

Sense of Urgency: The Critical Success Factor of Enterprise Resource Planning (ERP) Implementation in Education Organization in Saudi Arabia (Case Northern Border University)

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Abstract

An ERP system plays significant role in management of business processes. In the recent time, many universities have applied ERP systems. However, few researches have been accompanied regarding these systems in the higher education sector. This paper investigates and analyses the prevailing literature on ERP implementation and try to identify the sense of urgency as the critical success factors for a successful and effective implementation of an ERP at higher education level institutions in Saudi Arabia. This study used an ERP working system known as Madar, in Northern Border University, Saudi Arabia, as a case study to gauge the success in ERP implementation from user and technical perspectives. This paper evidently verifies that the main critical success factors of ERP implementation was project management in Higher Education sector of Saudi Arabia. This study also has participated in academic research by providing the empirical evidence to support the theories of CSFs and ERP implementation success.

Keywords: ERP system, sense of urgency, critical success factors, case study.

1. Introduction

Saudi Arabia is a very attractive nation to study given that there is diverse of social set up. Every aspect of Saudi life is governed by the beliefs of the people, coined from the autonomous religion of Islam in the nation. Though the role of the ERP education planning in the nation needs research, it is really a grey area as there are few such systems available and the whole concept is new. Indeed, the success of this research was fasten on the fact that many Saudi universities increasingly interesting in shifting from the old management style to new digital style, in meanwhile new global economy, ERP has become a central issue for digital campus. What was more encouraging to the research was the fact that the Saudi King Abdullah was a proponent of ERP education planning empowerment, most laws of the land had been relaxed to allow for ERP education planning inclusion in key sectors of the Saudi economy. The actual implementation of this system was the only concern but proposals on how to do so would be welcome to some extent.

The main objective of ERP is to increase the effectiveness by reduce practice and cost of all administration tasks in education environment. However, the rapid change in global economies is having a serious effect on education organization. The research is to realize success factors for ERP education planning inclusion in public sectors especially education organization of the Saudi organization, more needs to be done in order to encourage the implementation success of ERP in Education organization. This study persuades by the failure of ERP implementation in Northern Border University since 2007. Tung et al (2013) asserts that there is need to have a comprehensive structure on education curriculum development. The need to have a school that understands and appreciates corporate values and practices is necessary. The utilization of ERP education planning in the university would foster greater appreciation for protocol and adherence to standards by other employees especially in a multinational firm (Cooke et al, 2013).

The political space for ERP education planning in the Middle East leaves a lot to be desired. There are pathetic percentages of ERP education planning in leadership and even as these numbers exist, their role in society is not one to grant them the political power to champion change in society (Das & Dayal, 2016).

There has been a lot of discussion as the world nears 2015, the year that had been targeted for the achievement of the millennium development goals. Arab governments have been developing Millennium Development Goals (MDG) monitoring reports for the past decade. Most reports have concentrated on the goals attained thus far and the challenges posed to achieve the MDGs. However, they largely ignore the extent to which the MDGs have helped Arab citizens, mainly ERP education planning, to attain their full development potential in light of discriminatory policies and practices (Sika, 2012). Indeed, there has been the challenge of gender appreciation even in an issue as basic as the achievement of millennium development goals in Asia. This is because, even time in memorial, these members of society (ERP education planning) have not been appreciated as contributors to economic growth in the Middle East (Lincoln & Lynham, 2011).

This study consists of four sections, which are introduction, literature review, Madar case study and methodology. Now this study will demonstrate the literature review of all variables.

2. Literature Review

The business sector organizations played a role as a leader in implementing ERP systems. Many of them have implemented ERP systems. Universities in the higher education sector start implementing ERP systems and commence to adopt them and change their old systems. The thoroughly study on ERP systems, the literature review on applying these systems has been accompanied on both organizations in business sector and universities in Higher Education sector with a focus on the critical success or failure factors in ERP implementation. However, few researches have been done regarding ERP implementation in the higher education sector and particularly in Saudi Arabia.

2.1 Change Management

With the dynamic nature of the global environment, change becomes inevitable in the business world if an organization is to survive the transformation process. Embracing change in any organization by the employees may prove challenging if the resistance exists within the organization as such the management need to implement an effective change management process (Burnes, 2011). Change management is a well thought-out approach to ensure that the change process is systematically and smoothly implemented into the operations of an organization to ensure strategic goals are achieved. The understanding of the change management draws complexities because it integrates aspects of behavioral psychology,

system thinking, and engineering to implement in the organization. Success adoption of any change process is highly dependent on the nature of the business operations of an organization, the details of the change process, the employees and the individuals responsible for the change implementation. Furthermore, it remains vital that the employees understand the need for the change (Harvey and Broyles, 2010).

