

ICT IN KNOWLEDGE MANAGEMENT: CHALLENGE AND OPPORTUNITY IN HIGHER EDUCATION

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Abstract— *The fast changing technology make a drastic change in all the ways of our work life. This rapid changing technology is throwing a great open challenge and innumerable opportunities in sharing the knowledge among the people. Knowledge is increasingly being seen as an essential requirement for gaining momentum of competitive advantages in today's globalization scenario. The emergences of information and communication technology (ICT) in the higher education institutions play a key role in sharing, exchanging and disseminating the knowledge. The power of information and communication technology (ICT) can be fully exploited for improving the knowledge gain to academic stakeholder to a greater extent. This short theoretical paper will discuss ICT influence in knowledge management within the higher education, relevance of knowledge management in higher education on the basis of how ICT could play a role in knowledge management: challenges and opportunities in higher education institutions.*

Keywords— *Knowledge management, higher education, ICT, academic, stakeholder*

effectiveness in education systems. It is a common belief

I. INTRODUCTION

Information is one of the basic needs of our existence. With growing interdependence of human life, access to information and earning the knowledge becomes a prerequisite for survival in this modern world as livelihood strategies is continuously changing conditions. Here, it lays a closed tied definition of information and knowledge. Information is nothing more than a record of a process or event, an account of history or performance. Knowledge is information, but information that can be put into action [1]. Use of information and communication technology is access to information for the purpose of user requirement. Access to information alone to meet the user requirements is not sufficient the purpose of assessing. Adequate use of information, transforming it and creating knowledge out of it requires competence and opportunity. The management of knowledge and learning in academic organizations has created the need for beginnings of consciousness about knowledge itself.

Use of information and communication technology (ICT) has emerged as a key tool to drive efficiency and

that ICT can be a source of competitive advantage through strengthening organizational knowledge. ICT is a fundamental enabler and tool for knowledge management implementation but not a driver. Induction of ICT as a strategic tool for educational development particularly in higher education a maximum place of research activities performs that requires ICT infrastructure is place. The rapid advancement of information and communication technology and its impact on education has become a challenge making more concern about quality education. Quality education development practice enhances learning activities more in knowledge earning and sharing. Such practice can improve the learning skill and knowledge abilities. This approach involves of ICT role in knowledge management in higher learning institutions. Knowledge Management (KM) originated during the late '80s and became prominent only when the internet becomes popular [2]. Since then internet is a good source to capture and share knowledge. Knowledge

management has enjoyed increasing popularity in recent years in education sector. Knowledge management includes acquiring or creating knowledge, transforming it into a reusable form, retaining it, and finding and reusing it. Knowledge management (KM) involves human resource, enterprise organization and culture, as well as the information technology, methods and tools that support and enable it [3].

II. ICT IN HIGHER EDUCATION IN INDIA

The scenario of ICT used in education all over the world is undergoing a rapid changed in educational development particularly in higher education. In order to take full advantage of the changing global educational scenario interconnecting of policies related. Throughout the world, information and communications technologies (ICTs) are speedily change the face of education. Introduction of ICT in higher education there were highly expected that it would make more effective tool to development practice on quality education enhances and increased subject knowledge that will improved attitudes about teacher learning practices and developing the new skills.

Education is a very socially oriented activity and quality education has traditionally been associated with strong teacher having high degrees of personal contact with lectures [4]. The use of ICT in education is considered pre-requisite for adoption in higher education as it leads to appropriate learning setting. Even in teaching methodologies a new aimed at more attractive and effective for professional practice by involving the use of computer-aided tools on the part of lectures. As the world is moving fast into digital media, the role of ICT is becoming more and more important in higher education process [5]. ICT in education is claming new spaces of professional learning by introducing new-sophisticated teaching resources but to access these resources in attaining focus on how these resources can benefit without losing the sight of professional that our society demands. At the higher education level the emphasis in research and initiatives has been, unsurprisingly increased on practicing of ICT use particularly in research, teaching and learning.

