ERP Implementation Success Factors in Saudi Arabia

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Abstract

A review of the literature on successful implementation of ERP reveals that there are many case studies undertaken by researches, but very few have empirically examined the success factors of ERP implementation. While most of those empirical studies were undertaken in Western countries, very few had examined the implementations in Middle Eastern countries and none in Saudi Arabia. Factors and challenges of ERP implementation in developing countries differ from those of Western countries. Hence a gap in the literature that examines Middle Eastern countries exists. This study is motivated to fill such gap by going beyond case study and boundaries of Western counties to empirically examine the determinants of successful ERP implementation in Saudi Arabia. The main purpose of this study is to examine the influence of some critical factors on successful implementation of ERP.

Keywords: ERP, ERP Success factors, Saudi Arabia, Enterprise Resource Planning.

1. INTRODUCTION

Enterprise Resource Planning (ERP) is an enterprise-wide software solution that integrates and automates business functions of an organization. As an integrated system, ERP encompasses all the procedures and functions in a single framework [1]. It synchronizes the planning of processes across all functions within an organization [2]. Some of the functions that are integrated by the latest generations of ERP software packages include those of finance, accounting, human resources, operations, supply chains, among others [3]. To stay competitive, organizations must hence make concerted effort to improve their business practices and procedures [4], shorten their processes and enhance their productivity among others. To achieve these intents, organizations have been embracing ERP [5].

Many researchers [6-8] view ERP applications as information systems packages that institutionalize sharing of organizational data. Other researchers [9] describe ERP as an integrated, customized, packaged software-based system that handles the majority of an enterprise's system requirements in all functional areas such as finance, human resources, manufacturing, sales and marketing.

In spite of the varied definitions of ERP, there are similar characteristics that are common to all ERP systems. One distinguishing feature of ERP is that it is a software package of different modules. While each of these modules is business specific, the function of each module is linked by the ERP system to one another and to the whole database. This integration of the modules

allows managers and other users direct access to real time operations and it also helps to eliminate counterproductive processes and cross functional coordination problems [10].

It is not disputed in the literature that ERP implementations bring value to the organization. In spite of all the purported benefits of ERP, its implementation is costly, complex, and many organizations fail to realize the expected benefits [3, 11]. Companies lost not only invested capital in ERP software, but also a major portion of their businesses. Further, the literature is abounding of the unsuccessful implementation of ERP, with many organizations filing for bankruptcy protection and others deciding to abandon the whole implementation of the projects [4]. A number of studies explore the possible factors that foster ERP implementation success [12, 13]. Some of the important factors that impact successful ERP implementation include but not limited to business process re-engineering, top management support, vender support, consultant competence, user support, IT capability, and project leadership.

2. BACKGROUND AND PROBLEM STATEMENT

A review of the literature on successful implementation of ERP reveals that there are many case studies undertaken by researches, but very few have scientifically (empirically) examined the success factors of ERP implementation [4]. Moreover, while most of those empirical studies were undertaken in Western countries, very few had examined the implementation in Middle Eastern countries and none in Saudi Arabia.

Factors and challenges of ERP implementation in developing countries differ from those of Western countries. Hence a gap in the literature that examines Middle Eastern countries exists. This study is motivated to fill such gap by going beyond case study and boundaries of Western counties to empirically examine the determinants of successful ERP implementation in Saudi Arabia. The main purpose of this study is to examine the influence of some critical factors on successful implementation of ERP.

The importance of identifying critical factors for successful implementation of ERP cannot be overemphasized. The results of this study will complement findings of those studies from Western countries by giving an insight of the critical success factors of ERP implementation in developing countries and Saudi Arabia in particular.

The study will equally be of practical significance to upper management of organizations and other stakeholders in their effort to adopt ERP successfully. The findings of the study will equally fill the gap in the literature and provide empirical insight of the success factors for implementing ERP. The results of the study are, therefore, important to various stakeholders.

Being an empirical study, a survey study will be administered to the respondents. The following research questions will be studied:

1. What is the level of successful implementation of ERP in Saudi Arabia?
2. What is the extent of the internal and external critical success factors?
3. What is the impact of the identified success factors on the ERP implementation success?
4. Does the degree of ERP implementation success and critical success factors differ among demographics?

