### APPENDIX – III

#### Research Publication I

<table>
<thead>
<tr>
<th>Research Paper Title</th>
<th>Emerging Trends and Technologies in Knowledge Management: A Holistic Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of Authors</td>
<td>Ms. Meenu Dave, Ms. Mikku Dave and Prof. (Dr.) Y.S. Shishodia</td>
</tr>
<tr>
<td>Name of Journal</td>
<td>International Journal of Recent Research and Review (IJRRR)</td>
</tr>
<tr>
<td>Volume &amp; Issue</td>
<td>Volume III</td>
</tr>
<tr>
<td>ISSN No.</td>
<td>2277 – 8322</td>
</tr>
<tr>
<td>Date of Publication</td>
<td>September 2012</td>
</tr>
</tbody>
</table>

#### Research Publication II

<table>
<thead>
<tr>
<th>Research Paper Title</th>
<th>Knowledge Management and Organizational Competencies: A Harmonic Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of Authors</td>
<td>Ms. Meenu Dave, Ms. Mikku Dave and Prof. (Dr.) Y.S. Shishodia</td>
</tr>
<tr>
<td>Name of Journal</td>
<td>International Journal of Advanced Research in Computer Science and Software Engineering (IJARCSSE)</td>
</tr>
<tr>
<td>Volume &amp; Issue</td>
<td>Volume 2, Issue 12</td>
</tr>
<tr>
<td>ISSN No.</td>
<td>2277 128X</td>
</tr>
<tr>
<td>Date of Publication</td>
<td>December 2012</td>
</tr>
</tbody>
</table>
Emerging Trends and Technologies in Knowledge Management: A Holistic Vision

Meenu Dave¹, Mikku Dave², Y.S. Shishodia³

¹Assistant Professor, Department of Computer Science, Jagan Nath University, Jaipur, India
²Assistant Professor, School of Management, Poornima University, Jaipur, India
³Pro Vice-Chancellor, Jagan Nath University, Jaipur, India

Email: meenu.dave@jagannathuniversity.org, davemeenu@gmail.com

Abstract- The economies have been continuously evolving over the past sixty years and that even at a rapid pace in the last two decades. Intellectuals, scholars and think-tanks from disciplines as diverse as Economics, Information Technology and Management Science generally agree that knowledge has been the pivot of this transformation. Acknowledging the importance of knowledge management and the complexity of its nature, it will be very advantageous to try to comprehend the upcoming trends & technologies concerning knowledge and knowledge management. In an attempt to address this issue, this paper throws light on such interesting issues and views them closely. The aim of this paper is to investigate the current understanding of such emerging and existing knowledge management technologies.

Keywords- Enterprise 2.0, knowledge, knowledge management, information, semantic web (web 3.0), ubiquitous technologies.

I. INTRODUCTION

Management caters to the critical issues of organizational adaptation, survival, and competence in face of increasingly discontinuous change in the environment. Essentially, it embodies those processes that seek synergistic combination of data and information processing capacity of information technologies, along with the creative and innovative capacity of the people involved [1]. Knowledge being a valuable asset to present organizations, greater emphasis is being laid to the concept of knowledge: what it is, how is it different from the concepts of data and information, and further, how to start creating, transferring, and making use of it more efficiently & effectively. Knowledge and knowledge management is an escalating interest to both practitioners within organizations and to researchers. Knowledge management is becoming a core competence that companies must develop in order to succeed in tomorrow’s dynamic global economy [2]. It has been acknowledged that knowledge management is broad and multi-dimensional and covers most aspects of the firm’s activities. Hence to be competitive and successful, firms must create and sustain a balanced intellectual capital portfolio. Managers may need to set broad priorities and integrate the goals of managing intellectual capital and effective knowledge process [3]. The increasing globalisation of business, the shift from production based to a knowledge-based economy (k-economy), the growth of information communications technology (ICT), the strive to become learning organisations and the emergence of knowledge workers (k-workers) [4] imply that an organisation’s ability to effectively create, retain, communicate, use and manage its knowledge is critical for organizational success [5]. However, it is being observed that, while knowledge has been acknowledged as source of competitive advantage, it has not been managed well in organisations. The treatment of Knowledge Management needs to be done as a strategic issue and supporting the concerned organizations in challenges they face related to matters such as sustainability and growth of the organisation or innovation, etc. in the processes [6]. A significant transformation in the KM approach is in
the offing – from being technologically-centred to people-centred. The ultimate target is the development of procedures, processes and planning through which the ‘people’ function but still the current KM related work is more technologically oriented rather than having people as the focal point [6]. Before the paper carries on the discussion of the upcoming trends, it is important to review the definitions of data, information, knowledge and KM.

