Research Paper   **Human Resource Management**

Role Of Information And Technology For The 21st Century Generation

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ABSTRACT

Information and technology have become an integral part of every day life. All aspects in modern-day life have a flavour of information and technology coming hand in hand either to save time or to share knowledge and even to have a track of their dear ones. Acquiring the necessary skills for the effective utilisation of information and information sources is very important for every knowledge worker - from the highest level of governmental decision-making to the lowest decision-making individual entrepreneur. Furthermore, the Internet is changing the way people communicate with one another, do business, exchange ideas, study and transmit information. We all know that the right information at the right time is essential for good decision-making. A working knowledge of the Internet and its applications, as well as the know-how of information management, therefore is an essential skill needed in the modern corporate world.

Keywords : ICT, Knowledge Management, Issues of KM, KM Application.

Introduction:
Within the last decade, the area of knowledge management (KM) has generated considerable interest in academic, business and public sector communities. KM has become the focal point of debates on mechanisms for increasing organizational efficiency, effectiveness and innovation. At the broadest level, numerous writers have argued that in the post-industrial information economy, natural resources, capital and labour are being replaced by knowledge as the basic resource from which socioeconomic wealth will be generated. Successful organizations are those which always adapt, create and apply new information or ideas.

A key factor has been the diffusion of information and communication technologies that can support knowledge-based activities. More than this however, has been the recognition that in an increasingly complex and uncertain global business environment it is the creation and application of 'knowledge' (not just data and information) that enables organizations to rapidly and innovatively adapt to changing circumstances. Significantly, while much discussion of knowledge management has centred around IT infrastructures and software applications, there is now a growing awareness that people and their skills, experience and creativity are at the core of successful knowledge management implementations.

Defining Knowledge
While knowledge remains difficult to define, more recently there has emerged a degree of consensus on the fact that it can be classified as either explicit or tacit. A third classification of implicit knowledge has been explored and is defined as 'the capacity to act' (conscious or unconscious) but acknowledges that this capacity only emerges in the dynamic context of actions.

Explicit Knowledge can be codified, expressed in words and numbers and shared in the form of data, specifications etc. It helps the organization to collect, store, retrieve and distribute the information and knowledge collected. *Tacit knowledge* is

intangible, personal and difficult to formalize or codify. Tacit knowledge is hard to communicate and share with others and tends to be intimately linked to individual's skills, experience, values and beliefs.

The creation of knowledge as a process of interactions between explicit and tacit knowledge has been modeled in an organisational setting, which led to 'a spiraling process of interactions between explicit and tacit knowledge'.
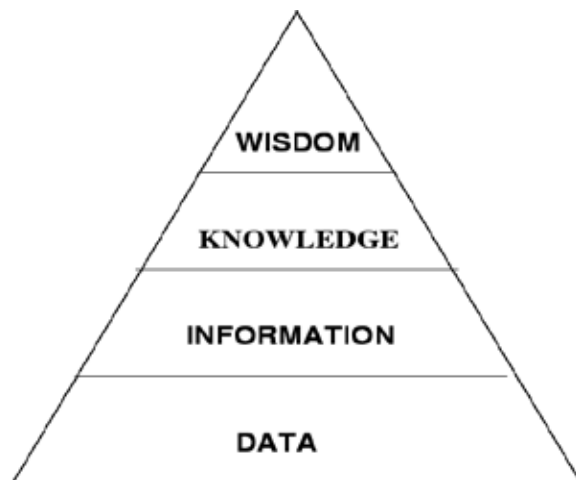