Based on these research questions, the following hypotheses were devised:
H1. The perceived vendor support is positively associated with ERP success
H2. The perceived consultant competence is positively associated with ERP success
H3. Business process re-engineering is positively associated with ERP success
H4. The competence of the ERP team is positively associated with ERP success
H5. ERP project manager is positively associated with ERP success
H6. Top management support is positively associated with ERP success
H7. User support is positively associated with ERP success

3. CONCEPTUAL OR THEORETICAL FRAMEWORK

The factors of successful implementation of ERP software are divided into internal and external factors. This paper proposed a conceptual model which was developed based on these internal and external factors and portrays the relationship of the study variables as shown in Figure 1.
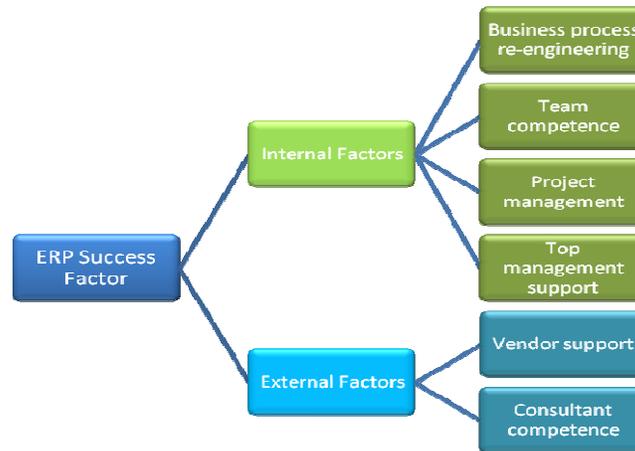

FIGURE 1: ERP Success Factors.

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Some assumptions have been made with respect to this study. First, it is assumed that the respondents will answer the questions on the questionnaires objectively and none of the respondents is aware of or influenced by other respondent(s). Second, it is assumed that the responses of the sample are representative of the whole population. Finally, the study being cross-sectional in nature takes only a snapshot measurement of ERP success factors and ERP implementation success. The study is not designed to measure the ERP success factors and ERP implementation success at different time interval. Thus, the result of the study will replicate the perceptions of the respondents at the time of the survey for the study.

3.1 Critical Success Factors (CSF)

Critical success factors (CSF) are very important in ERP implementation because they provide clear guidance to practitioners on where to focus and allocate resources reasonably in planning an ERP project. The need to understand CSFs is also critical owing to the high failure rate of ERP implementation. Thus, different researches and field experiences maintained that there could be different critical issues in ERP implementation [14]. For the purpose of this study, the critical success factors are broadly divided into two, external and internal (organizational) factors.

3.2 External Factors

Somers and Nelson [15, 16] identify vendor support and consultant competence as needed external CSFs for ERP project implementation success. Considering the fact that ERP systems are complex packages with a level of functional interoperability, organizations tend to rely on external expertise for help in developing, implementing, and maintaining such systems [3]. An organization, adopting ERP, tends to enter into a lifelong arrangement with the external providers of such software [3].

3.2.1   Vendor support

Adoption of ERP involves lifelong commitment for organizations [17]. This is because newer modules and versions of the ERP systems must continually be installed or updated to improve the fit between the organizations and the system. For the reason that most companies purchase their ERP packages from foreign ERP vendors, the need for vendor support is more pronounced [18]. Thus, vendor support is needed throughout the period of the ERP existence. As an important factor for ERP systems implementation, vendor support

often includes extended technical assistance, emergency maintenance, updates, service responsiveness and reliability, services responsiveness and user training [15].

The relationship between the vendor and ERP adopting organization should be strategic in nature in such a way that vendor enhances the organization's competitiveness and efficiency [19] and the partnership seems more critical during the earlier stages of implementation [19]. The success of ERP project as a result of vendor support is also more pronounced if a fit exist between the software vendor and user-organization. In this regards, [20] advised that such fit is positively related to ERP implementation success. Since vendor supports play a crucial part in shaping the ultimate outcome of the implementation, it can hence be posited that:

H1: Vendor support has a positive impact on ERP implementation success in Saudi Arabia.

