

Development of a Web Academic Appeal Portal: A KMS Approach

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ABSTRACT— *The study is a development of Web Academic Portal using a Knowledge Management System (KMS) Approach. The application of KM is a new branch of learning and a way of finding what is needed in the firm or organization that includes KM activities such as: discovering of a new knowledge, capturing the subsisting knowledge, sharing and applying knowledge that KM will provide the benefits in a cost-effective fashion (Irma Becerra-Fernandez, 2004).*

The study answered the following questions: 1.) What is the KM Model to be used in the proposed study? 2.) What are the features of the proposed study? and 3.) What is the appropriate algorithm to be used on the proposed study?

The output of the research is a Web Academic Portal that will help to discover, capture and utilize the knowledge and turn into intellectual assets of the organization.

Keywords— Knowledge Management, Knowledge Management System, KM Model, Academic Appeal, K-means, Web Portal, Prototyping

1. INTRODUCTION

The applications of knowledge management nowadays spread to any organizations including government agencies, research, development departments, universities and others. Indeed, the management of information becomes domain to the Academic Appeal Committee. The recent advances in information technology and systems, underpin information management with the growing interest of knowledge management. It has been raised the difference between information and knowledge whilst information management to knowledge management. (Lee, 2005).

The escalating use of Knowledge Management (KM) has been used globally to bring new challenges to any colleges or universities. It excavates the needs and demands experienced in the academic appeal realm. Through this, the KM activities are been used to manage knowledge resources to adapt, accept, utilize, and improve the current process. The drawn of this desire is called “Knowledge Management (KM)”. Applying KM process, activities and information systems is called Knowledge Management Systems (KMS).

Moreover, nowadays there are few, efficient and effective methodologies to help in designing the system with dual purposes of managing data and information knowledge for helping the decision-maker with the KM integration. Application of Knowledge Management System (KMS) in any firms requires data mining on the input and histories of stakeholders along with the provisions or sharing of electronic documents to help them in critical decisions.

Web Academic Portal is an innovative tool (computerized) system used to help the institution to preserve, capture, and use, disseminates the knowledge and its application to each stakeholder in doing their everyday task.

Kumar, U. (2013), stated that development of KMS in any type of IT portal provide the activities such as : storing, retrieving, capturing and uses knowledge, improves collaboration, finds sources of knowledge, mines repositories for

hidden knowledge, and enhances the KM process. Thus, the primary objective to increase the level of organization's effectiveness is to convey knowledge from the past to be used in present activities.

Applying KM specifically in preserving of knowledge in any Higher Educational Institution (HEI) in Gulf Country including Sultanate of Oman is very essential. It gives the great impact as the universities discovered the knowledge from their resources and becomes an organization's intellectual asset. KM can be used as an organizational asset's when the students filed an appeal to raise their problem in grades or marks. Grades or Marks is value that the students obtain during his/her study after completing specific subject or course. Projection on the number of students who will apply for the appeal on the next semester is a great prospective of preserving the captured knowledge. It becomes intellectual capital assets of its colleges or universities.

College or Universities is the important key factor of the student's to form the student's sense of well-being safety in terms of complaints, problem, issues or concern related to the involvement in the college or university. In order to change such things the student can file a complaint or an appeal. Academic Appeal is a procedure which allows the students in certain circumstances to ask for a review of a decision relating to the grades or academic progress. It comes as a formal request brought by the student to change the grade, to re-sit, make-up, file complaint and other issues of standards of academic industry. Students have the right to receive the clear explanation with valid proof to ensure efficient and orderly investigation is done on their part.

Currently, managing an appeal system in any college or universities in Oman provides a tedium work because it varies in different kinds of appeal that gives more complicated in terms of decision making before getting the initial approval from the stakeholders. The proponents choose the Academic Appeal because of discovering the chances to define the needs and demands of appeal domain in terms of organizing, discovering, and sharing the knowledge with the KM integration's conformance with the standards of academic industry.