Figure 1: Constituents of knowledge

Data and Information Resource Management: Data and Information Resource Management (DRM and IRM respectively) is now commonplace for organizations as they grow and mature to recognize the importance of data and information as a real corporate asset, similar to financial assets. In managing this asset most organizations appreciate that some form of back-up mechanism is required to ensure that data/

information is not to be lost. Most often database administrators are charged with this and other responsibilities including data integrity issues such as data redundancy and data accuracy. More recently, as the sophistication of organisational information systems has increased DRM and IRM Nonaka et al (1998), Nonaka et al (1998) Alavi & Leidner (2001) Schrage (2002) activities have begun to address questions over information standards. Historically, organizations both large and small have installed a variety of products designed to meet their information collection, storage and retrieval needs for traditional records management. However, the relative immaturity of the software industry has meant that often these systems either quickly become unsupported or faced on-going problems integrating with the rapidly changing technical environment. As a result it was recognized that successive systems developed independently were prohibitively expensive to integrate and posed too many challenges for adequately addressing data redundancy and formats changes. In this context, the first step in addressing these issues is the approach adopted by numerous organizations of implementing standards with respect to data collection, storage and dissemination. To do this often existing systems need to be modified or replaced in-line with data management policies. It is at this point that decisions have to be made regarding the number, size and complexity of systems.

Large integrated systems such as SAP, JD Edwards and People-soft that are designed to manage many organisational functions can be slow and expensive to install. Organisations become heavily dependent upon these very large systems and can be exposed to considerable risk in terms of the cost of maintenance and upgrades. The return on investment for capturing and storing information is often not fully realised if the information cannot be accessed in a format that meets the information management needs of the organisation. The alternative approach of modifying and replacing smaller systems to ensure that they can share data may not be achievable and may work out to be equally as expensive and slow to implement.

Whichever approach is taken the key to successful data management is flexibility. A product that stores data in a proprietary format, allowing access only from that product, is not flexible. It is of paramount importance that data is stored in an accessible database such as SQL Server, Oracle or Sybase Adaptive Server and that the data models implemented are documented. Tools can then be provided to ensure the integrity of the data, adhoc queries may be made, and products can be built to read the available information.

Knowledge Management Implementation Issues: In any organisation the implementation of Knowledge Management operates in the context of power relations. Therefore it is important to temper enthusiasm for knowledge management practices with recognition of the context of most organizational circumstances where inequalities in power meter the ability of individuals to act. In this sense then relationships are a central aspect of the implementation of successful knowledge management. "The real problem isn't that people don't have access to information. The problem is that once they have information they can't influence anybody."

KM Applications: Within the literature there are a broad range of KM applications identified. These applications can be categorized according to the type of business issue/idea they are focus on e.g. knowledge creation, knowledge storage/retrieval etc. Within the framework presented here these are referred to as elements – six can be identified in discourses on KM. Combined these 'elements' constitute the KM spectrum framework. These 6 elements are discussed in turn.
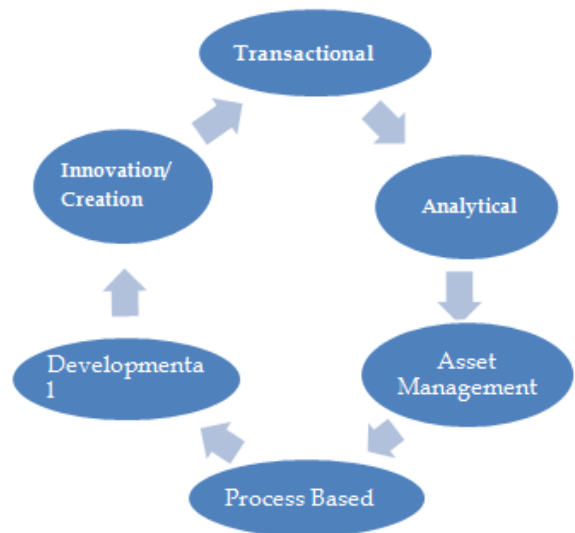
Fig 2 Elements of Knowledge Management

Transactional KM
Here the 'use of knowledge is embedded in the application' such that in completing a task or transaction it is presented to the user. An example is Case-based reasoning (CBR) which enables the presentation of previous cases (knowledge) to the user when similar situations arise. As in column one above applications like customer service or order entry are good examples - access to and presentation of this knowledge is driven by the application (not the user).