3.2.2   Consultant Competence
What makes the need for such consultants stronger in ERP implementation than in another project is due to the fact that ERP implementation project involves a wide range of skills in addition to technical implementation knowledge [21]. Hence, consultants serve as both knowledge providers as well as facilitators during the implementation [22, 23].

The consultants who are normally from ERP vendors and ERP consulting companies are experienced and they help the ERP implementing company not only during but even after the ERP implementation process. ERP consultants also play mediating role at the post-implementation stage by transferring their knowledge on the effective use of the ERP system to the focal organization [1].

The role of consultant in ERP implementation was identified by number of researchers as an important factor for the success of the ERP Implementation [24, 25]. Consultant competence can be viewed as an external knowledge stock, which provides the needed knowledge to the ERP adopting firms [8]. This is because when a client works with competent consultants the knowledge required for ERP implementation should be more effectively transferred to the client than when working with less competent consultants [8]. Markus and Tanis [3] highlighted the need to depend on competent consultants who possess experience in system implementation and can effectively support their clients [2]. Thus, it can be hypothesized that:

H2: Consultant competence has a positive impact on ERP implementation success in Saudi Arabia.

3.3 Internal (Organizational) Factors
In addition to external factors, ERP projects are affected by internal (organizational) factors:

3.3.1   Business Process Re-Engineering
An ERP system includes reengineering the existing business processes into the best business process standard and a number of researchers have elucidated the need for the business process reengineering during the implementation of an ERP system [26, 27]. It is often argue that one of the chief reasons why ERP systems fail is that organizations simply underestimate the extent to which they have to change and re-engineer the existing business processes in order to accommodate the systems. Thus, it is inevitable that business process is molded to fit new system. Organizations should be willing to change their business process to fit the new system with minimal customization.

Prior studies asserted that the more willing an organization is to change, the more successful the implementation of its ERP systems [28]. Hence, a number of researchers have identified business process reengineering as a critical success factor [15, 29, 30] and adoption of ERP could be positively associated with change in business process, it can hence be hypothesized that:

H3: Business process reengineering has a positive impact on ERP implementation success in Saudi Arabia.

3.3.2 ERP Team Competence

As ERP project team members are generally responsible for creating the overall implementation schedule for ERP project, and for conducting various implementation activities [2] (Tsai et al., 2005), Umble et al [31] suggest that ERP implementation teams should be composed of people possessing skills, past accomplishments, good reputations, flexibility, and the ability to be entrusted with critical decision making responsibility.

Thus, ERP project team member competence refers to the amount of knowledge and understanding that various team members have with respect to the ERP system as well as the business operation process [2]. Hence, the best choice need to be made that involves cross-functional members [32]. The team members should also have not only technical knowledge, but should also be aware of the business processes of their organizations as well as have background knowledge on the industry's best practices [15, 33]. Other issue is possible the extent to which the team is empowered by management to take responsibility on making critical decisions [13]. Thus the following hypothesis is developed:

H4: ERP Project Team Member Competence has a positive impact on ERP implementation success.

3.3.3 ERP Project Leadership

An ERP project manager can be seen as one who plans, leads and controls an ERP project and promotes good working relationships across the project [34]. Leadership has been examined as one of the most critical factors for organizations investing in ERP implementation. ERP project manager leadership is referred to as the extent to which the ERP project manager sets the vision and the direction for the business, harnesses the energy and creativity of employees to exploit the technological capabilities of an ERP system [26, 34, 35].

Some authors consider knowledge, skills, abilities, and experience or rather sound leadership ERP project manager to be the single most decisive element in successful ERP adoption. Since strong and committed leadership from the project leader is essential to the success of ERP implementation [36], it can hence be proposed that:

H5: ERP project manager leadership has a positive impact on ERP implementation success in Saudi Arabia.

3.3.4 Top Management Support

Shanks et al [37], argues that top management support is regarded as positive commitment, enthusiasm, and support of senior management for ERP project. Top management support in ERP implementation is seen to have two main facets that include providing leadership and necessary resources. This is because during a successful ERP implementation, top managers need not only to continuously monitor the progress of the project and provide direction to the implementation team, but also champion ERP within the organization and allocate sufficient required resources. In addition, top management provides the strategic direction of the organization. However top managers involvement seems stopped as soon as they allocated the resources. Some organizations even ignore top management support at the post-implementation stages [38-40]. For the whole period of ERP implementation, the support of top management is required.