II. DATA, INFORMATION, KNOWLEDGE

*Data, Information* and *Knowledge* are the basic building blocks of Information Science. These are considered to be the different levels of abstraction. Data becomes the basic building material for information, and the blocks of information form the base of knowledge. It is commonly seen that data is very frequently substituted for information, and information is wrongly used for knowledge. Datum is the representation of concepts or other entities, fixed in or on a medium in a form suitable for communication, interpretation, or processing by human beings or by automated systems [7]. Quantified and/or qualified facts and figures belong to this category. The verb ‘inform’ normally is used in the sense to communicate (i.e., to report, relate, or tell) and comes from the Latin verb *informare*, which meant to shape (form) an idea. Data is persistent while information is transient, depending on context and the interpretation of the recipient. Information is data received through a communication process that proves of value in making decisions [8]. Information can also be known as organized data which can answer queries like what?, when?, who?, and where?.

Knowledge should not be confused with data. It consists of facts, prejudices, beliefs, and most importantly, heuristic knowledge. Thus, we can say that knowledge includes and requires the use of data and information. But it is more. It combines relationships, correlations, dependencies, and the notion of gestalt with data and information [9]. Knowledge involves both data and the relationships among data elements or their sets. This organization of data based on relationships is what enables one to draw generalizations from the data so organized, and to formulate questions about which one wishes to acquire more data. That is, knowledge begets the quest for knowledge, and it arises from verified or validated ideas [8]. Knowledge is said to be transformed from information by humans through methods of

- *comparison*,
- *consequences*,
- *connections*, and
- *conversation*.

For instance, when a person makes a comparison of some information with another situation previously encountered, knowledge is derived [10]. Knowledge is having a familiarity with language, concepts, procedures, rules, ideas, abstractions, places, customs, facts, and associations, coupled with the ability to use these notions effectively in modelling different aspects of the world [9]. Knowledge can be required for content of study and may be objective or subjective. It may be required for policy formulation, decision making, or for some administrative or management based decision. Collection of proper input, selection of quality attributes, and focus on output is very important for knowledge. Both knowledge and information are context specific and relational; however, information is moreover factual, whereas knowledge is a true justified belief. The following table contains a comparative view of the data, information and knowledge definitions as provided by Davenport and Prusak [10], Brooking [11], and Wikipedia.
### TABLE I

<table>
<thead>
<tr>
<th></th>
<th>Davenport and Prusak</th>
<th>Brooking</th>
<th>Wikipedia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATA</strong></td>
<td><em>Data</em> is a set of discrete, objective facts about an event.</td>
<td>Sequences of numbers, letters, pictures, etc. presented without a context is known as <em>data</em>.</td>
<td><em>Raw Data</em> is a collection of numbers, characters and is a relative term; whereas <em>data</em> are values of qualitative or quantitative variables, belonging to a set of items.</td>
</tr>
<tr>
<td><strong>INFORMATION</strong></td>
<td><em>Data</em> becomes <em>information</em> when it is presented as a <em>message</em> that makes a difference to the receiver of the message. In other words, data becomes information when some <em>meaning</em> is added to it. Methods for adding meaning can be contextualizing, categorizing, calculation, correction, condensation.</td>
<td>Organized data, tables, sales statistics, a well presented talk when presented in context is <em>information</em>.</td>
<td><em>Information</em>, in its most restricted technical sense, is a sequence of symbols that can be interpreted as a message. <em>Information</em> can be recorded as signs, or transmitted as signals. <em>Information</em> is any kind of event that affects the state of a dynamic system. Conceptually, <em>information</em> is the message (utterance or expression) being conveyed.</td>
</tr>
<tr>
<td><strong>KNOWLEDGE</strong></td>
<td><em>Knowledge</em> is a fluid mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information. It originates and is embedded in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.”</td>
<td>Organized information together with understanding of what it means is termed as <em>knowledge</em>.</td>
<td><em>Knowledge</em> is a familiarity with someone or something, which can include facts, information, descriptions, or skills acquired through experience or education. It can refer to the theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject); it can be more or less formal or systematic.</td>
</tr>
</tbody>
</table>

