Leveraging Operational Excellence of Universities Through Knowledge Management

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Abstract- Universities and institutions for higher learning have significant opportunities to apply knowledge management practices to leverage operational excellence and gain competitive advantage. Organizational designs of higher education institutions differ from business organizations in many respects, but today they are also exposed to market pressures similar to business. Knowledge management has series of activities to offer to universities/educational institutions for developing knowledge based society. Academic faculty and administrative staff need to create, share, transfer/disseminate and value knowledge as a continuous process. Present paper attempts to identify the process of knowledge management which can be applied to universities to gain operational excellence. Access, equity, quality and relevance of higher education are some of the issues, where knowledge management can play role in serving the mission of education at a global level. Today, Universities need to develop a culture using knowledge management activities that would embrace better decision making capabilities, curriculum development, and research for improved academic and administrative services at reduced costs. It is high time when Universities must take global and consistent vision managing its knowledge and logically select tools/technologies to implement their programmes. Inter-active relationships between knowledge creators and receptors must go on to convert globe a learning place for all. Information technology supported by space based communication systems has tried to convert the world into global village. The scheme of the paper has been designed to highlight the use of modern technology. Present paper has attempted to provide separate projected knowledge management model for higher educational institutions. Decision support techniques and groupware solutions have been developed and advocated for successful implementation of knowledge management practices. It being a complex issue, strategic considerations have also been discussed in this present paper.

Key Words - Access and Equity, Curriculum, e-learning, Groupware solutions, Organizational design

I. Introduction

Growing pressures are constantly compelling higher educational institutions to reshape and keep pace with I.T. revolution as students are expecting enhanced education access, equity, quality and support. Faculties are looking for better ways to assess learning outcomes, improved service conditions and career advancements. Administration intends to update the systems by making data driven strategic decisions, enhance enrollments and bring more researches, innovations to enjoy competitive advantages. Some of the universities embrace these challenges and constantly attempting to create pool of information supported by technology. "In India, the major stumbling block impacting this shift is its higher education system. Higher education in India is faced with great challenges and difficulties relating to creating and including design, funding, enhancement of quality in teaching, research and development leveraging technology for learning, employability of graduates and equitable access to the benefits of international cooperation. Building a road map for addressing these issues need an understanding of the role of higher education in the management of a knowledge

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economy"[1]. Institutions of higher educational setups have to plan effectively, collect, organize, use and disseminate information/knowledge at various levels to ensure that it is identified and exploited to the fullest extent.

Higher Educational institutions have a series of knowledge management activities, which could be used for further development rather than going for developing a brand new paradigm. It is important to bear in that universities and their staff must recognize and respond to the changing role in knowledge based society. Universities need to consciously and explicitly manage the processes associated with the criterion of their knowledge assets and to recognize the value of their intellectual capital to their continuing role in society and a wider global marketplace for higher education. Higher educational institutions need to understand that knowledge found in various activities, talent and expertise of people is one of the greatest asset of university, which needs to be appropriately managed.

II. Knowledge Development: An Integral Function Of Universities

Universities and institutions of higher learning have been regarded as the centers of knowledge production, dissemination and authorization. These institutions involve themselves in creation of knowledge by individual and group works in the form of books, reports, articles, research findings and observation etc. Transmission of knowledge under such setups is done through teaching, guidance and supervision. Knowledge is power and source of competitive advantage. It is important to bear in mind that special attention be given to securing knowledge and knowledge repositories within higher educational institutions to protect the core assets. "The complexity with Indian higher education system is that while initially it was established with deep colonial roots, for the purpose of producing literate and semi-skilled manpower to largely look after the subordinate services in the past five decades after independence, when the system has moved on to become an egalitarian one, it has been pressed immensely to meet the growing aspirations of a developing and vibrant democracy."[2] Thus, Indian H.E system is

intertwined with political, economic, demographic, social and international dimensions.

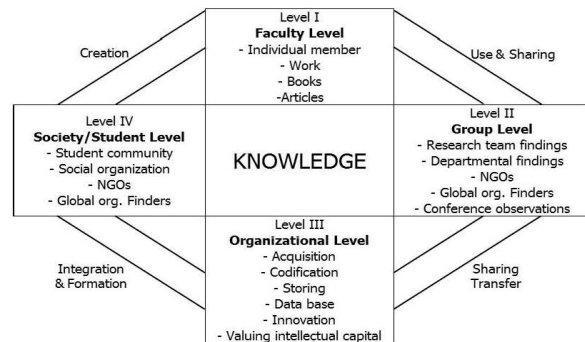**Fig. 1 Knowledge Development at University/ College level**

Fig. 1 attempts to depict that knowledge is generated and has different inflows and outflows at various university's departments and college levels. Knowledge development at these levels is processed through creation, use and sharing, transferring and integration as showing below:

Knowledge management, being a complex process which is understood differently in different contexts, is concerned with the exploitation and development of knowledge assets in the institution of higher learning with a view to enhancing its objectives. KM as applied to higher educational institutions may be identified and categorized under the following headings:

- Creating knowledge repositories,
- Improving Knowledge Access and Connectivity,
- Creation of a Strong Knowledge Environment, and
- Managing Knowledge as an Asset (Intellectual Capital)

"It is beyond doubt that all institutions inherently store, access, filter, arrange and deliver knowledge in some manner or another and add to the delivery of effective and improved services to the faculty, students and community at large. Higher education institutions have significant opportunities to apply KM practices to support every part of their mission".[3]

It has been envisaged that many problems occurring relating to students could better be handled through use of knowledge management practices. "It is with KM that colleges will be better able to increase student retention and graduation rates, retain a technology workforce in the face of severe employee shortages, expand new web-based offerings, work to analyze the cost effective use of technology to meet more enrolments, transform existing transactions based systems to provide information, not just data, for management and to compete in an environment where institutions cross state and national borders to meet student needs anytime/anywhere."[4]

"Assessment of knowledge can be made on the basis of knowledge that increases revenues and reduces costs by using a balanced scorecard as devised by Kaplan and Norton. Using the balanced scorecard, an organization is valued on four dimensions and not simply in terms of its financial performance. These four dimensions are: customer, internal process, innovation and learning, and financial."[5]

Demarest puts forth a similar model "identifying four phases of knowledge management in any institution are:
* Knowledge construction;
* Knowledge dissemination;
* Knowledge use; and,
* Knowledge embodiment."[6]

Ultimately, universities important and integral function of knowledge management-"is the formalization of and access to experience, knowledge and expertise that creates new capabilities, enables performance, encourages innovation and enhances customer value. It is an umbrella term for a variety of interlocking terms, such as knowledge creation, knowledge valuation and metrics, knowledge mapping and indexing, knowledge transport storage and distribution and knowledge sharing".[7] "It is a holistic solution incorporation a variety of perspectives, namely people, process, culture and technology, all of which carry equal weights in managing knowledge and in creating an environment conducive for innovation to take place."[8]

III. Knowledge Management Capturing Attention Of Universities

Universities need to progress from simple KM activities such as capturing existing knowledge to more sophisticated and complex ones such as the continuous learning and creation of new knowledge is on going process. Compared with "Core business driven knowledge processes of the KM include: capturing knowledge; sharing knowledge, creating new knowledge and innovative new product development or creating new technology."[9]

There is increasing requirements of greater integration of various information and data sources with other knowledge repositories so as to enhance effectiveness in decision making for student records, financing, funding and faculty development programs. Government of India's working group for Information Technology for masses has recommended use of knowledge management to improve the facets of higher education. "Owing to its dynamicity, it lends a strong potential to improve and manage several facets of HE, viz. office automation, decision support system (DSS), access to and availability of reliable and updated information etc. All these avenues influence the overall productivity and efficiency of the Indian H.E. system".[10]

Ohio State University, USA created centre for knowledge management (CKM) in 2003 has significantly enhanced by providing solutions to its various stakeholders. "The need to manage and assimilate a constantly growing pool of information, technology, and human expertise creates unique challenges for faculty, staff, administrators and students in the modern university. To meet the needs of these user communities on the Ohio State.

University (OSU) campus, the Centre for Knowledge Management (CKM) was created in 2003 as a unit within the John A. Prior Health Sciences Library. The Centre's goal is to leverage the strengths of people, processes, data, and technology to foster the creation, analysis

and dissemination of new knowledge. As previously chronicled, out teaming of technology professional (programmers, media designers, and so forth) with information stewards (librarians) has significantly enhanced our ability to transform information services, streamline academic computing support, augment research stewardship, and accelerate the creating of knowledge-based solutions and innovations. A hallmark of this partnership is a robust knowledge management solution that is transforming the ways the expertise and knowledge of faculty and staff are documented and shared at OSU". [11]

"To enhance competitive advantage of universities within UK knowledge management gained popularity and capturing attention of higher educational institutions. "Academic research with area of KM is increasing in popularity and institutions offer it as an academic programme or course, yet few have earmarked on research of the application an implementation of KM within this context. Further research is required to provide an evidence base of the benefits of KM as a management tool to enhance the competitive advantage of universities within U.K., however, this case study research has shown that KM is in the process of establishing itself as a new aspect of management and slowly but surely it is capturing the attention of the H.E's."[12]

Institution of higher education in Thailand have also decided to develop knowledge management with careful planning. "In addition, the use of KM methodology in higher education must spend the long period of time for meeting the development completion and the implementation of KM methodology is not pre-fabrication pattern so the Thai institution which need to develop and improve their own organizations by using KM method must assess the organizations themselves before KM take place carefully".[13]

Universities could become smart organization with the help of knowledge management. "Universities are the dominant players of the thriving knowledge business as their core activities. These activities are associated with knowledge creation, dissemination and learning. Like Former Authors such: Rowley (2000), Drucker and others who have predicted that the brick and mortar institutions of higher education will cease to exist in the future due to their inability to reinvent themselves and to catch up with more intelligent; knowledge-creating organizations such as professional consulting firms, we are confident that by academic entrepreneurship and research commercialization, universities will live up to the challenge and could become smart organizations with the help of KM".[14]

There are different techniques/technologies that could be made use of for the purpose of achieving knowledge management including:

- Electronic document and record management systems
- Collaboration tools;
- Web content management systems;
- Portals;
- Classified tools; and,
- Search engines, etc.

The total advancement of KM in any organization would depend upon the management philosophy strategy, availability of funds and the procedures adopted. The most common instruments/ techniques used are:

1. *Decision Support techniques*
2. *Groupware solutions-* "The most common feature of group solutions are electronic mail and messaging, on line calendars or diaries or employee's project management, TQM and environmental manuals, documents and best practices (document repositories) mapping of employee knowledge areas and expertise (expert diaries or yellow pages) desktop video conferencing, on-line catalogues of library materials, books, journals articles and workflow tools".[15]

"Information technology supported by a space-based communication system has attempted to covert the world into a global village. Information super highways have generated e-commerce, e-business and e-education.

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However, there still exists a chasm between the developed and the developing countries in the arc of literacy." [16]

IV. Use Of Km Practices In Indian Universities - Positive Views with Low Uses

A study was conducted to examine different areas of Indian Higher education system has concluded that IT based knowledge management interventions seem to be promising and would provide quantum leap in quality of education with optimized resource utilization. The analysis of 301 responses, using statistical techniques for six identified areas, has shown high positive opinions of using IT based KM practices particularly in areas of:

Fig. 2 Knowledge Management Model for Universities
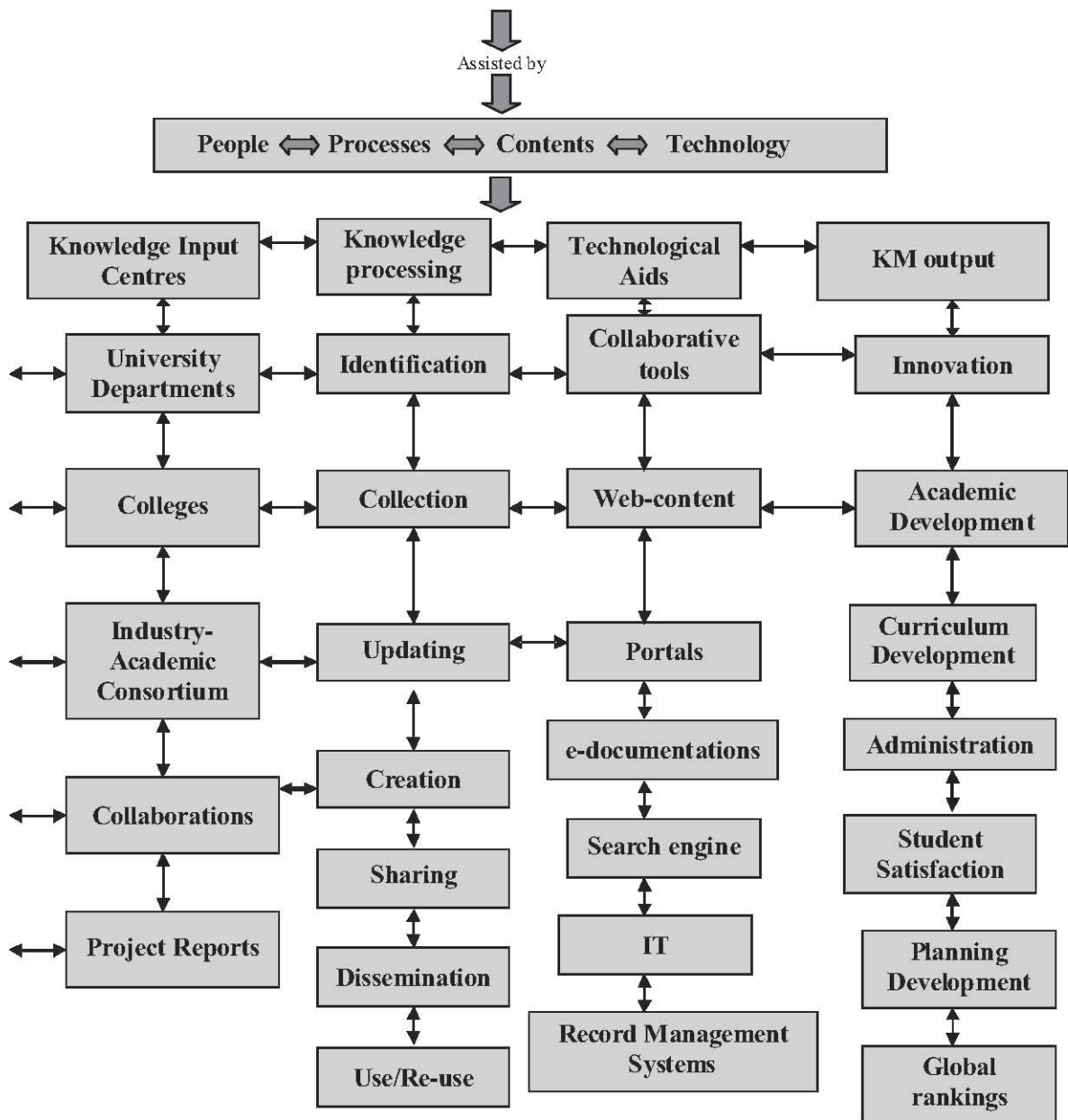
1. Institutional Research and Development Processes: I.T. based KM tools can lead to improved utilization of institutional resources & facilities and would facilitate interdisciplinary research. Benefits would also accrue by way of increased competitiveness and responsiveness for research grants and commercial activities, leveraging Research and Proposals efforts apart from bringing down the turnaround time for research. Reduced administrative costs were also anticipated.

2. Curriculum Development Process: It has been observed that such interventions would lead to improved speed of curriculum revisions as well as improved monitoring and feedback from all stakeholders.

3. Institutional Administration will be marked by effectiveness, efficiency and enhanced responsiveness and communication capabilities together with increased consistency in decision making.

4. Student Affairs and dealings would find improvement in the overall quality of services offered to students. Service quality to alumni shall be improved. Further, academics agreed that the IT based KM interventions shall improve the service capabilities of Faculty, Officers and Staff of the Higher Education Institutions.

5. Institutional Planning and Development: It has been observed that KM use would enhance ability to develop more relevant & focused policies besides increased efforts of all stakeholders being directed towards achievement of common institutional goals and lastly,

6. Finance and Accounts and maintenance: Upto date budgeting and accounting will be facilitated.[17]

The paper has attempted to provide a model of KM practices which universities and colleges in India with the help of technology can conveniently adopt to reap the benefits. The projected model has been evolved to incorporate the Indian Higher education system. Although,

Indian higher education system has exhibited the growth of institutions over the last decade to become one of the world's largest system but with low GER. Presently the system faces the challenges of ensuring access, equity, quality and use of KM practices. The Indian higher education system comprises of over 32000 institutions under various levels such as - Central, State, State-private, Deemed universities providing affiliation to colleges. In addition to these, government has established institutes of national importance. Fig. 2 represents K.M. Model for universities depending upon their set ups and structures.

