Knowledge Collaboration in Higher Educational Institutions in India : Charting a Knowledge Management Solution

Mamta Bhusry[1], Jayanti Ranjan[2]

[1] Department of Computer Science, Ajay Kumar Garg Engineering College
Ghaziabad – 201009, India

[2] Information Management Systems Department, Institute of Management Technology
Ghaziabad – 201001, India

Abstract

Knowledge management (KM) is an essential consideration in higher educational institutions (HEIs) to ensure that knowledge flows efficiently between the people and processes. A crucial aspect of KM in HEIs that has not been addressed adequately is the unstructured nature of knowledge management and varying degrees of conformance to KM mechanisms in the functional domains. The paper aims to propose a knowledge management framework for HEIs and evaluate the institutions for KM mechanisms in order to reiterate on the urgent need for knowledge management support in higher education.

The evaluation of the framework indicated the nascent nature of knowledge management in higher educational institutions in India. The evaluation also indicated that KM in HEIs is highly unstructured and occurs in disparate activities of the institutions and identified the potential domains for improvement based on the K-ASD framework.

The practical implications of KM initiatives in HEIs include the enhancement in the overall effectiveness and efficiency. A KM system should be integrated into the institution's processes and work environment

Keywords: Knowledge management, higher education, knowledge creation, knowledge encapsulation, knowledge structuring, knowledge, knowledge dissemination

1. Introduction

The last decade has experienced a manifold growth in higher education in India. With the increase in the number of institutions, competition has increased. The pressures of competition have compelled higher educational institutions to start thinking like businesses (Brown, Duguid, 2000). All educational institutions develop and use knowledge. The question is what value is added to the products and services they deliver by the effective use this knowledge asset (Milam, John, 2001). The institutions have to attune themselves to develop strategies for enhanced planning and development of processes and activities. This requires that institutions must be able to respond timely to the dynamic technologies and increasing demands of stakeholders (Nagad, Amin, 2006). For this, the knowledge in the organization needs to be identified, transformed, stored and disseminated effectively. This paves the way to discern the urgent need for knowledge management (KM) initiatives which is a key asset.

Knowledge Management is the management of organizational information and knowledge by applying skills, experience, innovation and intelligence. Wiig(1996) defines knowledge as "the insights, understandings and the practical know-how that we all possess". According to Nonaka(1998), Tiwana(2000) and Zack(1999), there are two types of knowledge – tacit and explicit. Tacit knowledge is the form of knowledge that is subconsciously understood and applied, difficult to articulate, developed from direct experiences and action and usually shared through highly interactive conversation and shared experiences. Explicit knowledge, on the other hand, is easy to articulate, capture and distribute in different formats. It is formal and systematic (Nakkiran, Sewry, 2002, pp.235-245). Essentially KM needs to ensure that the right knowledge gets to the right people at the right time, and to help people share and put knowledge into action in ways that strive to improve organizational performance (O'Dell, Grayson, 1998). According to Handzic(n.d.), a central task of KM research is to find the best ways to cultivate, nurture and exploit knowledge at individual, group and organizational levels.

The increasing needs of the stakeholders and pressures of competition require higher educational institutions to react in a proactive and efficacious manner. However the

institutions are unable to respond at the required pace which results into a chasm between the "need" and the "availability". It is important to identify this gap and make efforts towards the efficient management of the institutional knowledge.

In this paper the authors introduce a KM framework to explain the major elements of knowledge management and the flow of knowledge in the HEIs. The framework identifies three mechanisms for knowledge management in higher educational institutions : knowledge acquisition, knowledge transformation and knowledge dissemination. Further the authors have validated the need for knowledge management in higher educational institutions by evaluating the framework for the functional domains in the institutions. The findings reveal the nascent nature of KM in higher educational institutions and the urgent need to adopt IT based KM initiatives. The framework will encourage HEIs to focus their KM initiatives on performance outcomes and implement these initiatives in alignment with their organizational strategies. This will result in achievement of the desired performance outcomes**.**

2. Related Work

Significant work has been done in the area of KM in higher educational system and many new requirements have been proposed by different people in this field.

Kidwell, et al.(2000, pp. 28-33) discussed why KM is vital to higher education systems and how an institution wide approach to KM can lead to exponential improvements in knowledge sharing – both explicit and tacit and the subsequent surge benefits. The work deals with the benefits of various knowledge management applications on educational institution processes such as research, curriculum development, student and alumni services, administrative services and strategic planning.

