



# Factors Affecting Users' Acceptance on Enterprise Resource Planning Systems in Yemen Organizations

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## ABSTRACT

This study aims to unravel the factors that might have the potential to facilitate or hinder the Enterprise Resource Planning (ERP) system in the Yemen Organizations. Methods were done by interviewing 197 respondents from some Yemen organizations. The results of this study found significant positive correlations between the intention to use and easiness of the ERP system. Several dependent variables were also obtained. Moreover, the current study obtained the importance of human factors in the context of ERP.

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## 1. INTRODUCTION

Recently, the competitive pressure (Chang et al., 2010) and the importance of managing the organizations' data as well as automating their business processes rapidly increases, leading to enhancing the organizations' productivity and decision making, decreasing costs, gaining competitive advantage, and giving them the ability to go global (Nour & Mouakket, 2011). These factors are very important especially in a resource-constrained setting and lack of productivity countries, such as Yemen (Aamer et al., 2017; Al-Awlaqi & Aamer, 2019). Giving the fact that information system (IS) is a communication system between people who involved the IS in distribution, processing, and gathering (Davies & Gellersen, 2002),

effective management of the organizations must be considered as the most prominent solution.

One of the best solutions for taking care of this condition is Enterprise Resource Planning (ERP) system. ERP is an emerging technology from the IS discipline. Basoglu et al., (2007) defined ERP system as an integrated software solution used to manage organizations' resources, while Watson and Schneider (1999) defined ERP as an integrated, customized, packaged software-based system that handles the majority of organizations' requirements in all functional areas, such as accounting, human resources, sales, and marketing. In fact, the use of ERP systems become a trend among organizations in almost all economic sectors, and every

organization is trying to get that piece of technology that will boost its numbers and smoothen the possesses.

ERP systems are complex, requiring a change in the management plans and suitable implementation plan. ERP will have an impact on almost all the organizations' end users. Organizations implement ERP systems due to their advantages and making ERP crucial to organizations leads to increase the demand for a successful ERP in each day which will affect the organizations' productivity positively, causing positive business changes and increases the end users' efficiency (Shang & Seddon, 2002). Despite the widespread implementation of ERP systems with high cost and time consumption, those systems still face many problems.

The complexity of ERP system entails many problems. Rajan and Baral (2015) referred ERP problems to be a cause of the ERP system different from the other Information Technology (IT) innovations due to the ERP socio-technical challenges such as the implementation process complexity and the different types of the end users. Unsuccessful and troublesome software costs the US between USD 60 billion and 70 billion annually, for both corporate and government investments (Charette, 2005). Despite the widespread implementation of the ERP systems with high cost and time consumption, those systems still face many problems. According to Mouakket (2012), more than 60% of implemented ERP systems ultimately fail. Mouakket's study supported several researchers. Sternad and Bobek (2012) and Umble (2000) stated that from 50 to 70% of ERP systems in both developed and developing countries could not achieve their specified outcomes, and the systems users' acceptance emerges as the main issue that affects the successfulness of the system. Dery et al., (2006) declared that user reactions to ERP and why some ERP im-

plementations are seen as more successful than others are interrelated. According to Po-An Hsieh and Wang (2007), the lack of the system acceptance by the end users has led to significant problems and inefficiencies in many organizations, while Mitra and Mishra (2016) emphasized the importance of the ERP end users' acceptance to have a successful ERP.

ERP systems integrate all business processes and data from the organization's functional areas into one place. Thus, it can be shared by all the organization members as illustrated in **Figure 1**. Also, ERP system modules can be customized based on the organization size and needs. Organizations can purchase the whole system modules at once, a number of modules, or a single module to support a specific business area function like financials. Then, the organization can extend the system by adding more modules to cover another functional area like human resources or the supply chain. Furthermore, ERP modules are supported by applications which were developed to support specific functions in each module. For instance, the financial modules can be supported by the account receivables or the general ledger applications.

Like most IS, ERP systems implementation life cycle can be summarized into three phases: pre-implementation, implementation, and post-implementation. The post-implementation phase is one of the most essential phases, in which the system experiences stabilization. However, sometimes the system performance cannot have a long-term effect on the organization (Gattiker & Goodhue, 2005). Most of the ERP system depends on the stabilization stage. Even if the ERP system was implemented effectively from a technical perspective, the factors affecting the success of the system will also depend on the end users' behaviors towards the system's acceptance and usage (Kwahk &

Lee, 2008). Therefore, sustainability becomes an issue which arises in the post-implementation phase.

Many ERP systems are underused (Mouakket, 2012), leading to preventing the system from delivering the expected benefits to the organizations (Murphy et al., 2012). However, many researchers noted the role of the ERP end users' acceptance as a way to a successful system. Sternad and Bobek (2012) revealed that the ERP key problem occurs when the end users do not accept and use the system properly. Most of the ERP studies were conducted on the users' acceptance during the pre-implementation and implementation phases with focusing on the ERP Critical Successes Factors (CSF) and on the external factors that can affect users' attitude and behaviors toward the system acceptance and usage, which consequently can affect the ERP adoption effectiveness. Meanwhile, only few studies conducted on the internal factors which can affect the ERP end users' acceptance, especially during the post-implementation phase in the developing countries. Hence, this study attempts to provide a better

understanding of the ERP end users' acceptance.

This paper is organized in the following manner. Section 1 presents the introduction of this research. Section 2 discusses the methodology of the study. In section 3, data analysis and discussion were presented. In section 4, conclusion, implications, future research, and limitations of this study were explained.