#### III. TYPES OF KNOWLEDGE

Knowledge as described by experts is of three types:

A. **Explicit knowledge**: Knowledge expressed as words or numbers. This type of knowledge is codified and well defined. It is the knowledge that can be communicated in formal language.

B. **Tacit knowledge**: Knowledge expressed as insights, intuitions and hunches. This type of knowledge is highly personal and hard to formalize. It is very personal because it depends on an individual’s actions, commitment and involvement and it is hard to formally communicate.

C. **Self-transcending knowledge**: The ability to sense the presence of potential, to see what does not yet exist. It can also be described as tacit knowledge prior to its embodiment.

The first two [12] are commonly acknowledged, while the third was presented by Scharmer [13]. These three types of knowledge can further be classified according to whether the explicit, tacit or self-transcending knowledge can be described as:

A. **Declarative knowledge**: Facts, know-what comprehension

B. **Explanatory knowledge**: Rationalization, know-why knowledge
C. Procedural knowledge: Instructions, know-how understanding
D. General/Organizational knowledge: Knowledge that is easily transferred and possessed by large numbers of people.
E. Specific/Individual knowledge: Knowledge that is difficult to transfer and thus is possessed by very few people [14].

IV. KNOWLEDGE MANAGEMENT

What is knowledge management? As an introductory step it is useful to distinguish between raw information and knowledge [15]. Raw information may be widely available to a number of agencies, but only some organisations will be able to convert the information into relevant knowledge and to use this knowledge to achieve their aims. The processes by which they do this are known as KM strategies [16]. Knowledge Management is a multidisciplinary paradigm, which uses technology to support the acquisition, generation, codification and transfer of knowledge in the context of specific organizational processes [17]. Small organizations focus on knowledge acquisition; with few people and limited dispersal of knowledge, they face relatively few obstacles sharing or reusing knowledge. Large organizations, in contrast, have difficulty finding and reusing knowledge. Even determining whether the knowledge exists within the organization can be difficult [18].

Knowledge management has become a major management trend and is considered as a way of reconceptualising the management of organisations and a major 'programme' promoted by management consultants [19]. While the management aspect of knowledge management seems to be understood to some extent, there is no common concept and understanding of knowledge and of knowledge development as basis for it [20]. Firestone and McElroy [21] stated that "KM results in better quality solutions, by enhancing knowledge processing within an organisation".

Hanssen et al. [22] refer to two main strategies for knowledge management:
A. Codification – to systematize and store information that constitutes the knowledge of the company, and to make this available to the people in the company.
B. Personalization – to support the flow of information in a company by having a centralised store of information about knowledge sources, like a “yellow pages” of who knows what in a company [23].

Earl [24] has further classified work in knowledge management into schools. The schools are broadly categorized as ‘technocratic’, ‘economic’ and ‘behavioural’. The technocratic schools are:
A. the systems school, which focuses on technology for knowledge sharing, using knowledge repositories;
B. the cartographic school, which focuses on knowledge maps and creating knowledge directories; and
C. the engineering school, which focuses on processes and knowledge flows in organizations [23].