2.2 Enterprise Resource Planning (ERP)

Enterprise Resource Planning is a complex software system that consists of some integrated programs that may be used by a business organization to perform its activities in the most efficient and effective way (Grabski, Leech & Sangster, 2009). ERP may be modified to suit the varied needs of a particular organization depending on the organization's needs. The software helps businesses to analyze, manage and make informed decisions on the performance of companies. ERP aids the organization in dealing with product planning, costing, and the management of inventory, debtors, and creditors (Buonanno et al., 2005). Additionally, the software remains vital in the synchronizing of the administrative functions or departments of an organization, for example, accounting, finance, risk management, human resource and sales and marketing. ERP operates in real time as such does not require updating of operations all the time. The overall objective of the ERP is to allow for the integration processes and activities within the organization to allow for the analysis of activities in a holistic way (Sumner, 2005).

2.2.1 Adoption of an ERP System

The adoption of an ERP system proves to be a challenging endeavor since it is a costly process, time-consuming, and complex to integrate into the business operations. However, the benefits that accrue from the successful implementation of the ERP system outweigh the challenges. The advantages of the ERP system include increased automation of systems; reduction of the overall finances in the organization, real-time transactions, integration of functions, and enables easier networking in the organization. ERP adoption was initially preferred by the large organizations with financial capacity. The majority of Arabic economy is highly dependent on oil and gas production, and the importation of workforce (Al-Turki, 2011). The Kotter's model emphasizes the need for viewing change as urgent in the first step of implementing the change process. Kotter believes the organization needs to help the employees to understand the need for the change and adoption of the new ERP system as this fosters acceptability, participation and ensures faster implementation of the change process. Numerous manufacturing and service organization in Arabic nations are in the process of adopting the ERP systems (Botta-Genoulaz, & Millet, 2006). The major hindrance to the successful implementation of ERP systems in the Arab nations is the failure to regard the change process with a sense of urgency and to practice the required initial methods that prove adoption of the ERP system to be a success in an organization (Hawking, 2014).

The majority of businesses conducted in the Arabic nations are guided by socio-cultural issues. The Islam religion plays a pivotal role. The legal systems developed are based on the principles and teachings of Islam. The language spoken is mainly Arabic. The Arabic language creates a language barrier since most vendors of the systems are foreigners, and the language provides technical limitations (Hawking, 2014). The organizational structures in the Arabic business are characterized by a centralized system of governance, authoritative leadership, low interpersonal employee- manager relationships and communication within the organization and employee are resistant to innovative changes (Al-Turki, 2011).

Sika (2012) concludes that Arab scholars and policy makers have been consumed with writing MDG reports that are devastatingly filled with proportions and figures of ERP education planning's access to education, social, economic, political, and maternal health

authorization without targeting the root of the developmental problem, which lies in discriminatory laws and practices against ERP education planning. Really, one can see the lack of gender appreciation and a lack of grasp of the key factor for millennium development in the Arab world. There needs to be a greater push for equality and a consequent appreciation for the role of ERP education planning; the need to have more of them involved in nation building and governance. The documentation of figures about the literacy levels of the ERP education planning in the nations of Arabic world is but a way to stray from acknowledging that they do play a major role in society and must be respected enough to have a niche carved out for them just like one is available naturally for men.

The Arab world needs not lag behind in development and the appreciation of new ideals and forms of governance. In Western-industrialized countries ERP education planning's participation in the labour force has risen over the past three decades and they have made impressive progress in their careers as managers (Tlaiss & Kauser, 2011). It would be surprising to see a woman being appointed for a management role in the Arabic world even as of the moment. The issue there and all over the world is not really the extent of qualification of ERP education planning as most nations have addressed the education factor to some extent. The challenge is often to provide ERP education planning equal opportunities just like men. There needs to be a sense of appreciation for gender as but a variety and not a weakness. As this happens, more and more qualified personnel will be appointed to management positions based on the fact that they are competing on a neutral ground (Abe, 2014).