## 2. METHODOLOGY

In our study, we studied ERP end users in the Republic of Yemen (197 participants). Due to the unstable political situation in Yemen which results in massive employees' laying off, the study also included all people who were previously ERP end users. Also, the respondents must be using or have been using ERP systems during post-implementation. Moreover, the study was conducted in the organizational settings where the use of the system is a mandatory decision. The most important setting that would serve our study conceptual model and minimize any potential bias were also selected.

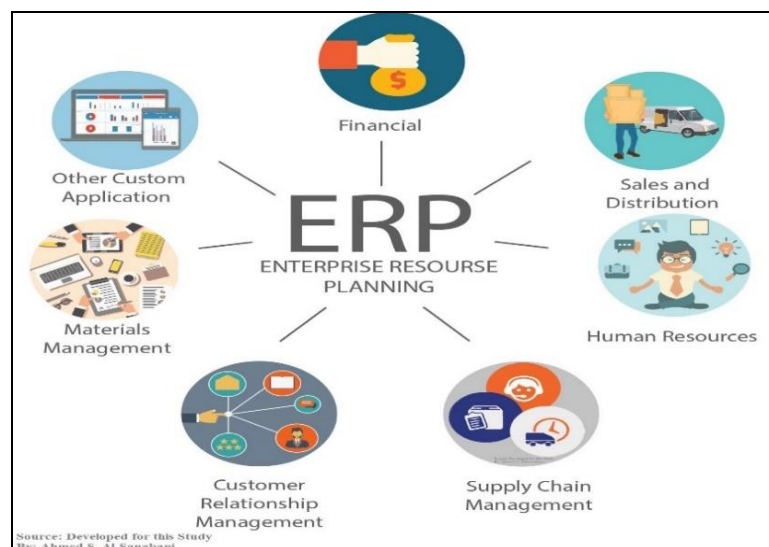


Figure 1. ERP System Role

The technological acceptance model (TAM) is the most widely used model to explain how behavioral intention and actual usage could increase efficiency and effectiveness of ERP system (Sternad & Bobek, 2013). Two variables of TAM: perceived usefulness (PU) and perceived ease of use (PEOU) were assessed in this study. The PU describes how a person believes a particular system would enhance job performance. Whereas the PEOU describes how a person believes a particular system would be free of effort.

To assess the relationships and associations among the variables, we used person product-moment correlation and linear regression analysis. Although correlation analysis is less use, it is useful to assess the relationship between two variables during the early phases of analysis. In the second stage of our analysis, we used linear regression analysis to measure the association between the independent and dependent variables by fitting the collected data in a linear model.

### 3. RESULT AND DISCUSSION

Multiple regression analysis was conducted to find which independent variable will show a significant role in predicting

the dependent variables when we put all variables in one model and observe how each independent variable will behave. **Table 1** and **Table 2** illustrate the results of the multiple regression analysis.

The correlation analysis illustrates and confirms the significant positive relationships among independent variables. Despite the fact that we have a strong correlation between two independent variables, we did not recognize any multicollinearity problems since that the result of the inflation factor is less than 5 as shown in Table 3. In addition, we found a significant correlation between the independent and dependent variables. The analysis also illustrates that among all the independent variables, the strongest significant relationship was between PU and PEOU ( $r = 0.571, P < .001$ ), followed by the PU and ITU relationship ( $r = 0.508, P < .001$ ), then by PEOU and ITU relationship ( $r = 0.431, P < .001$ ). To sum up, the correlation analysis proved that the three variables adopted from the TAM to be correlated with each other based on the data analysis of the ERP end users' in the Yemeni Organizations. This means that the variables can be used to test this research conceptual framework as discussed in the following section.

**Table 1. Multiple Regression Analysis Outputs (Model Summary)**

Model	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard Error of the Estimate
1	0.273	0.266	1.01126

**Table 2. Multiple Regression Analysis Outputs (ANOVA)**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	74.629	2	37.315	36.488	0.000
Residual	198.395	194	1.023		
Total	273.024	196			

Table 3. Multiple Regression Analysis Outputs (Coefficients)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Standard Error	Beta		
(Constant)	2.028	0.460		4.411	0.000
PU	0.406	0.100	0.344	4.055	0.000
PEOU	0.225	0.086	0.222	2.618	0.010

Based on the presented data in Table 3, we can conclude the following equation to represent the study model:

$$ITU = 2.03 + 0.41 PU + 0.23 PEOU + \varepsilon$$

where ITU is the intention to use, PU is the perceived usefulness, PEOU is the perceived ease of use, and  $\varepsilon$  is the error.

The correlation analysis revealed that PU, which refers to the ERP usefulness in this study, had the highest significant correlation with the ERP end users' ITU. Moreover, in the regression model, PU was a significant predictor of the end users' intention to use ERP systems. ERP systems must increase the end users work productivity, quality, and decrease the required time to finish their tasks in order to be a useful system. Therefore, as the system expected performance increases, the users' intention to use a system also increases. The correlation analysis revealed that PEOU, which refers to the ERP easiness in this study, had the second highest significant correlation with the ERP end users' intention. Furthermore, the regression model showed that PEOU was also a significant predictor of the end

users' intention to use ERP systems. Finally, above results were in a good agreement with literature (Gattiker & Goodhue, 2005).

#### 4. CONCLUSION

This study was built to explore the factors that affect the end users' usage of ERP systems due to its importance and its huge impact on the organizations. Accordingly, two factors were adopted from the TAM to examine their effects on the end users' intention to use an ERP system. The study objective was to investigate and determine the TAM applicability in predicting the ERP end users' usage intention in the Yemeni Organizations by observing which independent variables will have a significant effect on the end users' intention to use ERP systems in the Yemeni Organizations. Correlation analyses, as well as multiple regression analysis, were conducted to achieve the study's objective, and the results showed significant roles of perceived usefulness and perceived ease of use in predicting the ERP end users' intention to use.

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