Ranjan and Khalil (2007,pp. 15-25) have argued that in order to build and develop a robust and thriving knowledge environment the institutes need to look beyond technology and develop the overall culture of accessing, collaborating and managing knowledge.

Yeh (2005,pp.35-42) presented the KM multi-modeling framework to propose four organizational strategies for higher education – culture, leadership, technology and measurement and three academic KM strategies – individual, institutional and network.

Nagad and Amin (2006, pp.60-65) concluded that effective KM may require significant change in culture and value, organizational structures and reward systems. In order to apply KM, knowledge and expertise must be readily accessible, understandable and retrievable.

Sedziuviene, Vveinhardt, J.(2009, pp. 79-90) concluded that to create a KM system in higher educational institutions it is necessary to point out the valuable knowledge, to create a methodology for receiving, transforming and consolidating knowledge, to activate and optimize the process of knowledge formation, transmission and evaluation, to perform spread of knowledge among the staff and students, to constantly perform knowledge monitoring and make decisions accordingly and to generate new knowledge and new technologies for knowledge transmission.

Rowley (2000, pp. 325-333)in the study on KM in higher education said that KM challenges lie in the creation of a knowledge environment and the recognition of knowledge as intellectual capital. Effective KM in higher education requires significant change in the culture and values, organizational structures and reward systems.

This paper is motivated by the above related research to explore the knowledge management scenario with respect to higher educational institutions in India. The objective of this paper is to develop a KM framework that facilitates the institutions to capture, structure and disseminate the knowledge created in the organization so that it is readily available to everyone – anytime, anywhere.

3. Concerns and Priorities for KM in HEIs in India

Higher education in India is offered by a variety of institutions – Central Universities, Affiliation Universities, Private Universities, Deemed Universities, Vocational Universities, affiliated colleges and institutions and institutions of national eminence. The higher education system in India has become very complex due to the pressing aspirations of a developing and vibrant democracy. To meet this growing demand, while the number of universities and colleges have increased immensely, the quality of services offered by the HEIs has fallen short of the expectations. The factors contributing to the gap between the expectations and the actual are as listed –

- Lack of focused institutional planning
- Lack of research and consultancy
- Lack of commitment at all levels
- Lack of academic structure that promotes creativity and innovation
- Lack of innovative teaching and learning

processes
- Out dated curriculum due to lack of timely revision
- Inappropriate standard of services provided to students and alumni
- Near non-existence of academic-industry collaboration
- Low consistency in decision making
- Slow pace of process delivery

The quality of education being offered in higher education is a question being debated widely. With the growing cost of higher education, the pressures for producing industry ready professionals and competition for performance, the question has become especially pertinent for all stakeholders – students, faculty, industry and the policy makers.

HEIs in India are facing the pressures for enhanced performance for the reasons argued by Ashish and Arun (2006) and others –

1 Increasing competition among higher educational institutions
2 Growing awareness about alternate opportunities and value for money among the students and parents
3 Accountability to stakeholders and the accreditation and affiliating bodies
4 Increasing industry demands as employers for recruitments of graduates and post graduates
5 Industry expectations for industry-institution partnerships

In view of the pressures from the stakeholders and the present scenario in HEIs it becomes pertinent to look for solutions which will make an impact on the existing systems. A blend of KM and IT techniques can offer an appropriate tool to meet this challenge (Kumar and Kumar, 2005).

Large number of organizations have implemented KM principles and methods in their routine activities for enhanced collaborating of knowledge on inter and intra organizational platforms. However HEIs have not taken much interest in introducing KM approaches even though from the academic learning point of view KM by its nature is essential for HEIs (Ranjan and Khalil, 2007). Today HEIs behave like educational markets. They have to adjust themselves and develop strategies to respond rapidly to the increasing demands of stakeholders and market pressures.

A KM approach in HEIs is a conscious integration of all human resources and academic and administrative processes for the acquisition, structuring and sharing of institutional knowledge. Emphasis is required on sharing of knowledge at the institutional level and not the individual level (Ranjan and Khalil, 2007)

Higher educational institutions create knowledge during their academic and administrative processes. Knowledge is created at various levels in different forms and is required at each level in a different form. The processes of teaching, examination, evaluation, admissions, counseling, training and placement and research and consultancy result in numerous beneficial experiences and studies which may be defined as knowledge in the context of higher educational institutions (Ranjan and Khalil, 2007). A crucial aspect that has not been addressed adequately in higher educational institutions is the extent to which KM mechanisms have been implemented to share the institutional knowledge across the important functions and stakeholders in the institution. Efforts are needed to share the institutional knowledge in a cross functional and collaborative manner. KM in HEIs requires management of knowledge as an asset to recognize its value to the institution. This can be facilitated via an IT based KM paradigm that blends the KM processes with IT tools to improve the efficiency and effectiveness of HEIs.