Many a study had proved that top management plays a critical success factor of ERP implementation [17, 41, 42] empirically proved that strong and committed leadership at the top management level is essential to the success of an ERP implementation. Also, practical experiences of some companies affirmed this assertion. Since top management support is consistently identified as one of the most important factors for ERP implementation success[9, 17, 31, 33, 43-45], the following hypothesis can therefore be posited:

H6: Top management support has a positive impact on ERP implementation success in Saudi Arabia.

3.3.5 User Support
The need for user support is important in ERP implementation because large systems development requires user input in order to be successful (Stewart et al., 2000). It also includes both positive attitudes toward the system and willingness to participate in the implementation as well as accept the change brought about by the system. Huang et al. [46] identify failure to get user support as the major risk factors in ERP projects. This is because lack of support from the users has the tendency to hinder the successful implementation of ERP initiative [47]. Based on this, it can be hypothesized that:

H7: User support has a positive impact on ERP implementation success in Saudi Arabia.

4. METHODOLOGY AND RESEARCH DESGIN
Similar to previous related studies [48, 49], this research adopts quantitative approach in a bid to examine the determinants of successful implementation of ERP in Saudi Arabia. The success factors were measured using a validated instrument.

As a research design is influenced primarily by the research purpose and questions [50], this research focused on quantitative research method and hence a survey is used with a typical data collection method [50]. Since this quantitative study is based on cause and effect, the independent variable and dependent variable are ERP critical success factors and ERP implementation success respectively. Two constructs, ERP implementation success and ERP critical success factors, are involved in this study.

The population of this study is organizations of varying sizes, activities, ownership and from different regions of Saudi Arabia. As a field survey is used in obtaining the data, a sample size of 150 organizations were chosen in this study. Thus, a sample of 150 employees was drawn to whom surveys were administered and out of such questionnaires delivered, 74 were returned, representing 49.3% usable response rate which is considered quite favorable compares to response rates for other recent similar studies [49] and [48] which have response rates of 10.6% and 18% respectively.

With respect to the organizational activities, most of the respondent's firms (62 percent) partake in manufacturing activities. However, 28 percent are in service industry and the remaining 9.9 percent are involved in both activities. Pertaining organizational ownership, more than half of the firms (59.2 percent) are jointly owned partly by government and partly by private individuals. About one quarter (28.2 percent) of the respondents firms are privately owned, the reaming 12.7 are owned by government. Table 1 shows the different demographics of the respondents.

	Valid responses	Percent	Cumulative Percent
Occupational Level			
Top Manager	11	15.5	15.5
Middle manager	18	25.4	40.8
Supervisor	17	23.9	64.8
Other	25	35.2	100.0
Organizational Activities			
Manufacturing	44	62.0	62.0
Services	20	28.2	90.1
Both	7	9.9	100.0
Organizational Ownership			
Private	20	28.2	28.2
Government	9	12.7	40.8
Joint	42	59.2	100.0
Organizational Size (Employees)			
Less than 100	9	12.7	12.7
100-500	28	39.4	52.1
More than 500	34	47.9	100.0
Organizational Experience			
5 Years or Less	34	47.9	47.9
6- 10 Years	9	12.7	60.6
Over 10 Years	28	39.4	100.0

TABLE 1: Respondents Demographics.

5. INSTRUMENTATION

In this study, the independent variable, ERP critical success factors, has single construct with seven dimensions. Further, the dependent variable, ERP implementation success, also has a single construct.

The questionnaire administered was divided into three sections requesting the respondents' opinions on the extent of ERP critical success factors; ERP implementation success and demographic data. Six items were used to measure ERP implementation success. The respondents were asked to indicate their perception of those items with respect to ERP implementation in their organizations. A rating scale of 1 to 5 was used in the questionnaire with descriptors strongly disagree, disagree, neutral, agree and strongly agree respectively. The items and their descriptors were adapted from [40].