The last two decades, using of ICT has been increased in higher education around the world. Even then the higher education in India has challenge to develop integration of ICT for assessing the quality resource materials and collaborate the experts to delivery quality of teaching and learning programmes. The government of India has been setting up National Mission in Education through ICT under the eleventh five year plan. This is given an impulse to the academic stakeholders to use the ICTs in education. In turn, there was a signed of significantly increased the interest of

ICTs use in their teaching and learning that contributed to enhance the access and quality of education. At the same time, the concern needs to take immediate attention to develop and implement ICT infrastructure in educational institutions. To promote the Indian education sector with technology driven education for open and distance learning a dedicated satellite called EDUSAT was launched by the Indian Space Research Organisation (ISRO) in September, 2004 [6]. It was the first Indian satellite designed and developed exclusively for serving the educational sector was launched and implemented. EDUSAT would bring an expected revolution in Indian education in terms of quantitative and qualitative. However, the quantitative expansion appears to have been achieved in being able to reach out to large numbers, yet the qualitative revolution envisioned due to introduction of new services and better quality teaching with learning materials, has not been quite visible[7].

III. ICT INFLUENCE IN HIGHER EDUCATION KNOWLEDGE MANAGEMENT

In fast growing of superhighways of information technology, use of ICT in educational organization is to give momentum, speed and direction to building the teaching and learning advantage. Thus it becomes a strategic tool for success and key competitive factor in present scenario of education system in globalization standard. And the seeds of ICT will ensure a rich harvest in terms of gainful opportunities to deployed knowledge management system. To establish KM in educational institutions, availability of basic ICT infrastructure is required. ICT is already adopted and established it basic infrastructures in the educational organizations and have automated all the activities of educational levels in order to cater the knowledge of global educational information. In general, the present existing ICT infrastructure in higher education institutions is shown in Fig. 1.

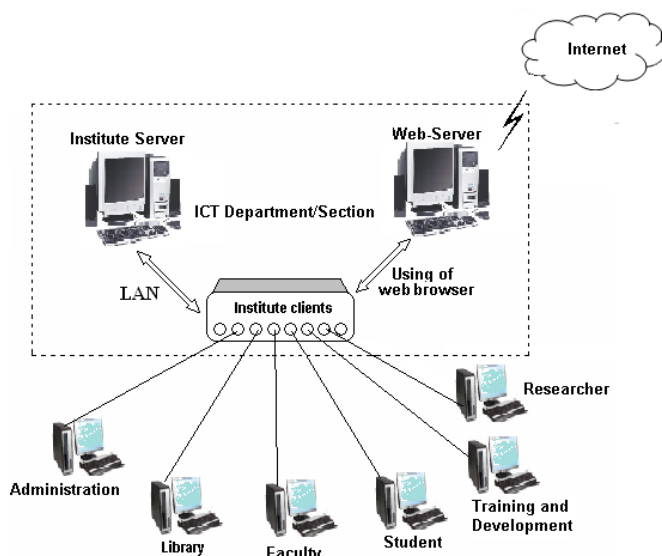


Fig. 1 Present existing ICT in higher education institutions

The ICT service used shown in the Fig. 1 are the main stakeholders that we have identified in higher learning institutions. These are the key actors who are frequently interacted with IT department under different purpose and requirement. Since decades the emerging of the information society in 20th century has transformed into knowledge society. ICT has been responsible for this transformation that began during the last 20 years of the 20th century and is still taking place. Today ICT is becoming important for educational provision, especially in the context of the knowledge society. Higher education institutions is an organization that providing knowledge to the students. It is a suitable organization to achieve knowledge assets within the organization that are derived from the employees of various departments and faculties. As knowledge becomes more central to competitiveness and it comprises a unique and distinct set of knowledge, skill within a common process. Accepting this key process, the ability of ICT gives to facilitate gaining of knowledge that makes a powerful tool for the modern educational organization. ICT roles in educational knowledge management can be emphasized on two components – i) core information technology and management information system including multimedia. Almost the educational institutions in the country are used information system and stored the data of academic activities and organizational functions activities for future reference. Information system used for storing data, information, and explicit knowledge are the knowledge repositories [8]. The identified stakeholder that are using ICT service in HEIs is required group interaction, sharing and transforming the knowledge at any level is very important to success in

individual life or obtained organizational specified goals and objectives. It is necessary to discovered and capture the organizational knowledge and stored in a specified place where any group or individual can share with others when required in future. To store both the individual and organizational knowledge an expected conceptual framework of knowledge repository in higher education institution is shown in the Fig. 2.

