knowledge pyramid hierarchy by explaining the transformation of signals, messages and information to knowledge. In India, during the later twentieth century the electronic computing devices took over responsibility for large computing tasks and during late nineties data centres began to emerge and were providing services to specific industries like banking, petroleum and to some government agencies. These data centres provide data processing and storage thereby paving way to knowledge management.

2.1. DATA VS. INFORMATION AND INFORMATION VS. KNOWLEDGE:

Data are plain facts. It is the lowest level of information. The contents are unsorted, unformatted and not yet validated. For instance, each student's test score is one piece of data.   When data are processed, organized, structured or presented in a given context to make them useful, is called information. For example, the class average score is information.Information is said to be facts provided or learned about something. .Knowledge is the factor that connects fragments of information together. For instance, Information can be said as a brick and knowledge is building the blocks with bricks.

The Fig.1 shows how the data is summarised in to information and further how the information is synthesized in to knowledge.
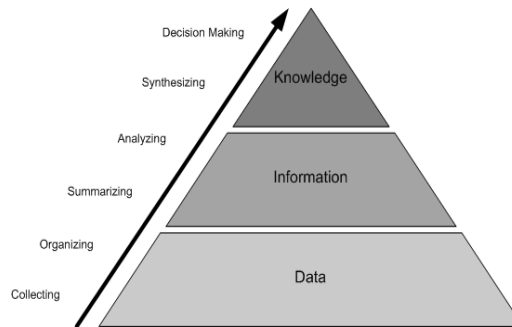

Fig.1.Transformation of data to knowledge

III. EXPLICIT TO TACIT KNOWLEDGE IN THE ORGANIZATION

Explicit and tacit knowledge plays an important role in the set up and development of any business, learning and research organization. Explicit knowledge can be expressed in words, numbers and can be easily communicated and shared in the form of hard data, scientific formulae, procedures or universal principles. Tacit knowledge is highly personal and hard to formalize, making it difficult to communicate and share with others in the organization. In organizations, intuition for decision making falls under this category of knowledge.
For instance, the ability of the salesman to sell a particular product to the customer is a process of work and We know how to sell but it is very difficult to explain in words to others and document it in a form of manual how he learnt this skill.

Fig.2 explains how the explicit and tacit knowledge used in an organization. The creation of knowledge is continuous in an organization. This dynamic interaction between tacit to tacit (eg: meetings & discussions) tacit to explicit (eg: write a report), explicit to explicit (eg: email a report) and explicit to tacit (eg: learn from a report) is enacted through the sequential process of socialization, externalization, combination and internalization. Both explicit and tacit knowledge plays a major role in organizational learning. In an organization when tacit and explicit knowledge interact, an innovation emerges.
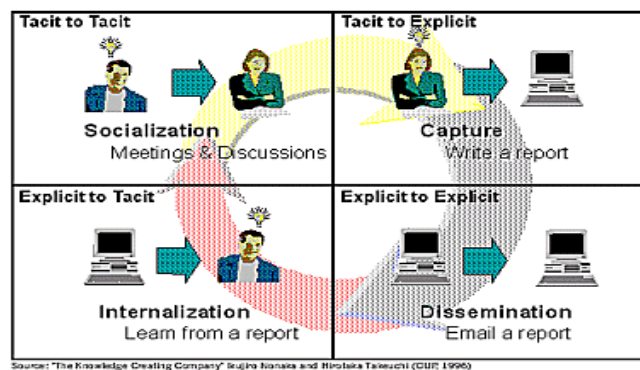

Fig.2.Explicit and Tacit knowledge in an organization

IV. KNOWLEDGE MANAGEMENT CYCLE

Knowledge management involves processes of knowledge creation, acquisition, storage, organization, distribution, sharing and application. There are four KM models given by Wigg (1993), Bukowitz & Williams

(1996), Zack (1996) and Mc Elory (2003).Among these four models Bukowitz & Williams Knowledge management model is discussed here.

Fig.3. Depicts the Knowledge management life cycle of Bukowitz and Williams and explains the process that defines the strategy for management to build, divest and enhance knowledge. It consists of the following steps:

[1] Get: This is the first stage of Bukowitz & Williams KM model. It consists of seeking out information needed in order to make decisions and solve problems. The key tasks are to organize knowledge content, maintain timeliness, completeness as well as train users in the new knowledge repository technologies in the organization.

[2] Contribute: In this stage, employees are motivated to post what they have learned in to knowledge base. The main goal is to link the individual learning and knowledge to the organizational memory.

[3] Assess: It is the process of identifying which part of knowledge is valuable and which is not. In other words, it is the process of continuous evaluation of intellectual capital the organization holds.

