Enterprise Resource Planning Implementation: Challenges and Barriers

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Abstract: The goal of this study is to ascertain how Enterprise Resource Planning (ERP) adoption software is affected in small and medium-sized businesses in Jordan by the problems and barriers represented by (low knowledge of ERP, misperception, lack of resources, financial worries, and employee resistance). The following titles of employees in Jordanian small and medium-sized businesses' departments of information technology made up the study population: (Department Manager, Assistant Department Manager, Head of Department, and Software Officer). To accomplish the goals of the study, the investigator employed a basic random sample of the study population, wherein (160) questionnaires were distributed and (152) were retrieved. The descriptive-analytic approach was employed in conjunction with various statistical techniques, the most notable of which was the "T" test for one sample (One SampleT–test), and the statistical package program was utilized for statistical analysis and testing of hypotheses. Use SPSS. The study's conclusions include the existence of a statistically significant relationship between Jordanian SMEs' software implementation and their lack of resources, financial concerns, and inadequate ERP understanding. On the other hand, misperception and employee resistance had no statistically significant effect on the implementation of software in Jordanian SMEs. In light of this, the study made several recommendations, the most significant of which is the establishment of an independent committee of senior management experts in information systems and information technology to monitor a variety of data regarding the readiness and effectiveness of the software. As well as involving the user in the ERP implementation from the beginning, because operations management may clearly and effectively benefit from the end-user's assistance in formulating operations that accurately and firmly fulfil daily work needs.

Keywords: Enterprise resource planning software, Business engineering, Technology

Introduction

Running companies in a highly competitive climate is difficult. To increase competitiveness and fulfil client demands, firms strive to improve efficiency and agility (Motwani, Subramanian, & Gopalakrishna, 2005). Global companies are constantly prone to encounter more difficult and intricate obstacles. Information technology is capable of radically altering the way businesses operate (Rouyendegh & Erkan, 2011) As a result, many companies adopt enterprise resource planning (ERP) systems to increase their competitiveness.

Enterprise Resource Planning, also known as ERP, is a software solution that combines a company's data and operations into a single platform for the whole enterprise. After the 1990s, ERP has been employed in larger operations, such as human resources, finance, and production planning, in addition to manufacturing and production planning systems used in the industrial sector (Van Nieuwenhuyse et al., 2011). To be more

convenient and competitive, ERP has also incorporated other business extensions, such as supply chain management and customer relationship management.

An enterprise resource planning (ERP) system allows a company to automate and combine the vast majority of its activities into a single, unified system. It is a collection of tools that allows real-time data sharing from any business producing. An ERP system connects all departments and operations of a firm into a computer system that can serve the requirements of various departments, including sales, human resource department, manufacturing, finance, and others. With that being said, it is important to note that integration is the most crucial necessity for the ERP system to function in the firm.

Integration is the process of merging diverse software requirements into a single, logical database, making it simple for all departments to exchange information and interact (Sloan et al., 2014). Moreover, ERP standardizes procedures and data inside a company according to industry best practices. The enterprise also simplifies data flow across different organizational components by creating a single-transaction system (Lieber, 1995). A company can focus on administrative duties, increase the ability to implement new information system features and reduce information system maintenance costs by standardizing and integrating procedures and data (Alomari et al., 2019).

Because ERP gives managers a comprehensive view of corporate activities, it has emerged as the mainstay of business intelligence for companies (Alomari et al., 2019) and with the rapid progression of technology, ERP is intended to readily adapt to changing company requirements and businesses must continuously update their systems to cope with the changes. Most ERP suppliers offer the chance to change processes and conform with prevailing best practices to address changing company requirements more rapidly (Nassar, Warrad, & Siam, 2017). With that being said there are several challenges that firms have to deal with when implementing an ERP system, limited ERP awareness, and misconception, lack of resources, financial worries and employee resistance.

This study's objective is to investigate the challenges and barriers to deploying ERP systems in small and medium-sized firms (SMEs) in Jordan. Considering that (SMEs) are businesses that maintain revenues, resources, or employee numbers below a certain threshold. It is crucial to comprehend if and to what extent such obstacles impact the adaptation of ERP systems and company performance. The subsequent sections would include conducting a literature review, formulating a methodology, gathering evidence, preparing it for examination, and making a conclusion on the issue.

