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Is the Cloud Educational Enterprise Resource Planning the Answer to Traditional Educational Enterprise Resource Planning Challenges in Universities?

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Abstract

Universities, the new target for Enterprise Resource Planning (ERP) providers such as Google, SAP and Databiz to provide such systems in order to manage their activities in a manner that add value to information from operations and main processes. However challenges have showed to get in the way of applying such systems, although some other universities applied them, and yet failed to get the expected outcomes.

In this study the writer will demonstrate Educational Enterprise Resource Planning (EERP) concept along side with the challenges faced upon application; through a field study that conducted interviews with project managers and operators working on EERP in 10 universities in KSA, Jordan and UAE. Later the writer will explain the Cloud Educational Enterprise Resource Planning (CEERP) concept as a solution in the challenges faced upon EERP application in order to gain maximum benefit from enterprise system in educational institutes.

Keywords: Educational Enterprise Resource Planning (EERP), Cloud Educational Enterprise Resource Planning (CEERP), Challenges of EERP in universities

1. Introduction

Academic institutes including universities or in other words higher education institutes, are known for having a high flow of data and information, this is mainly related to operations of students and faculty in addition to the relations with local and international community and the associates in the same field. These information are considered the main task that add value to these institutes, this value is used as a competitive advantage in order to attract students and researchers and to enhance the institute academic standings. Accordingly these institutes must manage this information in high reliability to accomplish those goals.

Universities are competing by spending large amounts of money that exceeds 20 million dollars to establish systems to manage data and information flow related to operations, in order to aid in the decision support of investments and academic development. Most of these universities designed their systems as portals to provide services to users such as (1):

1- Content support such as papers, electronic books, email and other.

2- Direct learning and training.

3- Environment interaction.

4- Special services such as distance learning, housing management and other.

All those systems must help in the providing integrated and related information through data flow from student related divisions, human resources, supplies, financial management, public relations, investors and others; this made higher education institutes to invest heavily in enterprise systems.

On the other hand; the major Enterprise Resource Planning (ERP) systems providers took notice of the services

provided by universities to manage their information flow, which leaded to raise the competition to provide higher education institutes systems to aid in information flow to reach competitive advantage. Many of these institutes have already applied these systems; but as many as 30% successfully employed them in an effective manner (2), and as a reflex to these results a new providers emerged to provide new services that called cloud systems.

2. Educational Enterprise Resource Planning systems (EERP)

Enterprise systems helped organizations to solve many issues through work-flow management, improving efficiency and reducing errors (1). Enterprise systems can be considered an Integral information solution or practice connected information system or integrated application package.(3) which help in controlling organization functions through unified information structure. A lot of higher education institutes and universities started taking attention to these systems due to the added value and the services provided to the institute, which also raised the attention to develop their own application of ERP (13). Al-Fawaz defined the ERP as: “ERP is an enterprise wide-information system that integrates and control all the business processes in the entire organization” (4).

ERP systems became essential due to the fact that they cover all organization activities (internal and external) through information flow management of the organization function which eventually add value to customers, suppliers and stakeholders. ERP system adds many values to educational institutes such as (6):

- Student Database Management
- Student Attendance Tracking
- Faculty Information and Attendance
- Integrated Student Admission, Advising, Course offering, Course Selection, Pre-requisite Management
- Students Fees Collection
- Students Marks Entry and Tabulation
- Library Management
- Human Resource Management (HRM)
- Financial Accounting
- Integrated Security Module

So further more we can say that EERP must have the following main characteristics (12):

- Multiple in scope, tracking activities including HR, students and financial systems.
- Integrated such that when data are added in one area, information also changes in all related areas and functions.
- Modular in structure.

Key business processes enhanced by standard systems and redesigned according to best practices.

3. Cloud EERP

As a result to the technological and communication evolution in the past decade; a new concept emerged that is called Cloud Computing.

Cloud computing is a new computing model that employs unique technology that provides infrastructure, networking, software, and development platform as available services through internet (10).

Public and private organizations all took notice of this technology and showed great interest in it; in 2009, 56.3$ Billion was invested in cloud computing, and according to IDC2 report, it is estimated that cloud computing

related investment will reach 150.1$ billion in 2013 (7).

A lot of studies investigated in cloud computing, on one hand studies focused on technical aspect of this technology such as security and high quality of services provided through clouds, and on the other hand it focused on managerial aspects and how to gain highest customer satisfaction. Security issue was a big obstacle in this technology in the earlier stages; but recently many cases applied cloud computing successfully regardless of this obstacle, for example mega organizations provided cloud computing services such as Microsoft, Google, Red hat and SAP, where in general more than 9.5$ billion was spent on cloud computing security in 2011, and it is expected to reach up to 13.5$ billion in 2013 (10). The huge interest in cloud computing has forced the big providers to consider new orientations in cloud computing; where organizations like SAP, Amazon and Google aimed to provide ERP in combination with cloud computing, this combination provided enterprise resources planning, CRM, e-procurement and other services (10).