With respect to the ERP critical success factors construct, six out of the seven dimensions of the construct were adapted from [49] . These dimensions are vendor support, consultant competence, ERP project team member competence, ERP project manager leadership, top management support and user support. The final dimension, business process re-engineering, was adapted from [48]. The scale for all the seven dimensions of the ERP critical success factors construct are on 5 Likert scale ranging from 1 to 5 with the extreme descriptors as strongly disagree and strongly agree. Finally, questions relating to both the characteristics of the respondents and their organizations included the demographic profile of the respondents.

The Statistical Package for Social Science (SPSS) was used to analyze the data collected from the questionnaires. The statistical methods used were the descriptive statistics (such as the ratios, mean, standard deviation SD…etc) and correlation as the inferential analysis method of

testing the study hypotheses. The descriptive statistics used include Analysis of Variance (ANOVA), one-sample test as well as graphs and tables.

5.1 Reliability

Cronbach alpha has been suggested to be the preferable measure of index reliability. The scales used in this study were checked for their internal consistency. Though there is no theoretically acceptable value for the reliability measure, but [51] had suggested Cronbach alpha of 0.70 as an acceptable value for scale development. A factor could also be considered reliable even if the Cronbach alpha is not up to 0.70, but if it is close to it [52, 53].

5.2 Validity

Various items that represent each dimension of the study constructs were analyzed to see if they are properly assigned to the appropriated scale. Factor analysis was adopted in this study because it is the most widely used technique to assess the construct validity of an instrument. In order to enhance the validity and reliability of the study variables in a bid to check the internal consistency of the study scales, factor and reliability analyses were undertaken respectively.

Factor analysis with varimax rotation was utilized to analyze the questionnaire variables. The factor analysis detected relevant factors for (1) ERP implementation success and (3) the seven dimensions of ERP critical success factors. Two criteria were used to identity factor scales. First, all scale items that loaded less than 0.50 were removed. Second, the construct would be represented by the factor that has the highest value. Significant results of the factor analysis were depicted in Table 2.

For ERP implementation success, all the items were found to be correlated with the factorial groups produced with the factor loading more than 0.50. Out of the 6 items, two factors emerged. Thus, one factor which has the highest eigenvalue was selected as depicted in Table 2. From the table, it is evident that the Cronbach's alpha of the construct, ERP implementation success is 0.838. Since according to the guideline of [51] the value of 0.7 or above is an acceptable reliability coefficient, hence the construct has exhibited adequate reliability.

Regarding the seven dimensions of ERP critical success factors, a single factor emerged for both vendor support and user support and their Cronbach's alpha as can be seen in Table 3 are 0.856 and 0.876 respectively. Thus both vendor support and user support constructs are considered reliable since their Cronbach's alphas meet the guideline of [51] cutoff value of 0.7 or above.

Moreover, out of the 5 items of consultant competence, 5 items of business process re-engineering and 5 items of top management support, two factors emerged for each of them. Thus, as can be seen in Table 3, single factors with the highest eigenvalue were selected for each of the three dimensions. And based on the result of the reliability test, the Cronbach's alphas for the consultant competence, business process re-engineering and management support are 0.880, 0.711 and 0.666 respectively. Thus, these factors could all be considered reliable. Though the Cronbach's alpha of consultant competence is 0.666 which is not up to 0.70, the factor could still be considered reliable since it very close to .70 [52, 53].

However, the Cronbach's alphas of the remaining two dimensions of the ERP critical success factors, ERP project team member competence and ERP project manager leadership, are 0.571 and 0.487 respectively. Thus, since these amount are quite below the [51] cutoff value of 0.7, the reliability of both factors were not confirmed. Hence, these factors were dropped and were not considered in the analysis of results.