Related Works

AboAbdo, Aldhoiena, & Al-Amrib, (2019) looks at the most recent Critical Success Factors (CSFs) that an ERP employer at a major construction business claims are impacting the application process. A questionnaire survey of ERP operators was used to identify the 26 most significant factors that were found in the literature. A planned discussion with 25 ERP installation process practitioners was held after the data were gathered. The findings showed that the most crucial elements for an ERP system's effective installation are administration knowledge and engagement, operator preparation and support, and staffing arrangements for deployment. According to earlier studies, the ERP adoption process is primarily hampered by human factors even though it is fundamentally an IT process.

The report by Hasan et al. (2019) addresses major enterprise resource planning (ERP) post-application characteristics. Using the Smart-PLS package application, a theoretical framework is developed with a collection of appropriate theories, and operational equation modelling is used to analyze the survey results. The results suggest that post-application accomplishment attributes are essential for assessing the ERP post-application's overall impact. Similarly, the likelihood of successful corporate growth increases as more systems are integrated into an ordered process. The findings may assist ERP specialists and innovators in other states with future ERP implementation.

This report (Epizitone & Olugbara, 2019), identifies well-considered aspects crucial to the successful installation of ERP into an organization's financial system. To do this, it is necessary to categorize the community factors impacting ERP system deployment and then assess whether the identified factors are suitable for financial systems. This research analyzes ERP systems that support financial business processes. From a total of 127 investigations, 205 common components have been identified, of which 20 are available in the study. The community features are then grouped based on median data to choose the top six important success

characteristics, which are explained briefly within the context of a financial system. The paper (Epizitone & Olugbara, 2020) explains how to use a diverse method approach to develop CSFs for a successful ERP application. As a result, it offers researchers who want to apply this approach to complex research studies a more thorough road map and insight into the research problem paradigm, methodologies, and approach.

This work (Mahmud et al., 2017) focused on the major emphasis of researchers in the information system (IS) on finding solutions to lessen the difficulties confronting the adoption of ERP via the user's resistance in particular. While prior research has addressed the causes behind user resistance, a complete understanding of how users value a new ERP system before adoption and what motivates them to oppose is still lacking. In particular, the viewpoint of status quo adherence and technical absence explained user resistance or end-user concerns. The model presented in this study fills this research gap by combining technology and the status quo, thereby emphasizing end-user complaints' performance before the implementation of a new ERP system. As a result, 221 respondents from five distinct Bangladeshi manufacturing companies that currently use the well-known SAP ERP system were given a survey questionnaire.

The fundamental premise of the study (Kulikov, Semin, Skvortsov, Ziablitckaia, & Skvortsova, 2020) is that ERP systems may greatly enhance information sharing; yet, the lack of qualified workers and high-level managers' and critical employees' ignorance of ERP competences have prevented the agricultural sector from using them quickly. The research aims to categorize the challenges and expectations related to ERP adoption in agriculture. A review of Web of Science (WoS) papers and questionnaire surveys of fifty-five CEOs from Central Ural agriculture enterprises comprise the methods employed. Government organizations may use the study's conclusions in their plans for technical innovation and creative development in the agriculture industry.

This study (Venkatraman & Fahd, 2016), identifies some of the major problems, such as cost efficiency, software alignment and business practices, training, and adaptive governance, that are the primary barriers for SMEs to use an ERP system. Due to the self-motivated nature of SMEs, the best practices for adopting ERP for SMEs may be accessed via a careful assessment of their professional requirements. This was the primary objective of the investigation. As a case study, the researchers identified the key success factors for an ERP implementation in an Australian SME. Then, these success factors were linked with the actual results achieved. As a result, it was discovered that elements such as integrating business operations with the ERP system, addressing the demands of customers and stakeholders, and reducing periodic and maintenance expenses were crucial to the successful ERP deployment of Australian SMEs.