Saudi Arabia as a nation reveals many potential investment areas for formal sector employment of its ERP education planning. There are however challenges to the implementation of any such efforts to empower ERP education planning in the nation. The Kingdom's daring decision to expand away from an inherent monotony of petroleum-based economy will necessitate the skills, involvement, and oomph of its most valuable asset: its citizens. In 2007, a great percentage of in Saudi Arabia's labor force was men. The employment rate of the ERP education planning in the labor force was four times that of men; at about 27 percent.

The Kingdom of Saudi Arabia is putting in place measures to improve ERP education planning employment in the formal sectors of the nation's economy. There are however, a host of social, legal, educational, and vocational issues that continue to prevent Saudi ERP education planning's complete participation in the formal employment market, curtailing the Kingdom from attaining its complete economic potential. Despite the fact that involving ERP education planning fully into the job market may not be realized quickly, it can be done. This is to ensure that the Kingdom transitions into a knowledge-based economy.

To begin with, the government of Saudi Arabia must authorize, execute, and implement laws that promote equality in the nation. The Kingdom must be insistent on this equality being geared towards the labor sector of the economy. Policies that promote the employment of ERP education planning and encourage institutional factors to cater for their well-being and success in the school should be given paramount priority. The quota system could be applied to promote the employment of ERP education planning in that out of every group of workers, there must be a significant quota dedicated to this gender. There are many other worker-friendly practices that could be employed as well. For now, all that needs to be done is the encouragement of research into the issue of ERP education planning participation in the labor force of the nation.

The cultural environment for the ERP education planning in the nation is also a concern in the private sector of the nation's employment. The government should commit to overcoming the existing customs and social impedances that bar ERP education planning's success. The government must also overhaul the existing educational and the labor training systems and put in place better ones to get these ERP education systems ready for the labor force. There

should be more educational programs that encourage sciences, and minimize the pressure of harmful gender stereotypes. Such efforts would see more ERP education planning in the formal sectors of employment as they realize the agenda that has already been put in place by the government.

2.2.2 Technology Acceptance Model

The dynamic technological environment, the increase in globalization and the need to maximize the profits of organizations, has necessitated the need for an organization to embrace technological changes. Organization needs to develop and implement information systems that ensure that the organization performs its operations more efficiently and effectively so as to realize its strategic goals and maintain a competitive advantage in the dynamic market both locally and globally (Buonanno et al., 2005). Utilizing of information systems has become an integral part in different types of businesses from SMEs to large organizations. A good example of the information system that may be used by business organizations is the Enterprise Resource Planning.

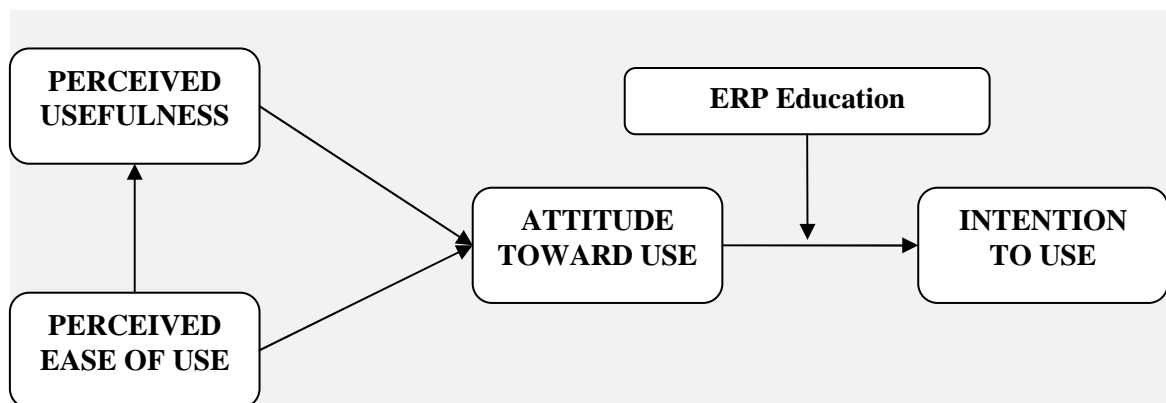


Figure 1: The Technology Acceptance Model Source Davis et al., 1989

In 1989, Davis derived Technology Acceptance Model (TAM) (Davis 1989) to examine the link between information system and users. Davis (1989) develops TAM from Fischbein and Ajzen's (1975) Theory of Reasoned Action which propose that trace a users' behavior in a specific condition. TAM postulates that perceived ease of use and perceived usefulness are significant factors to explain the usage of systems (Figure 1).