2. THEORETICAL AND CONCEPTUAL FRAMEWORK OF THE STUDY

Web Academic Appeal Portal System is the solution to the needs and demands of Appeal Committee members as to replace the manual system. *Frost*, discussed the model of KM (see figure 1) that attempts to offer a more realistic overview of the KM process. It has three broad categories overlapped and interacts with one another. It further shows which of the three categories are more people oriented or more technology focused. Seemingly, knowledge sharing is technology focused. (*Frost, 2010*).

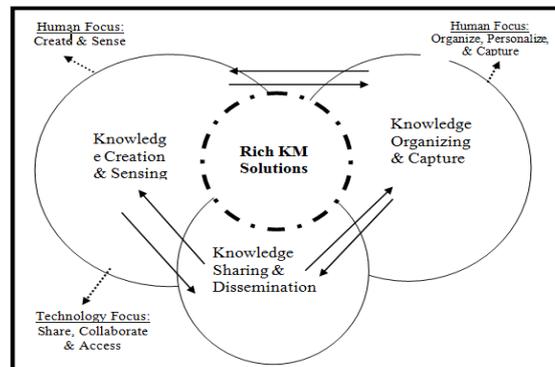


Figure 1. – KM Model by Botha – Frost (2010)

The KM Model by Botha is the theoretical framework in the study because it shows how the flows of KM activities are done in academic appeal domain with the KM approach. The KM activities are overlapped to one another that include knowledge creation & sensing, knowledge organizing & capture, and knowledge sharing & dissemination.

The proponents designed a conceptual framework that is used to provide the basis of understanding and showing the relationships of how the existing and proposed system works. In the figure 2 diagram as shown below, the readers would find it easier to understand the existing and the proposed software.

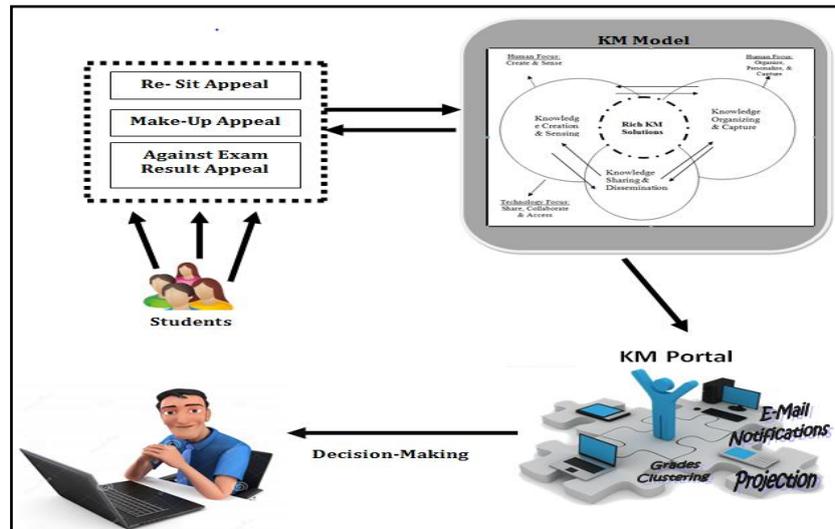


Figure 2- Conceptual Framework of the Study

Students

The students can file an appeal by filling-in the re-sit, make-up and appeal against exam result form. The system automatically projects the students who are eligible to file an appeal for re-sit, make-up and against exam result. The students' grade last semester will be the supplied information for satisfying the eligibility of appeals and clustered accordingly.

KM Model

The KM Model that the proponents will use is KM Model from Botha. The model showed KM Process such as knowledge creation & sensing, knowledge organizing & capture, and knowledge sharing & dissemination. The KM process needs to work together by identifying the knowledge creation in terms of projection and organizing it in an orderly manner before sharing to the stakeholders.

Web Academic Appeal Portal

It represents the system or software as a KM solution. It includes the features such as: clustering, automatic projection, e-mail notification, audit trail for approval of appeal and printing of appeal reports.

Decision-Maker

It represents people who will decide to allow students to file the re-sit, makeup and against exam result through a projection, but still the final approval of decisions depends on the decision maker of an Appeal Committee.

3. STATEMENT OF THE PROBLEM

This study would like to develop a Web Academic Appeal Portal System using Knowledge Management Approach.