The purpose of (Falagara Sigala, Kettinger, & Wakolbinger, 2020) is to enable humanitarian organizations (HOs) to deliver agile, adaptive, and compliant (Triple-A) humanitarian supply chain capabilities and digitize humanitarian operations, the goal is to define the fundamental design concepts of enterprise resource planning (ERP) systems. This article proposes that ERP systems for humanitarian organizations should be developed as special systems that address the missions, value creation processes, and resource base of these organizations, to improve organizational performance. Twelve broad design concepts for outstanding humanitarian organizations are presented in this study. Within the parameters of these design concepts, specific demands can be recognized and successfully engineered. (Alsharari et al., 2020) study focuses on the Cloud (ERP) system deployment and highlights the features and problems that users may encounter. The researchers also provide a comparison between traditional and cloud-based ERP solutions. The results demonstrate that the use of Cloud EPR systems, as opposed to traditional ERP systems, contributes to the success of enterprises and improves the quality of their decision-making processes. The results also reveal that the efficacy of deploying Cloud ERP is contingent on the provider's professionalism, thereby causing issues connected with diminished administrative autonomy.

Following (Chofreh, et al., 2020), the purpose of this research is to provide all-inclusive recommendations for providing ERP system implementation stages and endeavours. Based on a literature review, a conceptual research approach was used to construct criteria for discovering and assimilating diverse ideas, including features of sustainability, project management, organizational decision levels, and strategy management. The process consists of the following three phases: (1) gathering steps and activities from current ERP sustainability guidelines, (2) classifying and analyzing discovered steps and activities, and (3) selecting needed actions and activities for the guidelines. The suggested recommendations consist of three primary modules including implementation processes, levels, and activities. The results will provide practitioners with formal recommendations for the efficient adoption of sustainable ERP systems within their business value chains.

This study (Kamdjoug et al., 2020) backs an information systems (IS) success model developed by Delone and McLean and based on the agency theory for the (ERP) application model. Two significant research questions are addressed in this study: (1) How do interactions between consultants and clients affect the results of ERP application projects? and (2) How can this relationship be managed well to guarantee the accomplishment of the

project's goals? The suggested theoretical framework was subjected to a case study and validity assessment using an electronic financial institution located in Africa. Concerning the concepts of the conceptual framework, the study found that interactions and connections between clients and consultants facilitate the impact of organizational, technological, and human critical success factors (CSFs) on the calibre of information and services. Conflicts between consultants and agencies can be settled with the help of incentive-based contracts and a conflict management committee. This article offers the relevant information required to settle conflicts between consultants and clients, along with the elements that need to be properly taken into account to keep everyone informed.

The implementation of ERP systems in SMEs in Jordan can be complex and challenging due to various factors, including financial constraints, lack of IT knowledge and skills and resistance to change. The existing research suggests that these barriers can be overcome through training programs, investing in IT knowledge and skills, and addressing cultural differences.

Research Method

The study relies on the descriptive analytical approach, by describing the variables of the study represented in the challenges and obstacles facing the implementation of software in small and medium enterprises in Jordan. The study is considered to be a descriptive quantitative study, because it examines the impact of challenges and obstacles represented by (limited awareness of ERP, misconception, lack of resources, financial concerns and employee resistance) to the implementation of software in small and medium enterprises in Jordan, as it describes a current phenomenon on the ground where descriptive statistical analysis will be used, and its hypotheses will be tested to achieve its objectives and to know the changes and variations in the dependent variable "software implementation" due to the changes caused by the independent variable "challenges and obstacles", as it provides information on the level of application of the main variables, and expressed statistically using tables and figures and benefiting from them.

Sample of Study

The study population is made up of all the terms associated with the phenomenon the researcher is looking into as well as all the people, organizations, or things that are the focus of the inquiry. The study population consists of all employees holding the following job titles who are employed by small and medium-sized businesses in Jordan in the Department of Information Technology: (department manager, assistant department manager, department head, and software officer).

The recovery rate from all companies is roughly 92%; this percentage is representative of the study population and can be relied upon to complete the study procedures. The researcher used a simple random sample of the study population, wherein 160 questionnaires were distributed to the total study population and 152 questionnaires were retrieved. Sekaran and Bougie (2016) state that a minimum response rate of 86% is deemed appropriate for research purposes. To address the analytical aspects of the research issue, the researcher decided to use a questionnaire as the main tool for gathering data for the study.

