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A Web-Based Knowledge Management System

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Abstract—Educationists approve new technologies to fulfill the various requirements of the learners. Knowledge Management (KM) is one of newly developed theme to improve teaching-learning practices continuously. The main concern is to advance the quality of teaching-learning process which will help to retain teachers in the college and to produce students who are employable. Education is intimately associated with knowledge management to identify create and share updated information and existing knowledge with everyone. This system proposes to support collaborative learning among teachers and students. In higher educational institution have information of exchange of ideas and opinions between professors and students would definitely increase the possibilities for successful results. There is necessity for educational institutions having information to take initiatives to share knowledge. In this environment students get necessary information about references, ebook, latest technology information, white papers and so on.

Keywords- *implementation;knowledge management system; system analysis; system design*

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I. INTRODUCTION

Knowledge is increasingly being recognized as the new strategic imperative of organizations. Today knowledge is still considered as power an enormous power but need of knowledge is depends upon organization and changed too. The new paradigm is that within the organization knowledge must be shared in order for it to grow. It has been shown that the organization that shares knowledge among its management and staff grows stronger and becomes more competitive. Knowledge is power to accomplished organization needs. Knowledge management is core of the sharing of knowledge. In information era, knowledge is becoming a crucial organizational resource that provides competitive advantage and giving rise to knowledge management (KM) initiatives. Organizations have collected and stored vast amount of data. However, discovering valuable information hidden in the data is hard to do this transforming these data into valuable is necessary. KM has several challenges but managing knowledge resources is one of it. Organizations are employing information technology in knowledge management to aid creation sharing integration and distribution of knowledge [2].

There have been many firms and organizations that have implemented KM principles methods practices or tools. However, academic institutions in particular management institutes have taken more interest recently in introducing KM approaches. From the academic learning point of view Knowledge Management (KM) by its nature especially is suitable.

II. KNOWLEDGE MANAGEMENT SYSTEM

A knowledge management system is an information management system with all the tools required to help information into knowledge. Knowledge management (KM) is the process of capturing, rising, distributing, and effectively using organizational knowledge. Knowledge management efforts overlap with organizational learning and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge [7].

Knowledge transformation processes understood as a set of descriptions or a collection of facts and rules to be transferred to the learner through them internalizing them as social constructions [36].

Knowledge management is about getting the right knowledge to the right person at the right time. This may not seem so complex but it implies a strong tie to corporate strategy understanding of where and in what forms knowledge exists creating processes that span organizational functions and ensuring that initiatives are accepted and supported by organizational members. Knowledge management may also contain new knowledge creation or it may focus on knowledge sharing, storage, and enhancement.

A. Six Steps Of KM Process

Figure 1. Six Steps of KM Process

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1) Identify: Initial crucial step is knowledge process. Critical knowledge needed to build the core competencies of the organization is identified. The knowledge gaps in the organization are identified in the step.

2) Create: Addresses knowledge gaps through knowledge conversion and generation of new knowledge some ways to create new knowledge individual level, team level , organizational level.

3) Classify: Knowledge identified should be classified in clusters. Mind-mapping can be used for classifying knowledge. Classified knowledge can be easily stored and shared.

4) Store: It is use collection and preservation of organizational knowledge. Various forms of storage are given. Organize the data for easy retrieval.

5) Share: It is used for regular and sustained exchange of knowledge. It fosters continuous learning to achieve business goals. Mutual trust and benefit help foster a culture of sharing. Technology can be used to enhance sharing.

6) Apply: It is use and reuse of knowledge in the organization. It translates knowledge into action. Knowledge only adds values when it is used to improve products and services.

B. Benefits of KMS

A knowledge management system (KMS) is an information system designed particularly to assist the sharing and integration of knowledge. Knowledge management addresses the living knowledge inside the organization and operational level, from strategic to executive. KMS has all the necessary tools to help company representatives turn information into knowledge.

A KMS that is well-organized can help and business increase staff performance student satisfaction and quality of service. Knowledge is the core of operation and innovation therefore one of the most valuable assets a company might have. The advantages of a knowledge management system can be significant and rewarding when all the keys are in place.

- It possible to support new technologies easily and for future use it capture new knowledge.
- Due to the existing knowledge base, the student can quickly find all the information they need.
- Facilitates student stay up to date on various, ever-changing technologies.
- Improves staff and student engagement and communication.
- Helps in delivering better measurement and accountability.

III. SYSTEM ANALYSIS

Analysis has been done to identify the problem area in information management at organization. Many knowledge base businesses like consulting services, engineering, software industries or institutions are acknowledging the need of KMS.

positive impact on productivity, based largely on the effect of time savings realized by leveraging a cost-effective KM system across a large population of student when result showed.