[4] Build/ Sustain: It is to make sure whether organizations future is secure and competitive by employing resources to create and reinforce the knowledge repository already present in the organization. The employees should be able to use the existing knowledge base and apply the same within the organization. On a different level, the organization should have the right knowledge at the right time to be the winning hand in a competitive world.
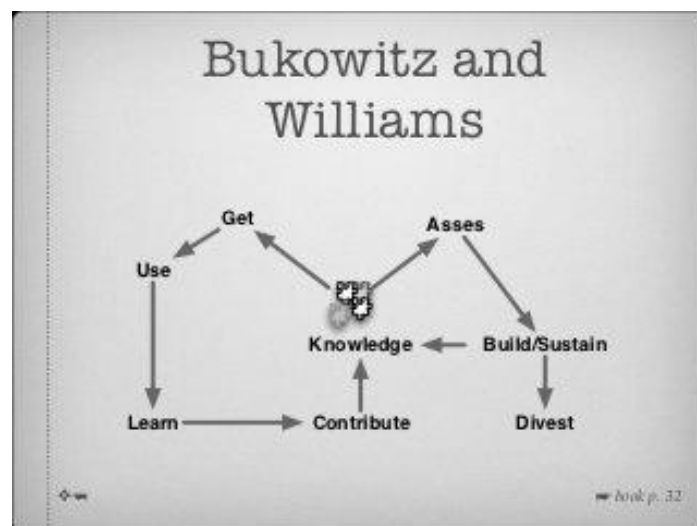

Fig.3. Bukowitz and Williams KM Cycle

V. TECHNOLOGIES AND THEIR APPLICATIONS IN KNOWLEDGE MANAGEMENT DURING LATER 20TH CENTURY

During the second half of the 20th century, with the increased use of computer technologies such as knowledge bases, knowledge repositories and intranets have been introduced to further enhance the knowledge management.

5.1. KNOWLEDGE BASE

It is a technology used to store complex structures and unstructured information used by a computer system. It is a special kind of database for knowledge management as it captures human knowledge and places it in to computer system where it is used to solve complex problems. It is different from a normal database. The knowledge base needed to know the facts about the world. For instance, to represent the statement "All humans are mortal". A database typically could not represent this general knowledge but stores information about humans in thousands of tables. Knowledge base stores information and can reason about any given human is mortal.

This technology is used in Wolfram Alpha, which not only process the query but also do the mathematical calculation for us, compute things and much more shows that it does indeed deal with knowledge and not data. The answer will be in the form of information for you and this is extracted from knowledge experience that the system has with world knowledge. Whereas, Google is just a search engine, has a large database composed of indexed resources and containing lots of information. It is issued with a query and presents a list of relevant resources. It gives only the data and not a solution.

5.2. KNOWLEDGE REPOSITORY

It is an online database that systematically captures, organizes and categorizes knowledge-based information. Knowledge repository helps organizations connect people with information and expertise globally via online searchable libraries, discussion forums and other elements. Working with repositories can help to build relationships between professionals and other groups with extra expertise and resources. A variety of best practices are employed to facilitate learning. It ensures quality over quantity and protects intellectual property rights.   Most of the IT organizations, KPO's and BPO's use knowledge repository to make the communication better. Some Government departments like Governance knowledge centre of India under the department of Administrative reforms and public grievances also use this Knowledge repository to share their ideas and views on governance. It is a knowledge repository of recent developments in knowledge management of different states in India. It is primarily targeted at civil servants and those interested in the practice of and research in governance and public management. It is felt that the knowledge shared by practitioners and researchers would facilitate a better comprehension of the nuances of administrative and management practices and pave the way for taking up appropriate interventions aimed at improving governance standards which in turn would help improve delivery of services to the citizens.

5.3. INTRANETS

It is a computer network that uses internet protocol technology to share information, operational systems or computing services within an organization. The objective is to organize each individual's desktop with minimal cost, time and effort to be productive, cost efficient, timely and competitive. Intranets help users to locate and view information faster and use applications relevant to their roles and responsibilities. It allows organizations to distribute information to employees on an as-needed basis.   A great real world example were an intranet helped a company communicate is when Nestle had a number of food processing plants in Scandinavia, their central system had to deal with a number of queries every day. When Nestle decided to invest in an intranet, they quickly realized the savings.