Cloud computing providers are starting to target higher education institutes and universities with cloud computing services. Due to the fact that universities are in need to an enterprise system to manage their information flow and daily processes (8). But the question raised now; is it more convenient for universities to gain the services from enterprise system through traditional EERP or Cloud EERP.

4. What is more suitable for universities EERP or Cloud EERP (CEERP)?

The project of applying EERP in higher education institutes and universities needs thorough and precise planning, and preparations. At the same time universities must be enforce their readiness on many levels; communication infrastructure, leadership, culture, project management, technology, resources and efforts (2). Unexpected changes could be a major cause to failure in EERP application, despite many advantages and successful cases in applying EERP in universities; there are many studies that mention failures in such applications due to the fact that application was not planned perfectly (3). So the success of EERP is facing many challenges that mainly transformed this system from EERP into data entry system, and disregarding its many advantages and services (5).

In this part of the study we collected challenges that faced by higher education institutes and universities that deal with EERP application, and comparing them to the advantages of CEERP application; in order to identify if universities must apply traditional EERP or CEERP.

CEERP concept emerged to solve challenges faced by EERP (8), in order to illustrate the reasons behind moving from EERP to CEERP; we conducted a survey on 10 universities that applied EERP and on other public universities looking to acquire EERP services in the Middle East. The challenges faced by these universities upon EERP implementation are:

1- Managerial challenges: the main reason is that higher management of these universities does not have the sufficient experience in such projects; adding to that, the natural desire of management to gain fast benefit from such projects, yet it is known that this kind of projects are considered long term projects until we see their benefits, this caused a gap between higher management and system follow up, that eventually spread to the stage of system overlook.

2- Technical difficulties: we can summarize these difficulties in relation to IT resources and skills required to operate EERP. Most of the surveyed universities (84%) confirmed that time allocated for training personnel operating EERP is not enough in order to gain the required skills. In addition employees mentioned that there was an issue with limited customization for each task or system application, since one interface is used for all applications.

Some of the IT challenges where in the continues modification part that needs follow up from the whole team and cooperative personnel.

3- Users: EERP users are different from the ERP users; from the survey, a lot of personnel working on EERP confirmed that the wide spectrum of the system users, their educational backgrounds and their specialties is far aside from each other. Students, employees and faculty all interact with the system.

4- EERP cost: the main challenge reported by the selected sample was the cost; since most of the universities are nonprofit public universities, cost was a main issue due to the yearly budget systems regulated by their governments. And as we mentioned before that EERP system with all peripherals could reach 20$ million; which resulted in a huge effort from the universities to justify such spending. The other challenge was the continues overhead needed to run EERP in order to follow modification, development, training, maintenance and other recurring costs.

Upon processing the challenges acquired by the survey; the writer raised the CEERP subject on the project managers of the selected sample, the managers who run EERP in four of the studied universities were exposed to how they can benefit from cloud computing in the EERP in order to decrease - and in some cases eliminate - the mentioned challenges above, also they were introduced to the fact that most EERP providers such as Databiz, Google, SAP and others started to provide enterprise systems under cloud computing concept (7). So we mention the advantages that could take place from applying a Cloud EERP:

1- Reducing costs: as we are familiar with the cloud computing concept that reduces expenses in IT resources since it is carries out by the provider (4).

2- Exploits and batches: the provider will carry the required efforts to keep the system as safe as possible.

3- Personnel and project management: the need to employ teams to manage and run EERP is no longer needed by the university.

4- Availability: all universities provide internet service; this helped in the CEERP adoption to provide EERP anywhere and anytime (9).

5- Reporting: reports are generated to provide overlook on completion and average system overload, such as stock reports, processing, bandwidth and users (11).

6- Services: CEERP can provide all services provided by EERP such as: course management, collaborative learning, HRM, registration, management and e-mail communication (9).

5. Conclusion

This paper worked on the idea that universities who deal with traditional EERP and looking to benefit from this system should move to CEERP. We have carried out field study on 10 universities that have EERP already, in order to identify challenges faced by EERP system; and to illustrate advantages of CEERP system to reduce or eliminate those challenges.

Writer found positive feedback from managers of EERP on CEERP; however there were some challenges that hold the application of CEERP, mainly the migration to CEERP by universities who already applied EERP is not an easy task due to the fact that they have to score through EERP and move to CEERP application.

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