V. GENERATIONS OF KNOWLEDGE MANAGEMENT

The evolution of the knowledge management concept has been categorized into three generations by the knowledge analysts. As per Snowden [25, 26] the first age of knowledge management was the one in which the word knowledge itself was not at first "problematic," and in which the focus was on distributing information to decision makers for timely use in decisions. The second age replaced the information technology focus with one on tacit/explicit knowledge conversion inspired by Nonaka's SECI model. The third age is the one in which knowledge is viewed paradoxically as a thing and a flow; context, narrative and content management is central to our view of Knowledge Management. Further, he believes that there will be an understanding of organizations as engaged in sense-making through utilization of complex adaptive systems (CAS) phenomena constrained by human acts of free will attempting to order them; and finally, the use of the insights and practices of scientific
management will be restricted to appropriate contexts, while "insights and learnings" from theories of chaos and complexity will supplement them in contexts where these new insights are relevant [27]. The first generation stressed on identification of knowledge and furthermore on its sharing, systematising and controlling process within the organization; the second involved itself in exploitation of knowledge with a touch of innovation, whereas the third is aimed at exploration of new knowledge.

The key knowledge management tools for the first generation have been use of information technology for locating and capturing knowledge and skills. To collect and codify the existing knowledge was their main goal. The major tools for the second generation have been a combination of information technology with emphasis on social interaction and communication. The third or the current generation is looking for self-renewing organizations and the tools and technologies used as evolving day-by-day for efficient management of knowledge. The most successful organisations are shifting from strategies based on prediction to strategies based on anticipation of surprises [28]. They are shifting from management based on compliance to management based on self-control and self-organisation. They are also shifting from utilisation of already known knowledge to the creation of new knowledge, from pure ‘technology’ KM applications to also include ‘process’ applications [29].

VI. EMERGING TRENDS AND TECHNOLOGIES

The way, knowledge management of an organization, is handled, has undergone significant changes. New techniques, new demands, new kind of data, and the plethora of data is forcing organizations to reformulate their strategies to achieve an interactive, distributed and collaborative environment. Many new trends and technologies has emerged which are discussed as below:

A. Enterprise 2.0

Enterprise 2.0: This trend is about empowering employees; providing them an open platform to express opinions and share expertise. Corporate counterpart to Web 2.0, Enterprise 2.0 builds on management to pass some control on to the network; they empower the knowledge workers to work and act autonomous. Based on loosening the control, Enterprise 2.0 will allow information to flow more directly from originator to recipient, and therefore enables faster knowledge sharing and innovation [30]. In May 2006, Andrew McAfee quoted Enterprise 2.0 as “Enterprise 2.0 is the use of emergent social software platforms within companies, or between companies and their partners or customers”. This is not altogether a new concept. It is the result of realization, evolution and maturation of the ways of collaboration and participation for effective knowledge management. The objective of Enterprise 2.0 is to produce a more intelligent, efficient and productive workforce within an organization, such that one can communicate easily and freely within company’s inter (team members) and intra (other employees of the organization) group environment, as well as with the external environment (with vendors, clients, customers).

The main Enterprise 2.0 features can be summarized as follows [31]:

- The technology facilitates the application of Web 2.0 into the enterprise.
- The technology enables people to collaborate and/or for online communities and provides for a higher level of collaboration.
- It is a new set of technologies, models and methods used to develop and deliver business software.
- The technology offers a new way for knowledge management within the organization. Large corporations use idea management systems to solicit ideas from their customers and employees. Idea generation in some cases fuels the product pipeline.
- The technology enables business agility by putting together the ability to deliver various software services in the organization.
- It facilitates transparency by making information available to all who need it and for development of content-centric systems. Information is readily
available and with suitable search engines, the users can locate the information they need.

- The technology adopts an approach that is user-centric and facilitates developing and accessing content.
- It enables the use of social networking platforms either within the organization or between companies. Different blogs can be organized depending on the particular engaged community.
- The technology leverages collaboration to include not only employees but also business partners [32].

Knowledge Management with Enterprise 2.0 can be carried out as follows:

- **Capturing, Collection and Prioritization:** with the help of wikis (can be free/paid/self-hosted)
- **Posting of Messages/Reporting:** with the aid of blogs (There are various types of blogs: **Project Blogs** are authored by multiple authors of the same organization, working on a common project. It is exclusively official and work related. **Personal Blogs** are the most prevalent ones. These are authored singly and mainly meant (though not restricted) for a small group. **A-list Blogs** are authored by media related people and are used as watchlist reports. **Corporate Blogs** are used for marketing or public relations).
- **Intra Organization Communication:** with microblogging (used for Social Networking, Project Management, Knowledge Sharing, Emergency Broadcasting, Analysing and Identifying informal help/support groups)
- **Retaining Updated Form:** with the assistance of RSS (It could be Web-based, Desktop-based, or Mobile-device-based).