VI.   RECENT TRENDS IN KNOWLEDGE MANAGEMENT AND THEIR APPLICATIONS

6.1. KNOWLEDGE VISUALIZATION

Knowledge visualization focuses on the creation and transfer of knowledge with and without the help of computers. For instance, usage of flipchart sketch in a management meeting help quickly visualizes a concept. It presents key features, support reasoning and arguing and allow room for own interpretation. Scan of 3D prints used in marketing attract recipients, support learning through constant presence.   An IBMs Many eyes is a free public site allows anyone to create visualization from a dataset. A team doing a complex market analysis might use a collaborative visualization intranet site to get a much understanding by analysing the previous month's data. Knowledge is effectively transferred and utilized through the above methods.

6.2. ENTERPRISE 2.0

It is the growing trend to change from hierarchical to networked organization to empower employees and facilitate communication. It provides an open platform within companies or between companies to express opinions and share their expertise. It aims to help employees, customers and suppliers collaborate, share and organize information through web technologies.Enterprise 2.0 is used in most of the IT organizations to create networked organization, so the knowledge can be better shared and it further improves the decision making process. Tata Consultancy services implements Enterprise 2.0 for improving the employees' ability to find the expertise and information they need to do their jobs better would bring large benefits and thereby enhancing knowledge management in an organization.

6.3. WEB 2.0

It describes World Wide Web sites that allow users to interact and collaborate with each other in a virtual community. The term was coined in 1999 by Darcy Dinucci. Its applications are widely used in E-Governance, E-Office and National Knowledge Network.E-Governance is the use of Information and communication technology for delivering government services between government to citizens (G2C), government to business (G2B), government to government (G2G) as well as back office processes within the entire government framework.   Students Academic Management system initiated by the Department of Higher Education, Orissa (India) uses ICT as an innovative tool in the year 2009 to enhance students' access and capacitate college functionaries to manage an easy and convenient process of admissions. The goal of this e-governance programme is to ensure that students and guardians can access the admission process in a simple, economical and less time consuming way.   MP Online is a public private partnership model that has contributed significantly to improve the public services through e-governance in Madhya Pradesh (India). It was formed in 2006 as a part of a collaborative endeavour between the state government of Madhya Pradesh and Tata Consultancy provides services to the people of the state.   E-office is a web based system and it has been implemented in Sindhudurg district of Maharashtra (India) with effect from 24th Dec 2012. The primary objective of e-Office is to transform conventional administrative setup to more efficient and transparent organizations, eliminating delays and huge amount of paper work. Another noble rational objective of E-Office is to promote Green-Governance by using the administration totally paperless.   National Knowledge Network is a multi- giga bit network and Government of India has approved the project in March 2010   for providing a unified high speed network and it is the backbone for all knowledge related institutions in the country. The purpose of such a knowledge network goes to the very core of the country's quest for building quality institution with requisite research facilities and creating a pool of highly trained professionals. It enables scientists, researchers and students from different backgrounds and diverse geographies to work closely for advancing work. As on 31st October, 2012, around 885 institutions of higher learning and advanced research have been connected to the network and 61 virtual classrooms have been set up. Web technologies and their applications are very useful for knowledge management.

6.4. SEMANTIC WEB

The semantic web is a collaborative movement led by international standard's body and the World Wide Web consortium. The semantic web aims at converting the current web, dominated by unstructured and semi-structured documents in to a web of data. It provides a common framework that allows data to be shared and reused across application, enterprise and community boundaries. Biodiversity of India uses semantic technology under the umbrella of "project Brahma", a not-for profit initiative aimed to create awareness about bio-diversity conservation. Due to population explosion, climate change and implementation of environmental policies several species are facing the threat of extinction. Project Brahma aims to create awareness of the problem, by increasing participation of the people in biodiversity documentation and conservation. Its aim is also to create a central resource where organization's can accelerate all kinds of knowledge about Indian Biodiversity.

VII.   CONCLUSIONS

I conclude that the recent trends in knowledge management helps for the growth of new economy called knowledge economy i.e. the system of consumption and production based on intellectual capital. Most of the countries' economies consist of each of these major categories of economic activity viz, lesser developed countries tend to have agriculture or agriculture and manufacturing based economies, while developing countries tend to have manufacturing or manufacturing and service based economies and developed countries tend to have service-based economies to become knowledge based economy. In a knowledge based economy the country contributes its major part of revenue to technical support, research and consulting activities. Today, India is a developing nation as it contributes significant part of its revenue for the manufacturing and in the service based, it focuses on only one part of the service like consulting firms. India is yet to contribute considerable funds with facilities for research and technical support activities to become knowledge based economy. When India begins to allocate considerable part of its revenue for the research areas, then it becomes a developed nation.

VIII.   ACKNOWLEDGEMENTS

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