2.2.3 Kotter's 8-Stage Model of Change

Before embarking on the change process, it is important to examine the best fit model or theory to be used when implementing the change process in any business organization Whelan-Berryinstance, McKinsey 7-S model, Lewin's change model, and the Kotter's 8 step change model. However, our main focus is drawn to the Kotter's Model of Change. The Kotter's model suggests that the change process needs to be viewed as a campaign that requires the managers to convince and reassure the employees on the need for the change process within the organization. Kotter introduced an eight-step change process. Additionally, he believes that 75% of the employees need to buy into the change process for it to be successfully implemented into the organization (Whelan-Berry & Somerville, 2010).

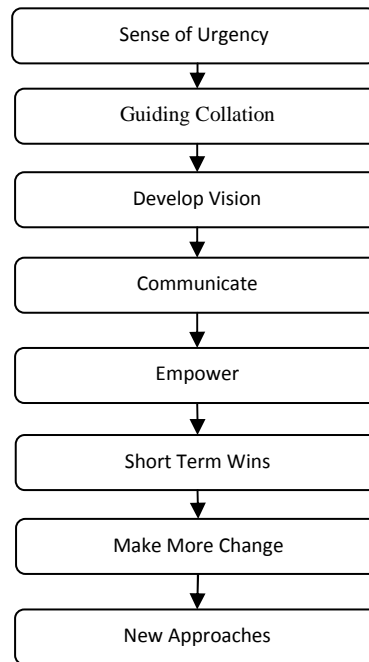


Figure 2: Kotter's 8-stage model of change

The steps of change process involve handling change with a sense of urgency, develop a committee for handling the change process, and create a vision and strategies for the change. Additionally, Kotter suggests the need for communicating the reasons for the change in the organization, empower staff with the ability to change by removing obstacles, and the creation of intermediate goals for the change process. Finally, he believes in the persistence of the change process by increasing its credibility and developing new ideas that revolve around it and ensure change is permanent by developing organizational culture that aligns itself with the change process and its goals. The model stress on the need for communication and the participation of employees in the change process to ensure employees understand the need for change and embrace it positively so as to reduce resistance. Monitoring and evaluation remain important for the success of change.

2.2.4 ERP Critical Success Factors

Over the last 30 years, the Critical Success Factor (CSF) approach has been known by many researchers. The noteworthy researcher was Rockart (1979) who well-defined the CSF as “the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization” (as cited in Amberg, Fischl and Wiener, 2007). Gibson (1999) defined the CSFs in ERP implementation, as "factors needed to ensure a successful ERP project" (as cited in Rasmy, Tharwat and Ashraf, 2005, p2). In order to select the CSFs in this paper, we scrutinize the regularly mentioned CSFs in the prior literature review especially at Ngai, Law, and Wat (2008) research, which deliver all cited CSFs in different researches. Consequently, chosen critical success factors are revealed in Table 1.

Table 1: The Critical Success Factors for technical prospective

Critical Success Factors (CSFs)	Meaning
The commitment and support of Top management	There is adequate support from first level managers and commitment of resources
Change management	There is a structured approach to shifting/transitioning the university from a current state to the desired future state
Project management	Skills and knowledge use in coordinating the scheduling and monitoring of defined activities to ensure that project objectives of are achieved
Business process reengineering and customization	There is some change in work process comes with implementing the ERP System
Training	There is effective training for users
Clarity vision/ goals & objectives	There is a clear picture of the future state

So that select the most manipulating factors in Higher Education sector in Saudi Arabia, our case study was showed in Madar as elucidated in next section.

3.1 Madar Case Study

3.1.1 Background

Saudi Arabia has the major IT market in the Gulf state, with a worth of US\$ 3.4bn in 2008 estimated to increase US\$ 5.6bn by 2013 (Market Research Reports, 2014). Several local benefits in KSA can be employed to achieve a foremost position in e-business world. These comprise geographical location, free economic strategy, communication structure, and population construction. Al-Otaibi and Al-Zahrani (2004) set up that about 69% of organizations in KSA espousing different ERP packages.