**B. Semantic Web (Web 3.0)**

The semantic web, also known as Web 3.0, is built on the idea that not only humans but also machines can understand information. Enterprises can benefit from semantic web services by defining company-wide meta-data on all forms of knowledge and improve coherence and consistency in classifying content which will lead to more accurate search results.

Semantic Web promises to make Web-accessible data more amenable to machine processing. The Semantic Web is about labelling (annotating) information so that computer systems (and humans) can process it more meaningfully. The semantics underlying such annotations usually come from ontologies, which encapsulate agreement among information creators and users with help from common nomenclature and the use of rich knowledge representation. The latest Semantic Web developments and insights in knowledge management challenge the new era of semantic-based knowledge-management systems. Semantic Web tools and applications contribute significantly to knowledge management’s performance, providing a definition for flexible reference mechanisms to knowledge objects and knowledge contributors; integration of knowledge creation and use; integral human involvement in information- and knowledge-management activities; and a definition for and the exploitation of social networks, including social activities and context [33].

**C. Ubiquitous Technologies**

Ubiquitous Computing is the new player in the game. It encompasses mobile, wireless, pervasive, etc. technologies. It works closely with mobile computing, sensor networking, distributed computing, machine learning, etc. and is still a growing field. With the advent of such a trend, the face of knowledge management is sure to change drastically.

Ubiquitous technology (UT) enables accurate and timely automatic capture of actionable logistics data with little reliance on human intervention. Some of the major areas identified for immediate benefit of ubiquitous technologies (RFID, GPRS etc) are:

- **Asset Tracking**
- **Goods Trace ability**
- **Enhance and streamline business processes**
- **Seamless Supply Chain Management**
- **Efficient Remote Monitoring System**
- **Retail** [34].

This is a general trend in business and society. Mobility creates new opportunities for knowledge sharing initiatives to exploit areas which has been out
of reach before. Providing mobile solutions will allow
decision making faster and more accurate.

- fast information transfer with visualisation and
  semantics are required for mobile devices.
- content generation and information discovery
  happens on-the-go.
- engaging in social networking is done while
  commuting and travelling.

VII. CONCLUSION

Knowledge management is a rapidly growing field
with immense potential. Tracking all the day-to-day
activities, development and research works related to
knowledge is a herculean task. The field is very vast
and is reshaping eventually with time due to the
advent of new techniques and technologies Still it will
be instrumental to work on some key technologies that
seem to be more promising. This paper outlines those
trends and technologies which will provide effective
solution and advancement to the existing glitches that
are being faced today. These technologies are not only
individually beneficial but they have also got social
benefits as they incorporate social informal
conversations and practices.

VIII. ACKNOWLEDGEMENT

The authors thank the Chancellor, Jagan Nath
University, Jaipur, for providing encouragement and
support for this research work.

IX. REFERENCES

Management Models, Uluslararas Sosyal Ara_irmalar
Dergisi, The Journal of International Social Research,
Volume 2(9), Fall 2009. [Online]. Available:
www.sosyalarastirmalar.com/cilt2/sayi9pdf/haslinda_s
arinah.pdf
and Perspective. The Journal of Knowledge
Knowledge Management Implementation Success,
Journal of Knowledge Management Practice, 6(2),
June 2005. [Online]. Available:
Available: theknowledgecore.wordpress.com/2011/07/16/the-
future-of-km
[7] H.H. Wellisch, Abstracting, indexing, classification,
thesaurus. construction: A glossary, Port Aransas, TX:
American Society of Indexers, 1996.
[8] T. Sowell, Knowledge and decisions, New York: Basic
Books, pp. 3-20, 1996.
[9] D.W. Patterson, Artificial Intelligence and Expert
Systems, 1st ed., Prentice Hall of India Private Limited,
New Delhi, pp. 10-11, 2002.
how organizations manage what they know, 1st ed.,
Knowledge Management, International Thomson
Organizing around emerging realities”, in Nonaka, I.
and Teece, D. (eds.), Managing industrial knowledge:
Creation, transfer and utilization. Sage Publications,
of quality issues for data, information, and knowledge”,
in Khosrow-Pour, M. (ed.), Emerging Trends and
Challenges in Information Technology Management:
Proceedings of the 2006 Information Resources
Management Association Conference. 17th IRMA
International Conference, Washington, DC, USA, pp.
Paper', Knowledge Management Magazine, pp. 86-88
October 1999.
Telehealth Systems: Considering Knowledge
Management and ICT Issues, Proc. 23rd Annual Int’l