4. Knnowledge Acquisition, Structuring and Dissemination (K-ASD): A Framework for KM in Higher Educational Institutions

The authors propose a framework that identifies the mechanisms for knowledge management in higher educational institutions. The framework focuses on the integrated acquisition of knowledge from all aspects of the organization and its deployment in the form as required by the stakeholders. The framework consists of three levels as shown in the figure.

Knowledge Acquisition – It is the mechanism through which knowledge is gathered and stored from the members of the institution and other resources (Schwartz, et al., 2000). According to Tiwana (2000), knowledge acquisition is the development and creation of insights, skills and relationships supported by information technology. Knowledge acquisition consists of codifying explicit knowledge, modulating tacit knowledge to explicit knowledge and codifying the explicit knowledge and acquiring tacit knowledge in the form of explicit meta knowledge i.e. knowledge about knowledge. The explicit meta knowledge about tacit knowledge contains information about “who knows what” and about how to contact the experts. The purpose of codification is to make it easy to organize, locate, share, store and use knowledge (Davenport and Prusak, 1998).

Knowledge Structuring and Storage– Knowledge may

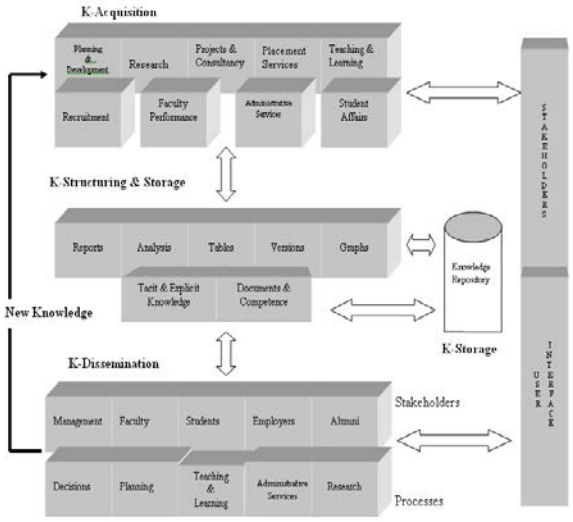

Fig. 1 K-ASD Framework

be created and acquired, but if not organized and structured, the organization will not be able to take action on that knowledge or actualize all of its potential value (O'Leary, n.d.). This will result into limited use of the institutional knowledge and its impact on the institution. Knowledge has to be structured into a form which can be used directly in the institutional processes and functions to "fit" into the institution's way of doing things. The form to which knowledge is converted is critical to the ability to use the knowledge. Under the circumstances institutions need to put the knowledge into specific forms viz. documents, databases, pictures, graphs, rules, case based reasoning (CBR) and frequently asked questions (FAQs). It includes organizing, indexing and formatting the acquired knowledge (Schwartz, et al., 2000) for reuse and leverage it in other ways and make it broadly available in the institution.

The knowledge is transformed into appropriate form as used and sought for by the stakeholders and stored in knowledge bases called knowledge repositories. A knowledge repository is a structured collection of the knowledge generated in an organization. This also encompasses the documents generated and the tacit knowledge available with the stakeholders, explicitly codified. The value of organizational knowledge increases when it is available in storage repositories for present and future use (Jasimuddin, 2005). The knowledge repository ensures the availability of related knowledge quickly and efficiently at the same place. A knowledge repository will contain the knowledge itself and information on knowledge. According to Natali and Falbo (n.d.), the primary requirement of the knowledge repository is to prevent the loss of knowledge and enhance accessibility to organizational knowledge in the form of a centralized well structured resource.