Research Hypotheses

In light of the problem of the study and its questions, the following hypotheses can be formulated:

- H01: There was no statistically significant effect at the level of statistical significance $(0.05 \geq \alpha)$ of limited ERP awareness on software implementation in Jordanian SMEs.
- H02: There was no statistically significant effect at the level of statistical significance $(0.05 \geq \alpha)$ of misconception on software implementation in Jordanian SMEs.
- H03: There was no statistically significant effect at the level of statistical significance $(0.05 \geq \alpha)$ of lack of resources on software implementation in Jordanian SMEs.
- H04: There was no statistically significant effect at the level of statistical significance $(0.05 \geq \alpha)$ of financial concerns on software implementation in Jordanian SMEs.
- H05: There was no statistically significant effect at the level of statistical significance $(0.05 \geq \alpha)$ of employee resistance on software implementation in Jordanian SMEs.

Results

To test the main hypothesis, the sample T-test was used to test the significance of the differences between the average responses to the variable and the average of the hypothetical scale (a score of 3 indicates an average score). So the rule of the decision is if the average responses are higher than the hypothetical average and there are significant differences between them, this indicates an effect.

H01: There was no statistically significant effect at the level of statistical significance (0.05≥α) of limited ERP awareness on software implementation in Jordanian SMEs.

Table 1. The results of the (On-Sample Test) test for the first hypothesis

	N	Mean		Std. Deviation	Std. Error Mean
Limited ERP Awareness	152	3.4342		0.43780	0.03551
One-Sample Test: Test Value = 3	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
Limited ERP Awareness	12.228	151	0.000	0.43421	0.3640 - 0.5044

Table 1 shows that there are statistically significant differences between the hypothetical mean (3), the average responses on the first axis (the impact of limited ERP awareness on software implementation in small and medium enterprises), and the standard deviation (0.43), which indicates a low dispersion of the study participants' answers, and the calculated value of (T) (12.228) and its statistical significance (SIG = 0.000). These differences are evident at the significance level (a>=0.05). The first null hypothesis, which claims that there is no statistically significant effect at the level of statistical significance (0.05≥α), is rejected since the average responses are higher than the average of the scale. The first null hypothesis, which asserts that there is no statistically significant effect of limited ERP awareness on software implementation at the level of statistical significance (0.05≥α), is rejected since the average responses are higher than the average of the scale. Thus, the alternative hypothesis is approved: Limited ERP awareness has a statistically significant impact on software installation in Jordanian SMEs at the level of statistical significance (0.05≥α).

H02: There was no statistically significant effect at the level of statistical significance (0.05≥α) of misconception on software implementation in Jordanian SMEs.

Table 2. The results of the (On-Sample Test) test for the second hypothesis

	N	Mean		Std. Deviation	Std. Error Mean
Misconception	152	2.7303		.62878	.05100
One-Sample Test: Test Value = 3	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
Misconception	-5.289-	151	.155	-.26974-	0.3705 − 0.1690

Table 2 shows that the average responses on the second axis (the impact of misconception on software implementation in small and medium enterprises) and the hypothetical mean (3) do not differ statistically significantly at the significance level (a> = 0.05). The standard deviation (0.62) indicates a low dispersion of the study subjects' responses, and the calculated value of (T) (-5.289) and its statistical significance (SIG = 0.155) also show this. The second hypothesis, which asserts that there is no statistically significant influence of misperception on software adoption in Jordanian SMEs at the level of statistical significance (0.05≥α), is accepted because the average responses are below the average of the scale.

H03: There was no statistically significant effect at the level of statistical significance (0.05≥α) of lack of resources on software implementation in Jordanian SMEs.

Table 3 makes it evident that the test (T) results for one sample are statistically significant at the significance level (a> = 0.05) between the hypothetical average (3) and the average responses on the third axis (the impact of resource scarcity on software implementation in Jordanian SMEs), as well as between the calculated value of (T) (11.157) and its statistical significance (SIG = 0.000). The standard deviation value (0.64) indicates a low dispersion of participant responses. The third null hypothesis, which asserts that there is no statistically

significant influence of lack of resources on software implementation in Jordanian SMEs at the level of statistical significance (0.05≥α), is rejected because the average replies are higher than the average scale.