A. Analysis

During the analysis phase of the prototype, faculty members and students were interviewed to discover their needs in a KMS. Speaking directly to them gave them a chance to share their wishes,wants and opinions. A discovery was made currently faculties and students are not using any system to capture the information. This system design would be an ideal for that application. However, system does not cover all the aspect of KMS. The faculty interviewed student or faculty to desire for the application to cover main issues, generic concepts and particular sticking points. General parameters include keeping topics relevant to current courses and research paper and accessibility of this KMS to everyone enrolled in a course. The KMS should give confidence of reading the textbook. Often the textbook material compliments the lectures and containing a substantial amount of course material. Reading a textbook for a technical class is a good habit that serves as an essential skill for any IT professional. The students should have the opportunity to collaborate on input. This will increase acceptance and use of the KMS.
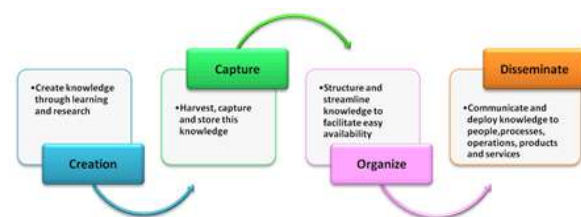
B. Block Diagram

Figure 2.   General Structure of KMS

The above diagram shows general structure of knowledge management system where creation block depicts creating knowledge through learning and research. Next block is capture where harvesting capturing and storing the knowledge. Organize block describe structure and modernize of knowledge to facilitate easy availability. Finally knowledge is distribute means deploy knowledge to people to do processes operations and services.

C. Problem Definition

Part of the problem is that there is little consensus on what knowledge is and this makes KM a very ambiguous concept. For instance some views which regard knowledge as virtually synonymous with information would consider a "KM" initiative to be something much shallower and technology driven. Failure and success are linked to expectations. You can only fail when you fall short knowledge. KM went through a exhortation phase and during that time expectations were high. If one accesses failure it means lack of expection to complete [37]. The biggest challenge in Knowledge Management is to ensure participation by the people or student in the knowledge sharing, teamwork and re-use to achieve business results. In organisation requires changing conventional mindsets and organisational culture from "knowledge-hoarding" (to keep hidden or private) to "knowledge-sharing" (share among team members) and creating an atmosphere of trust. This is achieved through a combination of motivation and rewards, re-alignment of performance appraisal systems, and other measurement systems. A key to success in Knowledge Management is to provide people recognition, visibility and credit as "experts" in their respective areas of specialization. From this discussion the need of tacit to explicit knowledge is occurred.

IV. SYSTEM DESIGN

Web application having database usually used three tier architecture. Architecture is skeleton of model through which organization create their project. Three tier architecture has presentation layer, business layer and data layer. Presentation layer is work as user interface which work on client system. Business layer is running on a separate server and data layer having database is running on its own database server. Client will request for some work to do. Business layer is interface between presentation layer and data layer. Middle layer direct communicate to database to response client request. Database can perform operation like section, deletion, retrieval, medication etc.

As more users access the system a three-tier solution is more scalable than the other solution because you can add as many middle tiers as needed to ensure good performance. Security is also the best in the three-tier architecture because the middle tier protects the database tier. (See figure 3.1).

Figure 3. Architecture of KMS.

Front end will interact with document service to retrieve, save or delete the documents which are uploaded on the system. This service based access to the database and directory structure will ensure the security and reusability of a system.
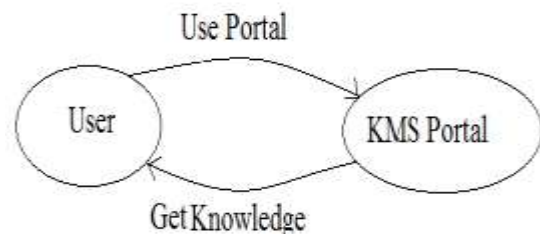
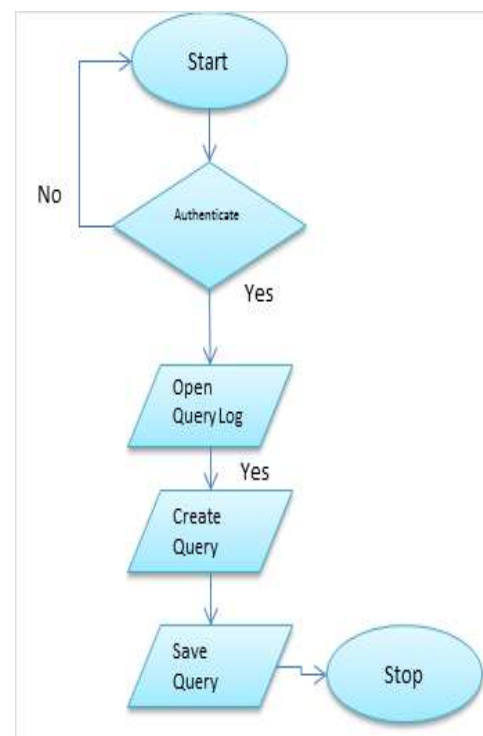*A. Data Flow Diagram*