Construct name	Item	Factor*
ERP Implementation Success		
	The cost of ERP project was significantly higher than the expected budgets.	0.855
	There is no match between ERP systems and specific planned/objectives	0.719
	User's attitudes towards ERP are negatives	0.859
	ERP systems did not match user's expectations	0.854
	Variance explained (%)	**50.166**
	Cronbach's alpha	**0.837**
Vendor Support		
	Adequacy of technical support during ERP implementation	0.734
	Adequacy of technical support after ERP implementation	0.909
	Quality of technical support	0.764
	Adequacy of training provided	0.770
	Relationship with other parties in the ERP implementation project	0.853
	Variance explained (%)	**65.382**
	Cronbach's alpha	**0.856**
Consultant Competence		
	Provides evidence of the value of the methodology	0.923
	Provides a complete understanding of the new methodology	0.805
	Contributes expertise and experience in using the methodology	0.864
	Provides knowledge on how the new methodology will affect roles and responsibilities for personnel involved	0.870
	Variance explained (%)	**60.768**
	Cronbach's alpha	**0. 880**
Business Process Re-Engineering		
	Work processes are checked to prevent defects in products and/or errors in services	0.756
	Work process are improved or established to facilitate coordination of activities with external organization	0.888
	Variance explained (%)	**37.471**
	Cronbach's alpha	**0. 711**
ERP Project Team Member Competence		
	The team members have IS knowledge	0.637
	The team members have business knowledge	0.847
	The team members have communication skills	0.745
	Variance explained (%)	**55.949**
	Cronbach's alpha	**0. 571**
ERP Project Manager Leadership		
	S/he keep track of mistakes of subordinates	0.911
	Problems must become chronic before s/he takes action	0.801
	Variance explained (%)	52.506

	Cronbach's alpha	0. 487
Top Management Support		
	Top management actively engage in recruiting ERP implementation team personnel	0.903
	Top management often emphasize managing and controlling the tasks for ERP implementation and operation effectively	0.757
	Variance explained (%)	*38.693*
	Cronbach's alpha	*0. 666*
User Support		
	Users are not enthusiastic about the ERP project	0.864
	Users have a negative opinion about the ERP system	0.951
	Users not ready to accept the changes brought about by the ERP system	0.885
	Variance explained (%)	*81.186*
	Cronbach's alpha	*0. 876*

TABLE 2: Significant Factor Analysis and Reliability Analysis Results.

6. DATA ANALYSIS

It can be recalled that the first and the second questions and objectives of the study are to assess the level of ERP implementation success and of ERP internal and external critical success factors in Saudi Arabia respectively.

The appropriate analysis that could answer such objectives is averaging (means) through one-sample t test analysis. Since the scales for each of the constructs are on 5 point Likert scales, the test value of 3 was used and the result in Table 3 shows that the means for five variables that include ERP implementation success, vendor support, consultant competence, business process re-engineering and user support are significantly different from neutral value 3 since the significance values are less than 0.05 at 5% level of significance.
However, since the significant value of top management support is 0.086 which is more than 0.05 at 5% level of significance, thus the mean of this variable is not significantly different from neutral value 3.

One-Sample Test Test Value = 3				
	Means	**T**	**Df**	**Sig. (2-tailed)**
ERP Implementation Success	2.1993	-10.570	73	0.000
Vendor Support	3.5444	12.992	71	0.000
Consultant Competence	4.0069	11.777	71	0.000
Business Process Re-engineering	3.6042	7.358	71	0.000
Top Management Support	3.1875	1.742	71	0.086
User Support	2.0845	-8.612	70	0.000

TABLE 3: One-Sample Test.
Note: Mean scores are based on a five-point scale

The objective of the third research question is to examine the impact of critical success factors on the ERP implementation success. It is worth noting that it was based on this objective that the seven study hypotheses were developed. Since based on the result of reliability analysis, the

factor scales of the two dimensions of ERP critical factors were found not reliable, thus only the hypotheses of the remaining five dimensions were tested. And, correlation analysis was the appropriate statistical tool used in testing those hypotheses.

The results in Table 4 indicates that the influence of ERP implementation success appraisal on vendor support, consultant competence, business process re-engineering, top management support and user support are all significant at 5% level of significance. This is because all the significance values are less than 0.05.

Thus, since negative relationship was found with respect to vendor support and consultant competence, both hypotheses 1 and 2 were not supported. But, the remaining three tested hypotheses, that is, hypotheses 3, 6 and 7 were supported.

		Vendor Support	Consultant Competence	Business Process Re-engineering	Top Management Support	User Support
ERP Implementation Success		-0.308**	-0.254**	0.293**	0.314**	0.753**
	Sig. (2-tailed)	0.008	0.031	0.012	0.007	0.000
	N	72	72	72	72	71

TABLE 4: Pearson Correlation
**Correlation is significant at the 0.05 level (2-tailed).