Knowledge Dissemination – The stored knowledge, if not transferred for further use within the organization, leads to wastage of organizational resources (Jasimuddin, 2005). According to Schwartz, et al.(2000), knowledge dissemination constitutes retrieval of the relevant knowledge for use at the right time. It supports the flow of knowledge in the institution. Knowledge dissemination refers to the transfer and deployment of knowledge to the points of use – people, practices, technology, products and services - through training, education and automated knowledge based systems. Knowledge dissemination can be pull based or push based as either the user can search for the required knowledge or the knowledge management system can offer knowledge that seems relevant for the user's task (Abecker, et al., 1998). Proactive knowledge dissemination becomes particularly important when users are not motivated to look for information, are too busy or unaware that relevant knowledge exists or are ignorant of the need for information in the first place (Natali and Falbo, n.d.). Dissemination of knowledge, active or passive, is not sufficient. The use of knowledge obtained from the organizations collective memory repository becomes quite involved. Activities such as proactive access, personalization and in particular tight integration with the user task play a crucial role for the effective reuse/application of knowledge. The responsibility of contextual interpretation and evaluation of the knowledge lies with the user. The knowledge is utilized and leveraged to act effectively for viability and success.

5. Evaluating HEIs for Knowledge Management using the K-ASD Framework

The authors performed an evaluation process to establish the validity of the framework based on the knowledge needs of higher educational institutions and the missing links that exist due to the lack of KM initiatives.

5.1 Design of variables and checklist of factors/determinants for KM

The authors identified the functional domains in the institutions and the determinants or factors that impact the effectiveness of KM in these domains via an interview and group discussion based study. Inputs were also gathered from work already accomplished in the field of KM in higher education (Ashish and Arun, 2006, Ranjan and

Khalil, 2007). The determinants identified were used as variables to evaluate the proposed framework for the existing scenario in HEIs. The domains and the determinants were distinguished on the basis of information collected during group and individual interviews with the faculty, heads of departments, deans and staff and observations of the procedures and processes. The data collected was analysed using the content analysis technique. Content analysis consists of analyzing the contents of documentary materials(books, magazines, newspapers) and verbal materials (interviews, group discussions) for the identification of certain characteristics that can be measured or counted (Kothari, 2010). The domains and determinants were further validated by two independent reviewers who were familiar with the higher education system in India and understood the objectives of the present work and the concepts underlying KM implementation in HEIs. The content analysis resulted in the identification of the activity domains in higher educational institutions and the determinants for KM intervention in these domains (Refer appendix 1).

5.2 Research Methodology

A survey based study was conducted as a preferred method for the research (Judd, et al., 1991). Based on the domains and determinants for KM intervention, the authors developed a checklist to evaluate the proposed framework in higher educational institutions. The objective of the study was to check the validity of the framework for the mechanisms in HEIs and establish the support for structured knowledge management. The higher educational institutions were chosen in the National Capital Region of Delhi, the names of which have not been disclosed.

To conduct the survey, the checklist was distributed to the respondents partly by mail and partly in person. An explanatory note on knowledge management and its benefits, role of for KM in HEIs, and the implications of IT based KM initiatives was distributed along with the checklist. It also outlined the context and the meaning of participation in the survey and the proposed uses of the data collected from the survey. Follow up telephone calls and e-mails were made to remind the respondents that the survey should be completed in order to maximize the response rates. It took about one month to complete the survey wherein 152 responses were received out of a total of 450 forms distributed. The response rate of the survey was 33.77%. The selection of the respondents was done very carefully keeping in mind the nature of the institutions, academic qualifications, designations and professional experience. The respondents were chosen from universities, engineering colleges and business schools.

In answering the questionnaire a determinant in the checklist was marked “YES” if compliance to knowledge capture, knowledge structuring and/or knowledge dissemination existed, else it was marked “NO”. The responses were encoded, entered into the computer (Excel Worksheets) and results computed in the following ways –

a) For each determinant the number of “YES” responses were added to find the percentage of compliance to knowledge management for the KM mechanisms (Appendix 2).
b) The average score and the percentage of compliance to KM for the functional domains was computed for each mechanism of the proposed framework (Appendix 4)
c) The average score and the percentage of compliance for sample HEIs was computed for the mechanisms of the KM framework (Appendix 3).

5.3 Empirical Evaluation

The results of the evaluation of data collected are given in appendix 2 to 4. For the functional domains of the higher educational institutions, the compliance to KM mechanisms exhibited a downward trend from knowledge acquisition to knowledge structuring and storage to knowledge dissemination (Refer Appendix 4). Such downward drift clearly implies that though knowledge in HEIs is captured and acquired to an extent of 39.77%, the focus on knowledge structuring and storage and knowledge dissemination is much less, a maximum of 36.06% and 32.61% respectively (Refer Appendix 3). These results indicate that the favourability for KM performance is poorer in the knowledge structuring mechanism as compared to knowledge acquisition and even poorer in the knowledge dissemination mechanism. The implication is that though higher educational institutions are acquiring, capturing and storing the institutional knowledge in different forms, there is least support for knowledge dissemination to make it easily available across the organization.

The mean and variance values (Appendix 4) for knowledge acquisition, knowledge structuring and storage and knowledge dissemination indicate that though the mean percentage of the conformance to knowledge management is highest for knowledge acquisition mechanism and least for knowledge dissemination mechanism, the variance shows a downward trend from knowledge acquisition to knowledge dissemination. Such sliding drift in dispersion from the mean value implies that KM practice is most ad

hoc and non- structured in the knowledge dissemination phase of knowledge management.

Reference to appendix 2, the average score for knowledge acquisition in the functional domains varied from 29.32% (industrial projects and consultancy) to 48.02% (institutional administrative services), that for knowledge structuring and storage varied from 26.03% (industrial projects and consultancy) to 43.55% (institutional administrative services) and for knowledge dissemination it varied from 21.33% (industrial projects and consultancy) to 40.00% (institutional administrative services and faculty recruitment process both). The implication is that KM in HEIs exists in the form of a series of unrelated knowledge based activities which is not sufficient. The KM activities and practices should not occur in disparate pockets of the institutions; an organization needs to demonstrate these practices and activities throughout the organization, across all levels and groups in order to be a KM-smart organization (O'Leary, n.d.).

The lack of support for KM, ad hoc nature of KM and the downward trend of KM mechanisms in HEIs may be attributed to the reasons namely -

1. Lack of interest and confidence in using others' knowledge
2. Fear of losing importance by dispensing with one's knowledge
3. Silos mentality and lack of co-operation among employees
4. Lack of time
5. Lack of infrastructure (push and pull mechanisms)
6. Lack of organizational strategy for knowledge management
7. Lack of incentives to participate/collaborate for knowledge sharing

The findings indicate that knowledge management is a nascent concept in HEIs with ad hoc mechanisms and no defined structure. Most knowledge management takes place as part of routine processes of information storage in the institutions. There is indispensable need for effort and investment in both social and technical infrastructure in order to fully facilitate KM processes in HEIs. The KM mechanisms can be accomplished using substantial human effort supported by IT along with the overall culture of knowledge sharing.

6. Research and Practical Implications

The study has important implications for research and practice. KM in HEIs is at an emerging stage and there is scope for tremendous improvement in this area. KM involves interactions among people and processes across functions and domains influencing the knowledge sharing culture. The study supports the consideration of a holistic view of KM that integrates the interplay between the departments and the sections in the HEIs. Work on KM practices in HEIs is on the way towards better success, however more needs to be learnt and done about the effectiveness of KM initiatives in all respects in the institutions.

The practical implications of IT based KM initiatives in HEIs imply that the framework should be useful to the institutions in many ways namely –

- Enhanced ability to develop strategic plans
- Enhanced quality of programs and processes by identifying and leveraging best practices
- Enhanced ability to monitor and sustain ongoing change (Petrides, 2004)
- Enhanced faculty development efforts
- Improved teaching learning processes
- Improved effectiveness and efficiency of administrative services
- Improved sharing of internal and external information to minimize redundant efforts
- Reduced effort and turnaround time for actions
- Reduced operational costs

To gain user acceptance, a knowledge management system must be integrated into the organization's process, allowing to collect and store relevant knowledge as it is generated in the processes and functions of the organization (Natali and Falbo, n.d.). Consequently it should also be integrated to the existing work environment (Abecker, et al., 1998).

7. Discussion and Conclusion

Knowledge management is a crucial consideration in higher educational institutions to ensure that knowledge flows efficiently to the functionaries, students and other stakeholders. In this paper the authors have contributed a knowledge management framework for higher educational institutions characterized by a set of factors that impact the IT based KM initiatives in HEIs. Owing to the diversity in the functional domains of higher educational institutions and the determinants in each domain, the study has distilled only the more relevant domains and determinants for the evaluation of the framework. The framework can be utilised to cover a wider aspect of higher educational institutions. IT based KM intervention was found to be low in all the functional domains.

The authors argue that KM initiatives in higher educational institutions be used as part of institutional strategies to

identify the knowledge needs and wants of stakeholders, design services to fulfill the knowledge needs and quantitatively and qualitatively measure the effectiveness of the knowledge management initiatives. An institution needs to have consistent and well defined expectations and opportunities for sharing information organization wide (Petrides, 2004).

The proposed KM framework can be used as a guide to develop institutional knowledge management models based on the institutional goals and objectives, functional domains and the determinants that will impact KM initiatives. With respect to IT, the framework is a significant knowledge enabler. This can be explained in terms of the potential of IT infrastructure in facilitating KM processes by providing a platform for knowledge storage and sharing. Information technology can be successfully used to facilitate knowledge acquisition and dissemination, knowledge storage in the form of a knowledge repository accessible to all the members of the organization, supporting collaboration among employees and fostering centered, real time, integrated systems. Thus IT can play an important role in advancing the institutional knowledge.

The implementation of a knowledge management framework in higher educational institutions will provide the stakeholders with opportunities of cross functional, inter and intra organizational knowledge sharing, collaborative problem solving, enhanced decision making, shorter development cycles and building of the competitive advantage. At the same time the implementation will be impeded by factors contributing to integration of various processes and cycles, conversion to services, adaptability threats, lack of commitment and barriers to knowledge sharing attributed by institutional hierarchy, geographical barriers and human nature.

Appendix 1: Functional Domains and Determinants for KM

	Planning and Development	**Institutional Research**
D1	Goals, objectives, vision, mission, targets and quality policy	In house publications
D2	Plans and policies	Research areas
D3	Reports by review committees and accreditation bodies	E-journals
D4	Competitor data	Latest trends in research
D5	Data related to assessment of procedures and processes	List of journals
D6		Research grants and facilities
	Industrial Projects and Consultancy	**Placement services**
D1	Project synopsis/proposals	Company data (salary packages, turnover, job profiles, promotion policies
D2	Consultancy areas of faculty	Industry trends
D3	Cost and time estimates	Approved procedures and processes
D4	Data on project failures	Top recruiters
D5	Project team structures used	Feedback from companies
D6	Deployment of resources to project teams	Nature of interview sessions
D7	Clients / customers	Alumni data
	Faculty recruitment process	**Institutional administrative services**
D1	Areas in which faculty is generally surplus / deficient	Procedures and formats of all forms and reports
D2	Faculty cadre ratio	Copy of schedules
D3	Curriculum	Rules and regulations
D4	Reasons for faculty mobility	HR policies for training and promotions
D5	Administrative responsibilities expected from faculty	Minutes of meetings
	Institutional teaching and learning process	**Performance Evaluation of the faculty**
D1	Teaching material	Results
D2	Course plans	Publications
D3	Curriculum	Industrial Consultancy
D4	Question banks, assignments and case studies	Student Project work
D5	Typical problems faced by students	Student feedback
D7	Frequently asked	Seminars and

	Questions (FAQs)	conferences organized by the faculty
D8	Effective teaching methodologies used by faculty for specific topics	Seminars, workshops and conferences attended by the faculty
D9	Related research	Administrative responsibility
D 10	Related projects	Personal Skills
D 11	Industry interfaces	Initiatives for self improvement and career development
	Student Affairs	
D1	Updated database of institutional resources, policies and procedures related to admissions, examinations, fees, financial aids, student counseling facilities, library etc.	
D2	A portal for placement facilities hosting information employers with contact details, package offered, job profile etc	
D3	Updated database of co-curricular and extra curricular activities and resources	
D4	Frequent problems encountered by students and their solutions	

Appendix 2: Conformance to KM for Determinants in HEI Functional Domains

(KA – Knowledge Acquisition, KS – Knowledge Structuring & Storage, KD – Knowledge Dissemination)

		KA %	KS %	KD %
Institutional Planning and Development	D1	41.45	38.82	31.58
	D2	42.76	39.47	32.89
	D3	38.16	34.21	34.21
	D4	30.92	29.61	24.34
	D5	32.24	28.29	25.66
Institutional Research	D1	44.74	36.18	38.16
	D2	45.39	33.55	34.87
	D3	46.71	42.76	36.18
	D4	36.18	30.92	28.29
	D5	46.05	44.74	39.47
	D6	41.45	38.16	32.89
Industrial Projects and Consultancy	D1	36.18	28.29	25
	D2	34.21	31.58	24.34
	D3	26.32	20.39	17.76
	D4	25.66	21.05	14.47
	D5	26.32	23.03	17.76
	D6	26.97	23.68	18.42
	D7	29.61	34.21	31.58
Placement	D1	47.37	44.74	41.45
services	D2	45.39	42.76	42.76
	D3	48.03	44.74	42.76
	D4	45.39	42.11	40.79
	D5	21.71	23.68	17.11
	D6	18.42	17.11	16.45
	D7	48.03	36.18	32.89
Institutional teaching and learning process	D1	47.37	36.18	28.29
	D2	47.37	44.74	43.42
	D3	47.37	46.05	44.74
	D4	41.45	29.61	28.29
	D5	29.61	23.03	16.45
	D6	28.29	23.03	18.42
	D7	26.32	16.45	14.47
	D8	34.21	30.92	28.95
	D9	30.92	25	21.05
	D10	26.97	21.71	18.42
	D11	23.03	18.42	17.11
Faculty recruitment process	D1	49.34	48.03	44.74
	D2	48.03	46.05	44.74
	D3	47.37	46.71	42.76
	D4	29.61	28.29	23.03
	D5	49.34	48.03	44.74
Performance Evaluation of the faculty	D1	48.03	45.39	38.82
	D2	47.37	44.74	36.84
	D3	48.68	45.39	40.13
	D4	48.03	45.39	42.76
	D5	29.61	25	19.08
	D6	44.74	43.42	41.45
	D7	47.37	44.74	41.45
	D8	46.05	44.74	43.42
	D9	48.68	47.37	44.08
	D10	44.74	40.13	40.13
	D11	48.03	44.74	40.13
Institutional administrative services	D1	48.03	46.05	41.45
	D2	48.03	39.47	38.16
	D3	48.68	44.74	37.5
	D4	46.05	40.79	39.47
	D5	49.34	46.71	43.42
Student Affairs	D1	49.34	48.03	47.37
	D2	40.13	39.47	33.55
	D3	33.55	32.89	30.92
	D4	29.61	28.29	27.63

Appendix 3 : Conformance to Knowledge Management the K-ASD Framework

Phases of KM Framework	No. of Deter-minants	% of Conformance to KM
Knowledge Acquisition	61	39.77%
Knowledge Structuring	61	36.06%

Knowledge Dissemination	61	32.61%

Appendix 4 Conformance to Knowledge Management Mechanisms in HEI Functional Domains

Functional Domain	**Percentage of Conformance to Knowledge Management**			
	No. of Deter-minants	KA %	KS %	KD %
Institutional Planning and Development	5	37.11	34.08	29.74
Institutional Research	6	43.42	37.72	34.98
Industrial Projects and Consultancy	7	29.32	26.03	21.33
Placement Services	7	39.19	35.90	33.46
Institutional Teaching and Learning Process	11	34.81	28.65	25.42
Faculty recruitment Process	5	44.74	43.42	40.00
Performance Evaluation of Faculty	11	45.57	42.82	38.94
Institutional Administrative Services	5	48.02	43.55	40.00
Student Affairs	4	38.16	37.17	34.87
MEAN		39.77	36.06	32.61
VARIANCE		86.802	91.584	97.768

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Mamta Bhusry is a PhD Research Scholar in the field of Knowledge Management in Technical Education She has a B.Tech in Electrical Engineering and M.Tech in Information Technology. She has a total of 19 years of academic and the industrial experience. She is presently working as Associate Professor in the Department of Computer Science engineering at Ajay Kumar Garg Engineering College, Ghaziabad, India. She has published papers on knowledge management and has authored a book on E-Commerce. She has guided various B.Tech and M.Tech level projects.

Dr. Jayanti Ranjan is a PhD from Jamia Millia Islamia Central University, India in the field of data mining and has 16 years of teaching experience. She is presently working as Professor, Information Systems Management at Institute of Management Technology, Ghaziabad, India. She has published various papers on data clustering, data mining, database security, business intelligence, educational technologies that appeared in Emerald Publishers, Inderscience Publishers, World scientific Publishers, Asian Network for Scientific Information and other refereed journals. She is serving on the editorial board for the international journal – Information Technology Journal, Inter disciplinary Journal of Information Knowledge and Management, UK, Journal of Theoretical and Applied Information Technology. She is also the Chairman, International Relations, IMT Ghaziabad.