Table 3. The results of the (On-Sample Test) test for the third hypothesis

	N	Mean		Std. Deviation	Std. Error Mean
Lack of Resources	152	3.5882		.64990	.05271
One-Sample Test: Test Value = 3	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
Lack of Resources	11.157	151	.000	.58816	$0.4840 - 0.6923$

The alternative hypothesis is accepted: lack of resources has a statistically significant impact on software deployment in Jordanian SMEs at the level of statistical significance (0.05≥α).

H04: There was no statistically significant effect at the level of statistical significance (0.05≥α) of financial concerns on software implementation in Jordanian SMEs.

Table 4. The results of the (On-Sample Test) test for the fourth hypothesis

	N	Mean		Std. Deviation	Std. Error Mean
Financial Worries	152	3.4539		0.41811	0.03391
One-Sample Test: Test Value = 3	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
Financial Worries	13.385	151	.000	.45395	$0.3869 - 0.5210$

Table 4 makes it evident that the test (T) results for one sample demonstrate statistically significant differences between the hypothetical mean (3) and the average responses on the fourth axis (the impact of financial concerns on software implementation in Jordanian SMEs), which are 3.45. The statistical significance (SIG = 0.000) of the calculated value of (T) (13.385) and the low dispersion of the study members' responses is indicated by the value of the standard deviation (0.41). The fourth null hypothesis, which claims that financial considerations have no statistically significant effect on software adoption in Jordanian SMEs at a statistically significant level (0.05≥α), is similarly rejected because the average replies are higher than the average scale.

The alternative hypothesis, which reads as follows, is accepted: Financial considerations have a statistically significant impact on software deployment in Jordanian SMEs at the level of statistical significance (0.05≥α).

H05: There was no statistically significant effect at the level of statistical significance (0.05≥α) of employee resistance on software implementation in Jordanian SMEs.

Table 5. The results of the (On-Sample Test) test for the fifth hypothesis

	N	Mean		Std. Deviation	Std. Error Mean
Employee Resistance	152	2.9263		0.78889	0.06399
One-Sample Test: Test Value = 3	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
Employee Resistance	-1.152-	151	.251	-.07368-	$-0.2001 - 0.0527$

Table 5 clearly demonstrates that the test (T) results for one sample demonstrate that there are no statistically significant differences at the significant (a>=0.05) level between the hypothetical mean (3) and the average responses on the fourth axis (the impact of employee resistance on software implementation in Jordanian SMEs), which are 2.92 and 0.78 respectively, and the calculated value of (T) (- 1.152) and its statistical significance (SIG = 0.251). The fifth hypothesis, which asserts that employee resistance has no statistically significant effect on software adoption in Jordanian SMEs at the level of statistical significance (0.05≥α), is accepted because the average responses are lower than the average of the scale.

Conclusion

In conclusion, establishing an ERP system in small and medium-sized enterprises (SMEs) in Jordan might be problematic owing to inadequate knowledge and resources, as well as financial concerns. However, it did not seem that misperceptions and employee resistance had a substantial influence on the adoption process. Therefore, small and medium-sized enterprises (SMEs) in Jordan need to prioritize developing knowledge about the advantages of ERP systems and investing in the resources required to overcome these obstacles. By doing so, businesses may increase their operational efficiency, strengthen their decision-making processes, and acquire a market edge. ERP deployment may create hurdles, but it is a good investment that may lead to long-term development and profitability.

Based on the study's findings, the following recommendations are made: Including the user in the resource planning system implementation project from the beginning, as the end-user can play a crucial role in assisting the operations department in accurately and definitively formulating operations following daily work requirements. Accurately defining the vision and strategic objectives of implementing software packages and monitoring current and future requirements for it. The commitment of the senior management of small and medium enterprises in Jordan to the leading role when implementing the software through moral support and material and financial supervision and the need for its commitment to continuous follow-up on its installation. Appointing an independent committee of senior management specialized in information systems and information technology to monitor various information on the readiness and effectiveness of the software. Conducting more studies that address the challenges and obstacles facing companies when implementing software packages, and addressing various challenges other than those addressed in this study

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPSTEM journal belongs to the authors.

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