Figure 4. Zero Level DFD

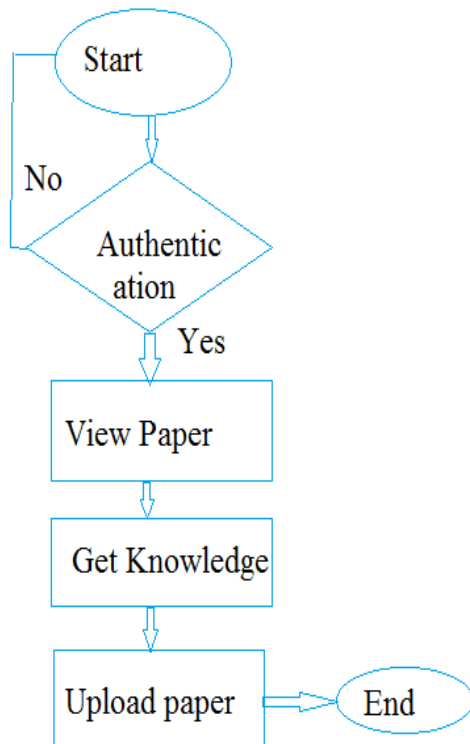Figure 5. Steps to flow of creating query

Figure 6.   Steps to flow of Research Paper

V.   IMPLEMENTATION

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus is being considered to be the most critical stage in achieving a successful new system and in giving user confidence that the new system will work and be effective. The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in work product. It provides a way to check the functionality of components, sub assemblies, assemblies and /or a finished product it is the process of exercising and user expectations and does not fail in an unacceptable manner. There are various types of test.   Each test type addresses a specific testing requirement.

To achieve "Knowledge" a core requirement is that each student or staff can control who are authorized to access to her own documents paper and etc. The security and performance requirements are summarized as follows:

Data confidentiality: Unauthorized users who do not possess username or password student or staff is not going to access their profile.

Data Registration: User registration is module in which the students or lecturers are able to login the main application. User has to fill the entire registration field. After registration the user will login to application with their ID and password. In user registration module, user enter the his/her information like name, mobile no mail ID etc and get encrypted password which is saved in database.

Knowledge Forum: Knowledge forum is one place where student and faculties will get the answer of query which is asked by the student. Any student or lecturer if know the answer then it would be replied and get the knowledge.

Knowledge Capital: Knowledge capital is one place where student can create their paper, seminar and upload to portal to get knowledge from that. Students can save the file for their uses.

Figure 7.   Login Portal

Figure 8.   Home

Figure 9.   Registration Page Student
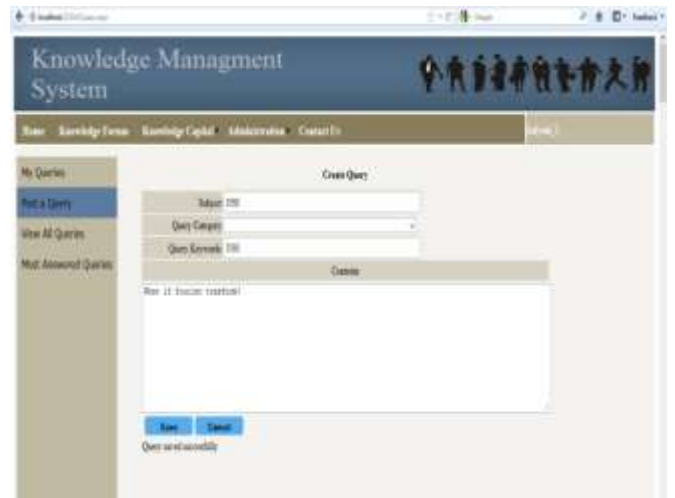
FIGURE 10.   All Research Paper

Figure 11. Create Research paper

FIGURE 12.   My Query

Figure 13. Post Query

FIGURE 14.   View Query

Figure 15. Reply Query

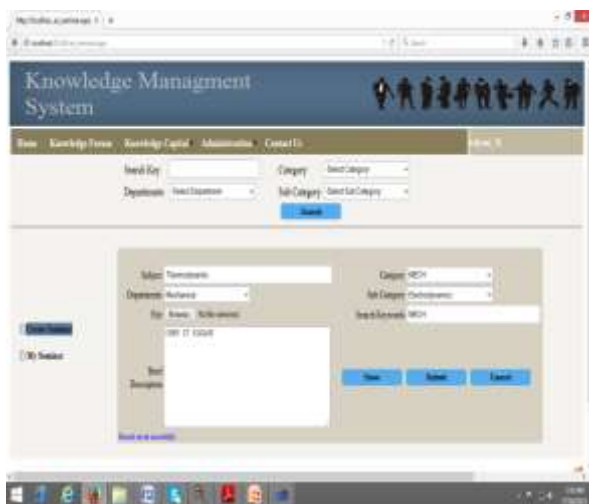Figure 16. Most Answered Query

Figure 17. Create Seminar

Figure 18. My Seminar

VI. CONCLUSION

This framework is used for sharing of knowledge. Data mining has lot of application but knowledge sharing application is one of it. A web based knowledge management system is used for sharing knowledge to student or teacher. It helps to increase efficiency of student of understanding and to enhance compatibility. Sharing knowledge is big challenge in knowledge management system. It is necessity of mind set people should change from my knowledge to our knowledge. Knowledge is depends on individual person. Depending on need of knowledge it is get extracted. It means tacit knowledge to explicit knowledge.

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