Knowledge Management and Organizational Competencies: A Harmonic Collaboration

Meenu Dave  
Assistant Professor  
Department of CSE  
Jagan Nath University, Jaipur, India

Mikku Dave  
Assistant Professor  
School of Management  
Poornima University, Jaipur, India

Dr. Y. S. Shishodia  
Pro Vice-Chancellor  
Jagan Nath University, Jaipur, India

Abstract: In today’s organizations, use of knowledge management and development of competencies go hand in hand. For any type of organization, it is imperative that the competencies should not only be identified, but also cultivated and groomed. For this, there should be a proper and expert system for this whole process, which is commensurate with the pains being taken for the ergonomics of the organization. Knowledge Management leads the way in this direction. It has brought down a paradigm shift in the way this process was carried on.

Keywords: Competency Analysis, Information Technology, Knowledge Management, Knowledge Management Techniques, Organizational Competencies.

I. INTRODUCTION

Knowledge is spread everywhere, from the deep crevices of human brain to paper documents and electronic/magnetic media like disks. Every medium has a different way to codify and express knowledge. Knowledge Management is one umbrella which unifies knowledge collected from all the different media sources, and creates a system or network between the two main resources, the humans and the available technology. It is a scientific process that initiates its working by amassing knowledge (both tacit and explicit), filtering it, structuring or restructuring it, storing and finally disseminating it. The dissemination process of the already stored knowledge is again very crucial, as it should also be in such a manner that

- The access to knowledge is timely, accurate and easy.
- The accessed knowledge aids adequately in decision making, and
- The available knowledge facilitates in creation or generation of new knowledge.

In order to manage this intellectual asset, that every organization possesses, there is a dire need for managing the organizational competencies also, in the most optimized manner. Knowledge management and organizational competencies in a way harmonize each other. The better managed is the knowledge, the higher goes the graph for the efficient deployment of organizational competencies. Similarly, better employment of organizational competencies rewards the organization in effective knowledge management, thus resulting in fruitful decision making.

II. COMPETENCE – THE FUNDAMENTALS

The issue that this paper addresses is that the knowledge management and organizational competencies complement each other. Knowledge management strategies are construed and endorsed by individuals in diverse organizations through individual competencies only. Competencies act like a bridge to connect the job requirements with the desired skill set (of an individual) through appropriate training, development and further research. Organizational goals are fulfilled and strategies are implemented satisfactorily through sharpening of competencies by way of using advanced Knowledge Management tools & techniques.

The term competency is derived from the Latin word “competere” which means “to be suitable”. Competencies are a set of clearly defined skills, behaviors and knowledge that are used to evaluate, assess and develop people [1]. According to
McClelland, competence is the knowledge, skills, traits, attitudes, self-concepts, values or motives directly related to job performance or important life outcomes and shown to differentiate between superior and average performers [2]. United Nations Industrial Development Organization (UNIDO) has defined competency in a very succinct way as a set of skills, related knowledge and attributes that allow an individual to perform a task or an activity within a specific function or job [3]. Within an organization, competency for an employee are well discussed by Sinnott et al [4], as, characteristic of an employee that contributes to successful job performance and achievement of organizational results. These include knowledge, skills, and attributes plus other characteristics such as values, motivation, initiative and self-control.