Analytical KM
Here 'KM provides interpretations of, or creates new knowledge from, vast amounts or disparate sources of material'. Trends or patterns are generated from data sources to Transactional, Analytical, Asset Management, Process Developmental Innovation & Creation Knowledge Management Applications:

-Case-Based Reasoning (CBR)
- Help-desk applications
- Customer Service Applications
- Data Warehousing
– Data Mining – Business Intelligence
- Management Information systems
- Decision Support Systems
-Customer relationship Management (CRM)
-Document Management
-Intellectual Property
- Best Practices
-Quality Management
-Benchmarking
- Process Improvement
- Quality Management Improvement
- Process automation
- Business Process reengineering
- Staff Competencies
- Skills Development
- Research & development
- Discussion forums
- Decision trees, rule induction
- Semantic networks
- intelligent agents
- push technologies

Tools
- Online training
- Computer based training
- Email
- Voice mail
- bulletin boards
- video conferencing

- groupware

Internet, Intranets, Extranets, VPNs, Entry Point Portals enable informed action. As in column two above applications like business intelligence or decision support systems are good examples - knowledge here is often presented in the form of scenarios or trend analysis.

Asset Management KM
Here 'KM focuses on processes associated with the management of knowledge assets'. This has two dimensions: management of explicit (codified) knowledge and the management of intellectual property and processes associated with its creation / exploitation and protection. As in column three above applications like document management systems and content management systems are good examples - knowledge assets here are often complex and frequently require codification activities.

Process KM
Here KM covers 'the codification and improvement of process, also referred to as work practices, procedures or methodology'. Here KM has often grown out of other disciplines like BPR or TQM. The knowledge assets here are often ones that have been 'engineered' such as documenting 'best practices'. As in column four above applications like benchmarking and quality management are good examples - knowledge here is often improved by internal lessons/learning.

Developmental KM
Here KM focuses on 'increasing the competencies or capabilities of the organization's knowledge workers'. This involves investing in intellectual/human capital through training and staff development. As in column five above applications like learning and training are good examples - knowledge here involves explicit training but also on creating environments for a learning/sharing of tacit knowledge.

Innovation/Creation KM
Here KM is focused on 'providing an environment in which knowledge workers' can create new knowledge either individually or increasingly in teams. As in column six above applications like virtual teams and discussion forums are good examples - this is one of the most popular topics in KM literature and is aligned to discussions of organisational innovation.

In figure 4 the bottom half maps KM enabling technologies on to the six KM elements described above. There are a number of technologies that can be described as 'pervasive' in that they can be assigned to all the six elements – these are included at the bottom of figure 4 and include the Internet and Intranets.

Applying the Framework
The framework as presented in figure 4 can be deployed in two main ways: firstly, and most obviously as a framework to enable people to understand the KM landscape, and secondly, as a KM assessment and strategic planning tool to enable organizations to identify and plan KM related investment strategies. Only the second of these is discussed here.

The KM applications and enabling technologies presented in the framework can be deployed as a 'checklist to inventory KM related activities and investments – past, present and projected for the future'. The framework enables organizations to generate a coherent framework to incorporate existing, perhaps fragmented knowledge related activities. Before an organisation can move forward it is critical that it has a clear understanding of its existing KM activities so that these can act as stepping-stones for future initiatives. By collating and analysing the range of knowledge related activities that an organisation is engaged in, it becomes possible to assess and evaluate the level of investment that has been placed on what may previously have been viewed as unrelated activities - enabling the question 'Does this profile of KM investment seem right given where we think we need to take the organisation?' Clearly, it is beyond the scope of this report to examine the processes of 'establishing business issues, challenges, needs and priorities, and using these to shape a KM strategy'. However, the framework does facilitate the consideration of the whole range of options. At the broadest level, this framework enables organizations to understand KM in all its multi-faceted complexity. The framework also enables 'management to balance its KM focus and establish and communicate its strategic KM direction'. Above all it sensitizes us to the organisational, technical, contextual and philosophical dimensions of moving forward with a KM implementation.

Conclusion:
Companies should properly asses the need and importance of knowledge management and the information required by it for survival in this competitive world and implement the best suitable system for its organisation. The implementation and application of the KM models should be selected in such a way to reduce the risk of data loss and upgrade the information to be available to all the departments for easy access and utilization. So information gathering and sharing go hand in hand for the best output of any organisation.

Acknowledgement: