



## Applications and Benefits of Knowledge Management in various areas of Professional Education and role of E-governance model in Higher Educational Institutions

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### ABSTRACT

Combination of academic, socio – economic, cultural and technical government perspectives will curtail the gap between theory and practical implementation of Knowledge Management practices in various universities. Presence of challenges and pressures like globalization, lack of financial budget, competitiveness etc. makes cumbersome to implement KM practices in higher educational institutions. It is evitable from present conditions and importance of education in universities that knowledge has only become mode of earning money. The paper focuses on impact of e-governance model on basis of Knowledge Management (KM) prototypes. It studies various KM practices in libraries of institutions and explores views of librarians regarding Knowledge Management.

Various challenges are occupying library professionals that hinder implementation of KM in libraries like incomplete information about KM, misuse of KM tools, lack of knowledge sharing and lack of business incentives. The paper also presents conceptual framework to describe elements of Knowledge Management. It is unstructured form in various institutions i.e. it occurs in different and unique phases of institution rather than working in collaboration with various participating industries. A research methodology has also been conducted regarding various KM practices in Delhi universities and their results, analysis are presented in following paper.

### KEYWORDS

E-governance, Knowledge Management (KM), Knowledge Management Technologies, Knowledge Management Prototypes, Knowledge Management Systems (KMS)

### LITERATURE SURVEY

Various researchers tried to find about knowledge base structure that can be suitable for KM in distance learning education. Knowledge Management has diverse definitions resulted from various studies:

(a) According to Newman [1], KM is defined as management method that creates and utilizes results of both Tacit and Explicit Knowledge.

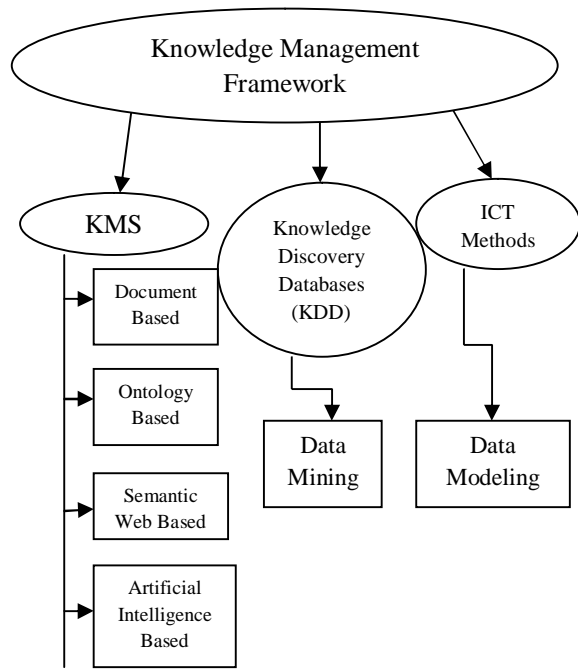
(b) According to Townley [2], KM is defined as process of creating, acquiring sharing and reusing of knowledge within an institution.

(c) According to Hayes [3], KM is defined as approach to gain knowledge from an environment and improving it by using innovation methods.

So, we can say that there is no clear definition of KM practices in various universities.

It is argued by various researchers that KM is practiced in libraries of institutions because terms like information management, knowledge mapping are related to library itself. It is seen in various institutes that library professionals are not willing to adapt to latest practices. They are still following conventional practices like manual issuing of books, forcing students to use old edition books etc. In higher education programs, there are several institutes (self affiliated, deemed) that are offering education according to their individual objectives and vision. The correction to be pointed out that they should follow single system under guidance of regulating government bodies like AICTE, UGC, MHRD etc.

According to Liao S. [4], KM technologies can be classified as shown below:



**Figure 1: KM Technologies**

## 1. INTRODUCTION

Knowledge Management is emerging and latest concept that focuses on improving education system in institutes by applying many strategies, techniques and tools. Every institute has library. Libraries are root of institutes. The effect of universities is seen on libraries. Libraries must have all forms of documents like books, journals, magazines according to student's requirements and teachers. They should not make misuse of budget issued to college authority by government regulating bodies.

Several issues are related to implement library management system which is one of KM practices prevailing in universities of Delhi are:

- Lack of skills and knowledge
- Unwillingness of library professionals to change themselves according to modern technologies
- Lack of resources and collaboration with other educational industries.
- Lack of decision making by college management committee.

All library professionals are aware of KM prototypes but their extent of understanding creates a huge difference.

KM practices can be seen in distance learning education programs. Distance learning education

means students can gain knowledge while sitting in their homes at distant places.

Tangible	Intangible
Issue of books, CD's, course materials to students are tangible assets.	Information gained after reading books, watching lectures is called Intangible asset.

**Table 1: Types of Knowledge in Distance Learning Education Program**

Knowledge Management has emerged from areas like data management processing and information management. Some KM practices are followed in distance learning education like formation of academic groups, infrastructure development, knowledge sharing and understanding among students.

Factors that reduce quality of education in various institutes in Delhi are as follows:

- Lack of research groups.
- Lack of enthusiasm and dedication towards work.
- Professors give teaching like business. They focus on spurious concepts instead of pointing to valuable knowledge.
- Lack of innovative teaching and learning
- Misuse of ICT and KM tools.
- Less consistent in decision making.
- Keeps following conventional education norms instead of generating new knowledge.

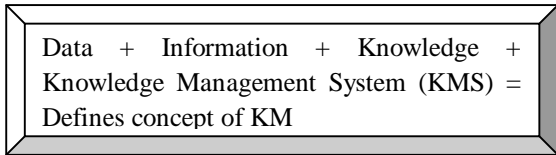
Several conclusions and improvements that must be carried out to promote KM in higher education have been listed:

- KM requires time to time updations in infrastructure facilities, institutes culture, Management Information Systems (MIS) etc.
- KM has four organization methods for higher education i.e. Culture, Leadership, Technology, Management and three academic methods i.e. Individual, Institution and Network.

For maintaining consistency and standardization in educational institutions, various irregularities in aspects of quality education must be removed like Admission process, Scheme of syllabus, training and placement courses etc. Many institutes are offering direct admissions without any qualification, interview under management quota. The paper is divided into following sections:

Section 2 lists components and levels of Knowledge Management. Section 3 describes types of KM prototypes and e-governance model based on these prototypes. Section 4 presents overview of research work related to KM practices in universities.

**2. COMPONENTS OF KNOWLEDGE MANAGEMENT (KM)**



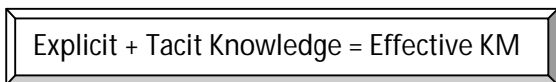
**Data:** - It is defined as discrete, raw facts or observations related to knowledge domain. It is meaningless unorganized facts.

Information	Knowledge
(i) It is meaningful shared data that is achieved by communicating with others.	(i). It is solely based on individual itself i.e. what is gained by individual after analyzing facts and information.
(ii) Passive	(ii) Active and Dynamic
(iii) Tangible i.e. everyone can gain information on given topic. It is like information available on Internet on various topics.	(iii) Intangible i.e. individual has its personal belief and thinking to take suitable action. Individuals cannot seek others knowledge unless they interact with each other.

**Table 2: Information vs. Knowledge**

Formal / Explicit	Implicit / Tacit
(i) Knowledge in form of documents and system language like documents, papers, MIS etc.	(i) Knowledge gained through individual's experience.
(ii) Easy to identify, store and share by using KM tools.	(ii) Difficult to identify and share

**Table 3: Types of Knowledge**



**Knowledge Management System (KMS):** - It is system for managing knowledge in order to develop, share and apply within institution.

If knowledge is managed in efficient way, then it becomes easier for student and teachers to access facts, information, solutions etc.

Document Based	Ontology Based	Semantic Web Based	Expert System Based
Creates, share and manages documents using technologies like Internet, online documentation, distributed databases etc.	According to taxonomy, ontology is defined as set of entities, classes, their properties and relationships. Similarly, university is treated as ontology that has many entities like About, Mission, Faculty etc.	The word Semantic means meaning. So, KMS is used to represent meaning of various forms of info like semi-structure, structure etc.	Knowledge Engg and Knowledge Mgmt. are one of research under expert systems.

**Table 4: Features of KMS**

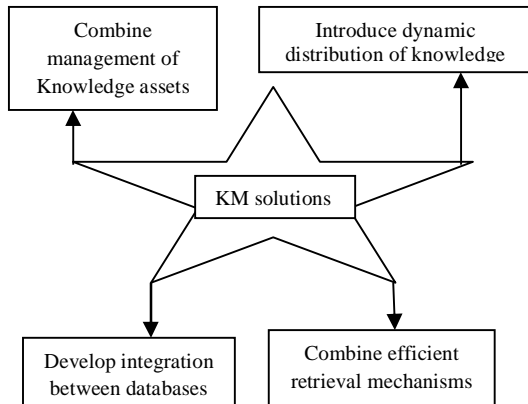
Factors that contribute to the development of KMS are as:

- Focus on valuable knowledge
- Structure outline of problem according to various requirements
- Optimize, transform and evaluate obtained knowledge from structure
- Spread knowledge through use of KM tools among staff and students.
- Update previous knowledge to generate new knowledge and decision based on latest technologies.
- A KMS must be centralized with institutions processes to collect and store knowledge.

**2.1 Requirements of Knowledge Management Solutions**

KM is one of best solutions to improve the services, reduce cost and human resources in academic work.

The given solutions integrate knowledge and business process.



**Figure 2: Requirements of KM Solution[5]**

### 2.2 Levels of Knowledge Management (KM)

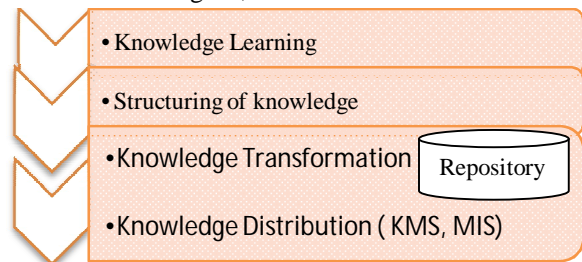
- **Knowledge Learning:** - It is process of gathering knowledge from various experiences and survey. In context of gaining knowledge through experiences, it requires working on project planning, research projects, teaching etc. In context of survey, it requires performing case studies, financial and management planning. It involves development and supervision of skills and relationships by using KM tools. Learning means to relate explicit (what, who) and tacit knowledge (how, why) together, thus deriving conclusions from tacit knowledge.
- **Structuring Knowledge:** - Knowledge can be created but it is useless until it is organized and structured. It is structured and organized in various documentation sources like reports, tables, pictorial representation and case studies.
- **Knowledge Transformation:** - Structured knowledge is transformed and stored in knowledge databases called Repositories. They are shelter for knowledge and information. Without structuring of knowledge, it is difficult to transform it.

#### Use of Knowledge Repositories

- (a) Prevent loss of knowledge and ensures easy access for further use.
- (b) Increases value of institutes.

(c) Knowledge can be accessed quickly and efficiently.

- **Knowledge Distribution:** - It is essential to distribute/transfer knowledge to utilize resources within institutions. It is transfer of knowledge to education information seekers through training; KM based systems and centralized MIS. “The more descriptive knowledge is, more liable it is”.



**Figure 3: Levels of KM**

### 3.1 E-governance Model based on KM prototypes

It must satisfy two points:

- It should combine technical issues with organizational and social issues.
- It should develop centralized MIS to access information at one particular place.

It is model that connects these four prototypes and creates new areas of knowledge like MIS, Social Learning, and Interactive communication and so on. Since it connects four prototypes, so model is divided into four intersection fields corresponding to each prototype. The term intersection field is used because any prototype can have common knowledge from other.

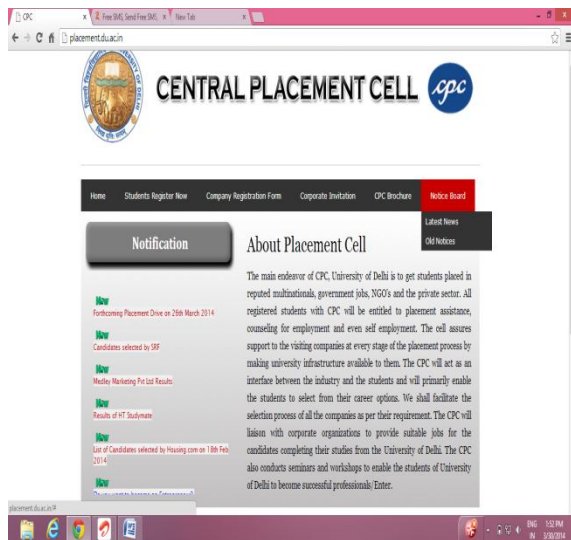
The specifications of this model are shown in Table 4 after discussing about impact of this model in various universities.

### 3.2 Impact of E-governance Model

- It is designed to create new technical and management skills that can replace traditional skills and practices.
- It delivers services to students covering all aspects of quality education like job opportunities, physical as well as medical fitness, personality development and training courses.
- For giving latest opportunities, institutes must have collaboration with organizations and industries.
- This model ensures e- governance that eventually leads to development of online

student placement portal where each student can search jobs as per his requirement and on basis of academic records.

- The model introduces presence of e facilities in distance learning education programs. The facilities include online lectures, online counseling, counselor advice, and students query feedback, audio and visual interface.



**Figure 5: Interface of Placement Cell in Delhi University**



**Figure 6: Center for Professional Education in Delhi University**

#### 4. RESEARCH METHODOLOGY

##### Related Work:

Various departments have worked to support Knowledge Management in educational institutions in India. Collection of data is performed by mainly University Grants Commission (UGC) in higher education programmes. UGC searches data according to university area. Evaluation of data is done by Education Management Information Systems.

##### Requirements of Research work

**Aim:** - To study varying nature and objectives of various institutions thus enabling standardization and structured Knowledge Management (KM).

Aspects that should be noticed to provide quality of education:

- Analysis of same courses offered by various universities.
- Placement Statistics along with previous years placement papers
- Level and originality of question papers.
- Setting up standards for all students irrespective of their category to provide equal education and facilities.

##### Data Collection:

It is done by conducting various case studies, group discussions, interview with faculty, students and director of institution. We have shown data related to various domains of knowledge by surveying in some colleges of Delhi Universities. The domains and their factors are summarized in table given below:

Domain of Knowledge	Related Factors
Institution objectives and financial development	Policies, Norms, financial reports by review committees.
Research projects	Thesis, Publications, Areas of research, Cost of project, Manpower etc.
Faculty Management System	Recruitment, Areas of specialization, faculty profile etc.
Student Management System	Facilities, Student feedback, Placement Services, Vocational Courses, Anti ragging helpline
Academics	Courses offered, Examination Schedule, Time table, Scheme and Syllabus

**Table 5: Domains and Elements of knowledge**

Knowledge Management Application	Benefits
A repository of: • Research interests within an institution or at affiliated institutions (potential subcontractors). • Research results (where possible) and funding organizations (federal agencies, foundations, and corporations) with easy search capabilities to facilitate interdisciplinary opportunities. • Commercial opportunities for research results.	• Increased competitiveness and responsiveness for research grants, contracts, and commercial opportunities. • Reduced turnaround time for research. • Minimized devotion of research resources to administrative tasks. • Facilitation of interdisciplinary research. • Leveraging of previous research and proposal efforts.

**Data Analysis**

It can be analyzed either by using SPSS software or by analyzing contents of books, journals, libraries for identifying data characteristics.

**Practical Implementations of Proposed Framework**

The proposed research work is useful in many ways:

- Increases quality of education processes by using KM practices
- Improves teaching and sharing of knowledge among students.
- Increases efficiency of administrative services like organizing meetings, applying rules and regulations at right time to right people.
- Removes indifferences and lack of interest among faculty and students.

**5. Professional Education Primary Areas**

It includes:

- Knowledge Management for Research Process
- Knowledge Management for Curriculum Development process
- Knowledge Management for Student and Alumni process
- Knowledge Management for Strategic Planning
- Knowledge Management for administrative services

**5.1 Application and Benefits of KM in areas of professional education**

**Table 6: Application and Benefits of KM for the Research Process**

Knowledge Management Application	Benefits
A repository of: • Portal of information related to teaching and learning with technology including faculty development opportunities, tracking lessons and technology overviews. • Repository of corporate relationships to identify curriculum design advisory task forces, guest speakers and case study sites. • Repository of analyzed student evaluations updated each semester for lessons learned and best practices for all faculties.	• Improved speed of curriculum revision and updating. • Enhanced faculty development efforts, especially for new faculty. • Improved administrative services related to teaching and learning with technology. • Interdisciplinary curriculum design and development facilitated by navigating across departmental boundaries.

**Table 7: Application and Benefits of KM for Curriculum Development Process**

Knowledge Management Application	Benefits
• Portal for student services for both students and for faculty and staff at the institution so that they are well informed to advice students.	• Improved services for students. • Improved service capability of faculty and staff. • Improved services for alumni and other external constituent.

**Table 8: Application and Benefits of KM for Student and Alumni services**



Knowledge Management Application	Benefits
<ul style="list-style-type: none"> <li>• Information about Knowledge Management, emerging from the previous studies of Institutional Research.</li> <li>• Repository of data related to accountability and outcomes tracking by monitoring assessments, performance indicators.</li> <li>• Portal for external information including benchmark studies, latest technology trends and education courses, higher education research groups and publications.</li> </ul>	<ul style="list-style-type: none"> <li>• Shared knowledge from a variety of constituents to begin to create a learning organization.</li> <li>• Improved responsiveness and communication capabilities.</li> <li>• Improved responsiveness by monitoring and incorporating lessons learned from the experiences of colleagues, student evaluations, and corporate or other constituent input.</li> </ul>

**Table 9: Application and Benefits of KM for Strategic Planning**

**5. CONCLUSION**

Knowledge Management is one of keys for improving reputation of any institution and increasing student’s academic performance. The paper presents base framework by defining components of knowledge management and differences among most confusing terms- Data, Information and Knowledge. It gives overview of KM paradigms that must be followed in institutions. These paradigms creates intellectual, social as well as management skills among consumers (teachers, students). A magnanimous amount of efforts and work have been done in field of Knowledge Management to enhance the quality of education but still it is confusing topic in industry. Various issues regarding library management system and distance learning education program has been presented. ICT methods are used to facilitate major levels of Knowledge management i.e. Knowledge Learning, Knowledge Distribution and Transformation. After gathering data, knowledge is stored in form of databases called Repositories.

A research methodology has been proposed in this paper. It is based on collecting information by conducting surveys in various colleges. Sample data is maintained as per discussion with teachers, student’s problems, and most focus areas of technologies, group discussions and many more.

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