Skills are seen as ‘knowledge representation formalism’ for which we have to build a meta-processor supporting operations such as defining, evaluating, aggregating, distributing, matching and visualization of skills. The skill model and the described skills must be understood by all participating parties in the same way. This leads to the usage of taxonomies or ontologies and a common exchange format [5].

According to Cheetham and Chivers [6], overall, effective performance within an occupation may range from the basic level of proficiency to the highest levels of excellence. A competence consists of four main components, namely, knowledge/cognitive competence, functional competence, personal or behavioral competence and values/ethical competence.

- **Knowledge/cognitive competence** is defined as “the possession of appropriate work related knowledge and the ability to put this to effective use”.
- **Functional competence** is defined as “the ability to perform a range of work based tasks effectively to produce specific outcomes”.
- **Personal behavioral competence** is defined as “the ability to adopt appropriate, observable behaviours in work related situations”.
- **Values/ethical competence** is defined as “the possession of appropriate personnel and professional values and the ability to make sound judgments based upon these in work related situations”.

### III. COMPETENCY ANALYSIS IN ORGANIZATION

Competency analysis is indispensible for any organization because it helps in deciding the right combination of employee and job, which further enhances the productivity of the employee. Competency analysis is mainly a procedure which involves four steps. The first one is workforce planning. After this, follows the process of sourcing, recruitment and selection. Career planning and development is the third step and performance management is the last to follow.

Competency Analysis has use in:

- **a) Developing Competency Models** – the analysis helps in determining specifically which kinds of knowledge, abilities and other performance characteristics are critical for job success.
- **b) Performance Management** – it provides assistance for coaching and appraisal purposes.
- **c) Developing Learning Materials** – with information gained from the analysis, real-life cases, behavioural simulations, etc. can be developed that are not only relevant to the job but also have the significant impact on learning.
- **d) Developing Selection Guides** – detailed selection questions, etc. can be developed for target jobs.

The purpose of the competency movement needs to be defined in relation to work and with a focus on the efficiency of management learning. The dimensions included in this process are [7]:

- **a) Micro to Macro**: from the micro level (the individual); where they are defined, measured, applied and achieved at work through learning, all the way to the macro level (the HRM, organisational and the labour market) where the labour market and the vocational training system implement work in terms of competency philosophy.
- **b) Theoretical to Practical**: from the theoretical point of view that influences the ideas and its application to the practical points, where they implement these theories both at the micro and the macro levels.

According to Jürgen Dorn & Markus Pichlmair [5], the competencies consist of four components called knowledge, skill, attitude and capability. The levels of competency analysed are

- **a) Practical competency** (an employee’s demonstrated ability to perform a set of tasks)
- **b) Foundational competency** (an employee’s demonstrated understanding of what and why she/he is doing)
- **c) Reflexive competency** (an employee’s ability to integrate actions with the understanding of the action so that she/he learns and adapts to the changes as and when they are required)
d) **Applied competency** (an employee’s demonstrated ability to perform a set of tasks with understanding and reflexivity)

The competencies are structured hierarchically and contain a differentiation between practical and theoretical competencies/knowledge. For each competency instance, exist two values estimating the strength of the theoretical and practical value. Evidences are necessary for computing the strength of a competency as well as achieving trust into certain claims. Learning objects are used to develop or improve competencies.

**IV. KNOWLEDGE MANAGEMENT IN RESPECT TO ORGANIZATION**

KM is a combination of data, information, experience, context, interpretation and reflection, and provides a more focused and coherent solution to an organization [7]. KM is a systematic, explicit and deliberate building, renewal and application of knowledge to maximize a firm’s knowledge-related effectiveness and returns from its knowledge assets [8]. Salleh and Goh’s [9] definition of KM states it is a process of leveraging knowledge as means of achieving innovation in process and products/services, effective decision-making, and organizational adaptation to the market for creating business value and generating a competitive advantage to organizations.