The Saudi government has employed off on a US\$ 3.1bn strategy to increase the education system. In their strategy, they emphasis on the best scientific and technological activities in education institutions. Likewise, a separate distribution of SAR 2.4bn has been reserved to pay for training for 400,000 instructors (Market Research Reports, 2014). There are twenty-four governmental universities at Saudi Arabia and twelve of them implementing ERP System (Wikipedia, 2011; Ministry of Higher Education, 2010). By contacting each university, these twelve universities are as follows: King Saud university (KSU) (2007), King Fahd University of Petroleum & Minerals (2007), Qassim University (2007), Al-jouf

University (2008), Hail University (2010), King Abdullah University (2010), King Saud Bin Abdulaziz University (2011), Taibah university (2011), Islamic University in Almadinah (2011), King AbdulAziz University in Jeddah (2011), King Faisal University (2011), Shaqra University (2011) Northern Border University (2013). Since 2007, universities in Saudi Arabia begin to adopt ERP systems and the number is going high till now.

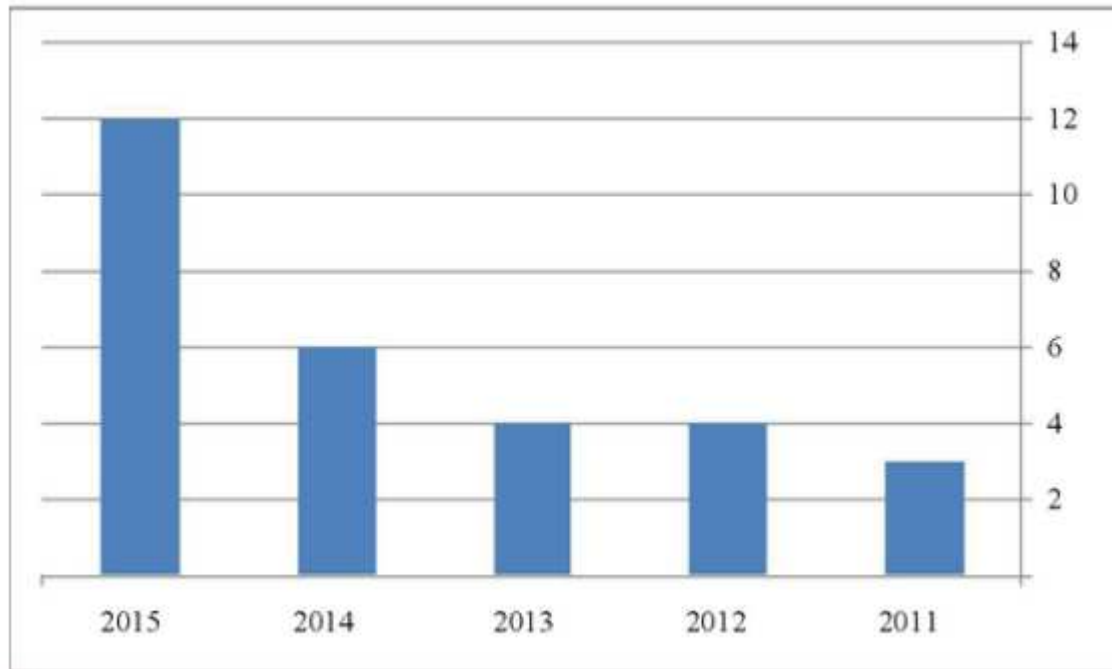


Figure 1: Number of universities Saudi Arabia adopting ERP system

Northern Border University (NBU) is one of the biggest universities in Saudi Arabia. It has over 12 colleges and 5 research centers at 3 locations across Saudi Arabia. There are two hospitals related with NBU that assist medical education to student. This big environment entails an ERP system that manages and controls different resources of NBU efficiently and rapidly. Hence, NBU was one of the leading universities in implementing ERP system in Saudi Arabia. NBU is a governmental university that means that it is required to follow governmental policies and employ within an inadequate budget. Due to budget constraints and lack of skilled users, NBU obvious to provide a local ERP package (Madar) that encounters the budget constraints. This provides them a greater tractability for customization with the Saudi governmental policies (Alghathbar, 2008).

In 2013, Northern Border University (NBU) adopted to implement ERP system called Madar. There are twelve directed administrative systems in the new ERP system as the following: Financial system, Human Resource system, Payroll system, Administrative and Communications system, Inventory control system, Warehouse system, Employee Self Services portal, Purchasing system, Scholarship and training system, Budget and Planning system, Authorities and confidentiality system, and Recruits systems (Al- nafjan and Al-Mudimigh, 2011; Madar Project, 2009).