The last research objective aims at examining whether ERP implementation success differs based on the demographics of the respondents' organizations. The ANOVA results in Table 5 report such relationships.

The results indicate that the variable is significant with respect to occupational level, organizational type and organizational experience. However, the variable is not significantly different with respect to organizational ownership and organizational size because the values of p > 0.05

ERP Implementation Success	F	P
Occupational Level	6.003	0.001
Organizational Type	4.724	0.012
Organizational Ownership	2.437	0.095
Organizational Size	0.924	0.402
Organizational experience	5.488	0.006

TABLE 5: ANOVA Summary Statistics
Notes: F-values are the result of a one-way ANOVA at p < 0.05 level of significance.

7. LIMITAION, IMPLICATION, AND RECOMMENDATION

In spite of the novelty of the study, it suffers from some limitations that are common to many other researches. One of such limitations is that majority of the respondent organizations are manufacturing companies and non-governmental organizations. These disparities have a tendency of skewing the responses.

Similarly, the study sample size is an issue and this limitation may limit generalizations of the findings across the whole kingdom. To mitigate these limitations, future researches could replicate this study by obtaining responses of almost equal size between the private and the public sector. The sample size should also be increased across the whole Kingdom so as to ensure that the findings are generalized.

Furthermore, further studies could expand the present research by exploring other factors that have potential to influence ERP implementation success in the Kingdom of Saudi Arabia.

8. CONCLUSION

The results of this study not only added to literature but also of practical implications to industries in the Kingdom of Saudi Arabia. With respect to the first construct, ERP implementation success, the result indicates that the mean (average) of this construct is significant and below the test value (3). This implies that ERP implementation projects are not successful in the Kingdom of Saudi Arabia. This finding though not conducive to the ERP adopting organizations in the Saudi Arabia, it is however in line with the practical outcome of many ERP implementations projects [4]. This finding lends support to that of [54] that as much as 90% of ERP implementations turn into runaway projects. Therefore, for those organizations that implemented ERP, it can be inferred that the investment which is usually enormous is not paying off. And, for those organizations that are considering the implementation, the finding could serve as a basis for their decisions that ERP projects in Saudi Arabia need careful considerations for it to be successful.

Moreover, the averages (means) of the five dimensions of ERP critical success factors are significant with respect to all except top management support. This indicates that organizations in the Saudi Arabia do not perceive support from the top management as vital factor that guarantees success of ERP implementation. However, vendor support, consultant competence, business process re-engineering and user support are considered important elements that foster ERP implementation success. Thus, this is a pointer for those organizations that have implemented ERP and those that are considering its implementation to ensure that these four confirmed success factors are integral part of their ERP implementation project.

Interestingly, as hypothesized, the correlation analysis results demonstrate significant effect of the entire five ERP critical success factors on the ERP implementation success. Thus, these findings bolster that of past studies [15, 16, 20, 45, 55].

Apart from adding to the literature, the correlation result also is of practical relevance. It indicates that ERP implementation that is accompanied with vendor support, consultant competence, business process re-engineering and user support will ensure successful implementation. Since based on the perceptions of the respondents their ERP implementations are not successful, there is hence a need for the ERP adopting organizations to incorporate these CSFs in their ERP implementation projects as well their other best practices that could ensure successful implementation of the projects.

The finding that no significant difference exist between organizational ownership and organizational size with ERP implementation success shows that the success of ERP implementation in Saudi organization does not depend on whether an organization is privately or government owned . Thus, ERP vendors will find this finding pleasing as it indicates that their solutions are successful in different kind of organizations in the Saudi Arabia. However, the ANOVA result shows that the ERP implementation success differs among organizations based on organizational type and organizational experience. Thus, the rate of ERP success is not equal between manufacturing and service industries and between well established firms and others. Hence, management and ERP vendors alike need to consider this phenomenon when adopting ERP solutions.

Finally, it can be concluded that ERP implementation success in Saudi Arabia is influenced by vendor support, consultant competence, business process re-engineering, top management support and user support. Similarly, it can be said that, based on the views of the study respondents, ERP implementation projects in the Saudi Arabia are relatively unsuccessful.

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