Knowledge input centres comprise of university departments working in collaborations with colleges its departments, industry-academia consortiums. Knowledge processing would be at various levels working horizontally and vertically involving departments and colleges for all practical purposes such as – identification, collection, updating, creation, sharing, dissemination and use/re-use of knowledge. KM practices to be prompt and successful would need to make use of various updated technological aids. The KM output as shown in the model would benefit the institutions of higher education in the forms of enhancing innovations, academic development including curriculum, administration, students satisfaction and planning and development.

However, India ranks poorly for using KM practices in its higher educational institutions. Inspite of increasingly emphasizing on its potential utility by the Government of India. Recognizing the role of ICT in improving quality and delivery of education, the government has the National Mission on Education through ICT to increase GER in higher education. Government also aims to reduce disparity in technology penetration across various levels of education. Yet the situation remains grim at present due to structural challenges such as shortage of quality faculties, lack of adequate infrastructural facilities. Moreover, the readiness to use KM practices in all institutions is also lacking. Organizational culture at university and college levels supporting KM practices is

lacking. Most of the universities and its affiliated colleges have not given thought to such ongoing practices. Integrated technical infrastructure consisting of networks, repositories, databases and developments of softwares have not been given attention to by authorities as well.

Universities, those already in the process of application of use of K.M. have also shown high positive views and gaining benefits. Strategies and solutions at the Ohio State University, U.S.A. by using KM are changing the system. University is realizing manifold benefits. "This knowledge management strategy continues to mature, providing opportunities for deriving meaningful value from data collected in OSU: pro. By documenting the time, effort, and cost savings to organizations across the institutions, we found that this model is realizing numerous benefits:

Benefits to Administrator

- Streamlining data collection and understanding of faculty activities,
- Enhancing reporting accuracy by providing a single view of institutional data,
- Generating reports to easily showcase university strengths and areas of innovation,
- Facilitating departmental and college reporting of faculty achievement, and
- Attracting scholars to OSU
  Benefits to Faculty and Staff
- Managing and reporting research, teaching, and service activities using a one-stop access point,
- Identifying potential collaborators across traditional disciplines,
- Generating curriculum vitae and other administrative materials through an easy-to-use web portal, and
- Sharing best practices, lessons, research models, and methodologies

Benefits to students and Greater Community

- Finding faculty advisors and mentors in student areas of interest,
- Advertising faculty scholarship to prospective graduate students,

- Creating opportunities for greater interaction between and undergraduate students, including research experiences and seminars,
- Finding university professionals who specialize in a particular area, and
- Expanding the availability of information to facilitate outreach engagement efforts."[18]

Similar opinion have been expressed as KM practice are progressing rapidly – "There is a need for most universities in developing countries to catch up, to leap over barriers and to bypass some of the pitfalls of traditional approaches to the implementation of a KM system. Our future work aims to pursue and develops and implement a knowledge management system at university in Alba Iulia."[19]

A study at Walden University, USA has reveled that "the positive and social impact of this study is that it demonstrates that KM can be used by BHCU to better communicate and interact with government, parents and community leaders who are pressing these universities for more accountability and efficiency."[20]

Indian higher educational institutions must take a global and consistent vision when managing its knowledge assets and selecting KM tools to be implemented. Over, past years application of KM practices in higher educational set ups have increased globally but unevenly. Advancing KM practices in institutions depend upon fulfilling of various commitments such as: leaders attitude, organizational policies, academic enhancements and development in technologies. Newly established institutions are developing KM strategies to exploit value propositions. Existing institutions have noticed the advantages of KM practices and some of them started using KM strategies to maintain their positions in competitive world. Many Indian institutions of higher educations still do not know what to do in order to manage its knowledge. Institutions must share common KM strategies to be implemented and effective review and analysis should be done to update the KM practices. It is important to maintain balance between exploration and

exploitation, i.e., between creation, discovery or acquiring knowledge and its refinement and re-use. Funding of resources for KM practices and tools, techniques are matched with the financial and administrative benefits for the faculty, students, society and stakeholders. Finally, utmost care be exercised when codifying knowledge, using a "people to document" approach. This is to ensure that strategies are innovative to build and sustain competitive advantage.

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