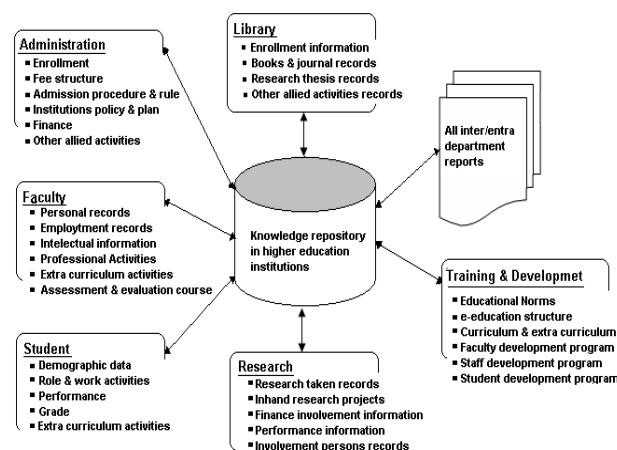


Fig. 2 Conceptual framework of basic knowledge repository in higher education institutions

The advent of internet has brought a great change in knowledge sharing among the professionals. Acquisition, transformation and sharing the knowledge is increasing on internet, numerous search engines across the globe allow data at one's fingertips. Internet is the most obvious example of a knowledge repository [9]. The information system used and existing ICT infrastructure in higher learning institutions has influence the possibility of successful application of KM as created a knowledge repository (database) using data stored from deferent department. Using this repository searches often produced data which could be easily adapted to current research with saving time and money.

IV. RELEVANCE OF KM IN HIGHER EDUCATION SCENARIO

In this globalization scenario, IT plays a key role to gain success to the educational set up but effective knowledge management is an important entity to ensure that academics are able to develop the educational potential in fullest [10]. In recent times, introduction of

ICT in educational organization, there is great talk of knowledge management particularly in higher education. On the setting of educational institutions the implications of knowledge management is difficult to understand [11]. It is a new field and just beginning to introduce KM approaches in higher education and experiments are recently started. Higher education plays a key role in all the processes by preparing and providing the human intellectual capacity through education, creating and disseminating knowledge to the society and directly contributing to economic development of the society. Higher education institutions are the main instruments of society for the constant pursuit of knowledge. Higher education institution is an organization together working with experts and experience staffed in all sorts of fields. It helps the faculty member and student to create and share their knowledge through knowledge management system process and procedure an enabling knowledge management. Knowledge management is a new idea in higher education institutions to improve sharing the knowledge (Tacit or Explicit) among the faculty and student. Knowledge is in two forms.

A. *Implicit/Tacit knowledge*

Tacit knowledge is rooted into actions, procedures, ideas, values and emotions, it exists only into the human mind/ body [12]. The knowledge produced once information acquired through interaction between the environments and then process in individual mind. Tacit knowledge can acquire by an individual through gathering information and then accumulated experience. Tacit knowledge is difficult to transfer by means of written to another person as its codification process not possible or always incomplete. It is opposed to formal and not easily shares but it is taught by learning by doing concept. e.g. A teacher who used to teach writing of computer programs, the skill and logic of writing program could taught learning by doing to the students and interacting with students in classroom environment .

B. *Explicit knowledge*

Knowledge then becomes information again, it refers as explicate knowledge once it is articulated or communicated to others in the form of text, computer

output, spoken, or written words or other means [13]. The knowledge that has been articulated and it can be directly or completely transform one person to another in a form that can be seen, touchable or in multimedia codified form. In other words, a publishing knowledge (explicit) that can transfer from one person to another in codified form and other physical forms. e.g. Stating to some one Kaibul Lamjao National park is situated in Manipur, it is form of explicit knowledge that can be made in the form of written, newsletter with image, audio cassette, data files, multimedia CD and other physical form then transmitted and easily understand by recipient.

As such higher learning institutions are no longer just providing knowledge to the learners and manage for collaborate the existing knowledge for future reference. Knowledge in higher learning institution is a primary concern and from educational organizations view, it is overall business of an institution as its strength and weaknesses. In today's competitive scenario, knowledge is becoming a fast replacing physical assets. Knowledge based on up to date information through information system is taking a vital role for success in today's highly competitive in educational environment. In turn, an initiative of knowledge management in educational organization is consequently increasingly important to meet the global standard of education system. Knowledge management is all about creating system in an organization which facilitates capturing knowledge and retaining it into a database for the purpose of everyone use. Making initiative for knowledge management, investments on ICT infrastructure is significant in deploying knowledge management systems (KMS). On other ways knowledge management system is a system that has process or method through which knowledge available in the organization can be captured and retain in a database and then made it available to all the employees in any time when needed in order to long term competitiveness of an organization.