4.1 Methodology

This research is using two questionnaires that based on the chosen CSFs (ERP Critical Success Factors section). One of questionnaires was for working staff in Madar system and the other one was for the end-users i.e. staff in the twelve directed administrative systems.

Both of them were contacted via email inviting them to participate in the questionnaire. Some of the questionnaires were disseminated as hard copies.

The first questionnaire was designed to gauge the CSFs from a technical potential. The scaled used were a 5 Level Likert Scale (1=extremely satisfied, 5=extremely dissatisfied) and a Rating scale. The sampling was done on 8 people i.e. all Madar team members. In order to check which CSFs are more effective, sample t-test method was used, in which the null hypothesis H0:

$\mu < 3$ and the alternative hypothesis H1: $\mu \geq 3$. The statistic test was

$$t = \frac{\bar{x} - \mu}{s / \sqrt{n}}$$

The second questionnaire was designed to measure user satisfaction i.e. the perceived acceptance of the ERP system. It was focused on factors effecting user satisfaction which were organized according to Chadhar and Rahmati (2004) into technical and organization categories as shown in table 2. The scaled used were a Guttman scale and a Rating scale. The data was collected from different Madar system users and it has been tested using the SPSS software. A total of 130 questionnaires requests were distributed manually or sent out via email to Madar users on KSU. Response rates was 29% of 130 and these responses are from different Madar sub-systems as shown in figures2.

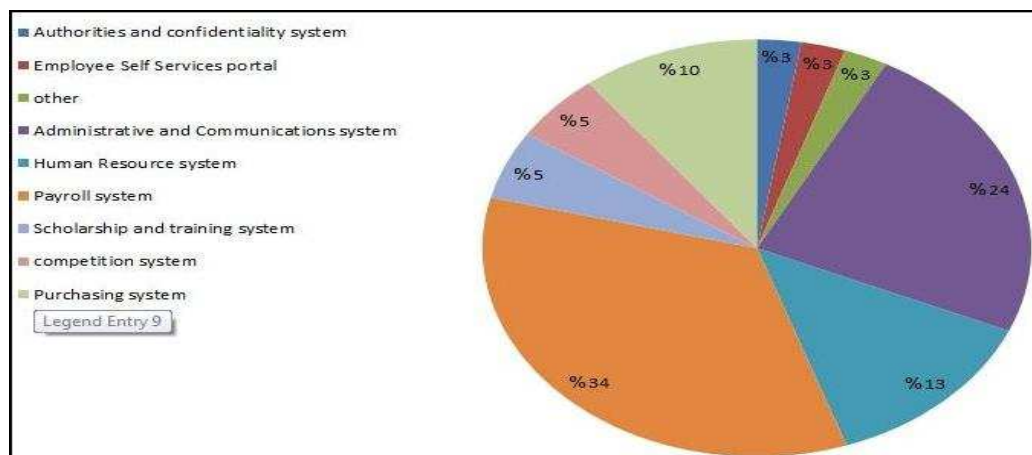


Figure 2: Response rate from different sub-systems in Moderators

5.1 Results and Findings

The results are presented in the following figure 3 and table 3:

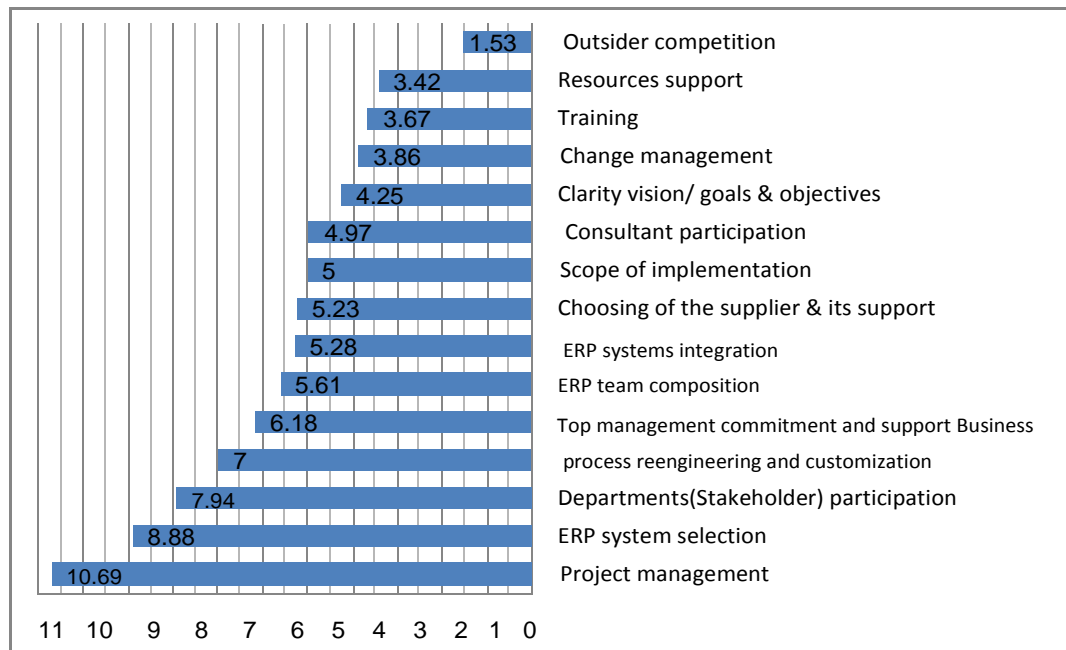


Figure 3: Success Factors by Degree of Importance in ERP Implementation from technical prospective

According to the table 3 & figure 3, from the ERP technical perspective, the most significant and important success factor in ERP implementation in Higher Education Sector of Saudi Arabia is 'Project Management' and 'ERP System Selection'. The other success aspects in this research do not have a significant influence on the ERP implementation. Though, the ten effective CSFs of ERP implementation in Higher Education institution of Saudi Arabia as in order of the following:

- (1) Project management
- (2) ERP system selection
- (3) Departments (Stakeholder) participation
- (4) Business process reengineering and customization
- (5) Top management commitment and support
- (6) ERP team composition
- (7) ERP systems integration
- (8) Choosing of the supplier & its support
- (9) Scope of implementation
- (10) Consultant participation

Table 3: Success Factors by Degree of Importance in ERP Implementation from technical prospective

Critical Success Factors (CSFs)	Mean	STD	t -degree
Top management commitment and support	4.6	0.8	6.19
Change management	3.8	0.7	3.88
Project management	4.9	0.6	10.70
Business process reengineering and customization	3.8	0.5	8.00
Training	4.2	1.3	3.57
ERP team composition	4.3	0.7	5.60
Clarity vision/ goals & objectives	4.2	0.8	4.35
Consultant participation	4.1	0.6	4.97
Departments(Stakeholder) participation	4.5	0.6	7.95
ERP system selection	4.7	0.7	8.89
ERP systems integration	4.5	0.9	5.18
Resources support	3.3	1.00	3.40
Scope of implementation	4.3	0.7	5.00
Supplier Selection & its support	4.4	0.7	5.23
Competition of Outsider	4	1.9	1.53

Based on questionnaire results shown in figure 5, we found that the factors that the Madar team gave it the priority in each phase of implementing system was successful because 63% felt that the training offered from Madar was helpful. 53% said that they can participate and express their opinions about the system. 58% satisfied about the functions offered from the system and found that the system makes their work easier. The participants in both questionnaires were asked to estimate a percentage of the level of success achieved in ERP implementation (Madar). The results are shown in table 4.

Table 4: Level of success of ERP implementation

Group	Average Level of success
Technical's perspective	86.63%
Users perspective	64%

Lastly, the participants in first questionnaire were encouraged to include additional comments regarding their suggestion for improving ERP implementation. The following are quotes from those comments:

- "Suggest integration with all government departments"
- "Madar system is considered as the qualitative leap for the university."
- "Suggest more integration between these systems (purchasing, finance, payroll, inventory)"

6.1 Conclusion and Discussions

This study provides a very substantial and clear contribution to notify the sense of urgency as the critical success factors of ERP application in Higher Education sector of Saudi Arabia. This study will enhance knowledge on ERP implementations in developing countries. Literature illustrates that the unsuccessful rate is high in implementing ERPs though after paying huge amounts on them but still could not confirm success of their implementation. This study selects Madar, which is successful ERP system, as case study to observe what the CSFs are has been attained in ERP implementation. This case study collected an overall prospect from ERP team members and users i.e. technical and user perspective. This study has added to academic research by making the empirical evidence to support the theories of CSFs and ERP implementation success. In future, we intended to expand this study by more ERP systems and more users' opinions in different universities in Saudi Arabia.

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