Part of understanding and building up an organisation, is for the organisation to be able to interact within its environment and know how to create, distribute and manage information and knowledge, and innovation [10]. Polanyi argued that the individual’s commitment is what makes them active in creating knowledge, therefore it is considered to be the most important element in promoting the formation of knowledge within the organization [11]. The knowledge involved in the competency concept can be considered to be either explicit knowledge – theoretical knowledge, environmental knowledge, procedural knowledge, formal know-how – or tacit knowledge – empirical knowledge (abilities), cognitive knowledge, knowing how to be (attitudes and behaviours) emotional resources, etc. [12].

Information technology has become the backbone to knowledge management. The working of an organization can be variedly categorized/segmented as per the requirements. For differentiated segments, a large number of knowledge management tools, techniques and applications are used, which multiplies efficiency and effectiveness. These could be ascribed (could be overlapped for the segments) as follows in Figure 1:

![Knowledge Management Tools & Techniques used in an Organization](image)

**Figure 1:** Knowledge Management Tools & Techniques used in an Organization

a) **Infrastructure:** groupware, intranets, documents & summaries, knowledge management suites, knowledge maps

b) **Ideology:** concept mapping, creativity tools
V. COMPETENCY DEVELOPMENT THROUGH KNOWLEDGE MANAGEMENT

Hong and Stahle [13] describe the commonalities in competence and knowledge management’s development: they both shifted their focus from documentation and identification to leverage and integration, and, finally, the generation of knowledge and competence.

On the organizational level, Competency based learning is carried out by human resource development activities. Staffing, learning, and performance management are therefore carried out around competence profiles to enhance the human resource potential [14].

Knowledge in an organization can be ascribed to the four main aspects which are described as under and also with figure 2:

Organizational Culture & Environment –

1. Environment should encourage informal networks
2. An ambience of mutual trust and empathy should be created
3. Freedom to knowledge sharing be encouraged
4. Easy access to help/advice be available
5. Coaching and mentoring should be promoted

Organizational Knowledge Base –

1. Adequate documentation and usage of reports
2. Work manuals be maintained
3. IT-based Databases be compulsorily used
4. Work related summarization be encouraged
5. Usage of Groupware & Knowledge maps

Edifice of Organization –

1. Limited hierarchies should be maintained
2. Inter-departmental communication be encouraged & rewarded
3. Channels of communication should be identified. Regular but informal monitoring of the channels should be carried out for further development and creation of new channels.

Organizational Guidelines –

1. Policies should be fostered for promoting and rewarding knowledge dissemination
2. Cross-functional teamwork be encouraged
3. Regular sharing & up gradation of organizational goals, objectives, and visions
4. Adequate autonomy for putting forward new initiatives or proposals for knowledge creation and sharing
Knowledge management techniques for the following organizational competencies need to be developed and explored:

a) **Knowledge Management techniques for competence recognition:** The most general technique is use of structured or unstructured interview techniques [15]. For the identification of new and formerly unidentified competencies, a goal oriented modelling may be envisioned, focusing on the mission or the objective to be achieved [16].

b) **Knowledge Management techniques for acquiring competence:** With a set of available/possible learning resources, advanced e-learning system (with interrelated archives) should be designed, which should help the employees to decide and to plan his/her own learning [17].

c) **Knowledge Management techniques for assessing competence:** Monitoring systems built within e-learning system modules which can detect any type of inconsistency and deviations and report and compile it in a structured way. A slight higher version to this could be development and implementation of customized expert systems.

d) **Knowledge Management techniques for optimal utilization of competencies:** Coaching and mentoring with IT-based tools and work manuals would be the best practice for optimal utilization of organizational competencies. Besides, for new recruitments, the existing and regularly updated ontological setup will help to get the best outcome.
VI. CONCLUSION

A good knowledge management programme is indispensible for the knowledge related processes, from inception to culmination. As KM is pivot to the development of personnel in any organisation through the required competencies, futuristic advancement in this field is always welcomed. Development of organisational competencies through knowledge management creates synergies that further assists in achieving organisational goals. If the activities are not associated or linked to the achievement of these goals, then it cannot be termed as knowledge management in its true essence.

ACKNOWLEDGEMENT

The authors thank the Chancellor, Jagan Nath University, Jaipur, for providing encouragement and support for this research work.

REFERENCES