Knowledge management is the specified process for acquiring, organizing and communicating knowledge of employees systematically and organizationally so that the other employees may make use of it in more effective and productive in their work [14]. Knowledge is unlike other physical asset which does not depreciate on usage. Sharing of knowledge among the employees or individuals leads to appreciation in the knowledge as newer idea are generate very fast.

V. KM IN HIGHER EDUCATION CHALLENGES AND

OPPORTUNITIES

Today ICT is becoming important for educational provision, especially in the context of the knowledge society. The world of education system – teaching and learning are changing rapidly due to innovation of ICT, bringing the new issue and challenge to higher education institutions has become important implication. One of the challenges of knowledge management in education is to establish a very good infrastructure, where stakeholders could get valuable knowledge for participating in some kinds of international and national assignments in their future. This would considerably boost their confidence of providing their mettle, if given the opportunity. As knowledge becomes more central to competitiveness, the ability of individuals to learn and re-learn becomes primary means of surviving and writing. In this context, ICT role in KM in higher education must be made absolutely sound, rational and well balanced.

A national telecommunication policy has designed for overall development of Indian economic, including educational development. However, the strategies of how to developed and achieved ICT-enabled knowledge management in higher education is not very clear due to “digital divide”. The rapid advances in Internet technologies and reduction in costs of technology infrastructure now make very feasible to implement the National level for educational communications all the higher learning institutions across the country. In turn, this influences ICT in educational knowledge management strategies. However the right technological choice in an important criterion for deploying knowledge management in higher education as it encompasses a variety of technology based initiatives. The initiatives such as experts database creation and expertise profiling and the hardwiring of social networks to aid access to resources of non-located individuals [8],[15]. Expert systems are incapable of synthesizing new knowledge. Expert computer systems provide KM support by using a dedicated computer system to replicate the knowledge of an expert worker [9].

ICT is indeed for the improvement and strengthening of higher educational knowledge management in India is improved only when a well networking and communication online facility are available. In broad view the main three elements in knowledge management is knowledge sharing, knowledge exchanging and knowledge dissemination. The knowledge management central purpose is to transform information and intellectual assets into enduring value [16]. The key concerned of challenges in knowledge management is poor infrastructures and mechanisms for sharing the knowledge generated from organizational

research projects conducted at the level of international or national or regional. The inadequate infrastructure and inefficient mechanisms results grows intermediaries and delay instead of transferring the knowledge directly in right time or any time.

The downward trend in prices in various components of ICT makes it feasible to target at a large scale ICT penetration into higher education institutions for knowledge management implementation. The implementation of KM is often a great challenge to organizations. Many leaders and managers in the business world mistake information for knowledge, and thus assume information management is KM [8]. Research conducted based on this it would like to explore the challenge and opportunity particular in higher education. Credible quality assurance is becomes important in higher education institution in present scenario education system. Knowledge management in higher education has a great opportunity to support the complex strategic issues related to quality assurance. The knowledge management in many organizations has significant opportunities to support their mission and goals. Many organizations are starting to learn and understand the value of KM and what it means to their respective organizations [17]. Higher Education institutions have “significant opportunities to apply knowledge management practices to support every part of their mission,” [18].

VI. CONCLUSIONS

A successful implementation of KM requires a change in organizational behaviours and technology infrastructure. The ICT infrastructure becomes an integral part of the physical and logical structure of institutional knowledge management. Each higher education institution should have a minimum ICT platform for end user computing, local area networking and internet connectivity as it could deploy KM. Emphasis is on ICT role in knowledge management application rather than the mere availability of hardware and software. Technology is not the solution to an organizations knowledge management need; however it is required to enable the organizations KM processes.

Finally, knowledge management in higher education requires strategic alliances on national and international arena. Creating national knowledge repositories and global knowledge repositories will have a competitive advantage in sharing, exchanging of knowledge in global economy partner alliance. Across the globe through internet knowledge acquisition, transformation and sharing is increasing as numerous search engines allow data at one click of mouse. The constantly increasing and popularity of using the internet as a

knowledge repository there is a great extent scope of further study on ICT based KM to web-based KM. Recently portal is popular term in information technology that is used to codify the knowledge, it is a website where ones can capture and sharing the knowledge (tacit and explicit). Further, identify the main stakeholders that used IT in higher education and how these stakeholders can assigned and design the portal as a delivery service model on web (Cloud) in future study. Also a future studies on designing a conceptual propose cloud base KM architecture for higher learning colleges could have taken.

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