Specifically, the proponents formulate the following problems:

1. What is the KM Model to be used in the proposed study?
2. What are the features of the proposed study?
3. What are the appropriate algorithms to be used on the proposed study?

4. METHOD USED IN DEVELOPING THE SYSTEM

Methodology is one of the most important steps towards software development where it comprises to the proponent's strategic planning towards the life cycle of the system being developed. This is a step-by-step discussion of the methodology adaptation. The method that was used in developing the software is prototype paradigm or sometimes

called as rapid prototyping. It is one of the effective approaches used in the development that can perform in an existing simulation before committing to a complete rework effort.

Pressman (2010) stated that *Prototyping* paradigm begins with communication. The prototype is then deployed and evaluated by stakeholders, who provide feedback that is used to further refine requirements. It also defines the overall objectives of the software, identify requirements, and outline areas where further definition is mandatory.

Figure 3, shows the prototyping model as system methodology in the developed system. It comprises of phases such as requirements and analysis, quick plan, modeling of quick design, construction of prototype, and deployment delivery & feedback. Consequently, the proponents used this as an effective paradigm because it address to the development of an actual system that relies on the needs of the academic appeal.

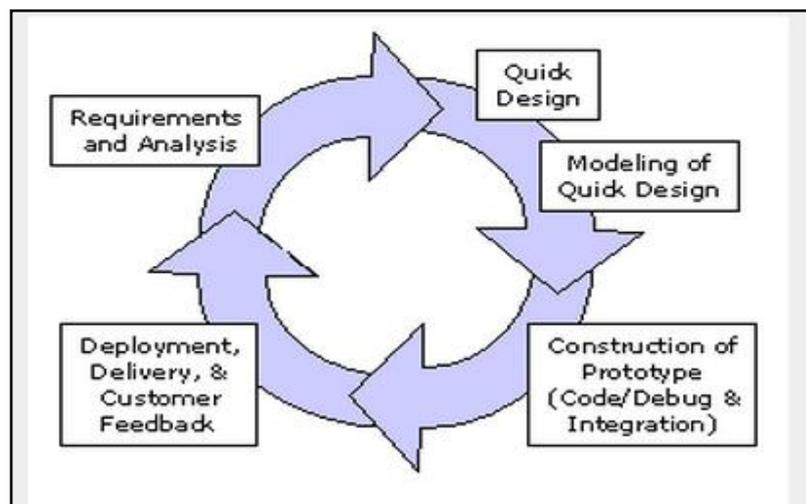


Figure 3 – Prototyping Paradigm- Pressman (2010)

The proponents followed prototyping paradigm on the development of the Web Portal. They produced a prototype of the portal for pilot testing and the suggestions from the end users were considered to come up with a revised system.

5. SUMMARY

The existing manual process done by the appeal committee will shorten the time in processing the appeal; hence, it will also lessen the appeal members to wait for a long queue to get the initial approval from the stakeholders. Obtaining the progress of appeal process and provides on-time result as well as tracking of appeal is one of the benefits of the study specifically to the Students.

The study answered the following questions:

1. What is the KM Model to be used in the proposed study?

Even though, a lot of KM Models can be applied to the study, but the proponents choose the KM Model by Botha, because of connections to one another. As the needed requirements, the knowledge discovery, knowledge capture, knowledge sharing and knowledge application must be connected and shown of people and technology tilting which is very essential in developing the web portal.

2. What are the features of the proposed study?

The features of the Web Portal includes: automatic clustering of appeal, e-mail notifications, audit trail and projection of the students who will take the re-sit and make-up appeal and appeal against exam result. In addition, this study will provide the readiness to the course coordinator to prepare the final exam ahead of time because of appeal's projection.

3. What is the appropriate algorithm to be used on the proposed study?

K-Means algorithm was used on the logical side of the system. It is a type of clustering algorithm, where centroids divided or clustered it to the designated groups of type of appeals. It is important because it provides automatic clustering that depends on the case of proof and grounds of students applying an appeal.

6. RECOMMENDATIONS

The researchers were drawn the following recommendations:

- The proposed Web Academic Appeal Portal will be going to implement in all government colleges and universities of Sultanate of Oman.
- It must have an examination module included in the study.
- Automatic scheduling for the appeal.

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