

An Assessment of the Effects of Enterprise Resource Planning Adoption in SMEs

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Abstract – Enterprise Resource Planning system (ERP) is a planning application developed essential for the management manufacturing processes on a computer. This paper provides an analysis of the impacts of ERP adoption in SMEs. According to this study, the incorporation of characteristics-related aspects would help to better explain ERP adoption, according to the same line of thinking. The subsections in this paper present a discussion of the factors and components as well as their postulated correlation with ERP adoption. The adoption of ERP in SMEs is critically evaluating using a model, which integrates the TOE (Technology-Organization-Environment) framework and they theory of organization information. The literature part of this paper provides a basis of understand of the determinants of ERP adoption within these enterprises to enhance business performance. From this research, it may be concluded that it is important for businesses to adopt and utilize the ERP system properly in order to improve their performances.

Keywords – Enterprise Resource Planning system (ERP), Small and Medium-Sized Enterprises (SMEs), Technology-Organization-Environment (TOE).

I. INTRODUCTION

As an essential planning tool for Small and Medium-Sized Enterprises (SMEs), the Enterprise Resource Planning (ERP) [1] system contains various modules, each designed for solving specific problems related to business operations. These modules work together to provide companies with their full range of operational management capabilities. A modern ERP system is essentially a combination of several different modules that solve specific problems associated with running a company's internal business processes.

Table 1: Benefits of using an ERP system

| Benefit | Details |
|--------------------------------|---|
| Reduced costs | With a fully integrated ERP system, SMEs eliminate the need for separate software programs for accounting, customer relationship management, payroll, order processing, e-commerce, asset management, finance, manufacturing, supply chain management, and others. In addition, SMEs avoid paying for expensive consultants who specialize in these areas and can save hundreds of thousands of dollars annually. |
| Improved productivity | An ERP system helps streamline complex tasks and increase productivity. SMEs' employees will spend less time searching for information and filling out forms while working with the system. They'll also be able to access necessary reports and data at any point in time, saving them valuable time and increasing their accuracy. |
| Effective collaboration | Today, almost everyone uses computers in his/her daily life. Most enterprises depend majorly on the technologies to understand their normal businesses. Without proper communication between coworkers, they cannot efficiently complete projects or handle customers' inquiries effectively. Using an ERP system makes it easier for people to collaborate and communicate with colleagues and customers, helping improve the quality of service provided. |
| Increased security | With access to data from multiple departments, security issues become much more difficult to manage. Access control is simplified by centralizing user accounts and passwords, and providing users with online training. SMEs can also ensure that only authorized personnel have access to sensitive information by monitoring employee behavior and reviewing logs. |

ERP systems have evolved over time, starting out as simple accounting applications that focused on tracking sales data and expenses. Over time they grew into complex solutions that included everything from inventory control to CRM (Customer

Relationship Management to HRM (Human Resource Management). Today these systems are designed to help companies run their entire business operations, including financial reporting, purchasing, production scheduling, project management and many other critical business activities. **Table 1** provides a description of some of the benefits of using an ERP system in Small and Medium-Sized Enterprises (SMEs). Using an ERP can lead to significant cost savings and improvements in efficiency. Here are some of the advantages of using an ERP system.

In order to manage short-term and long-term issues, companies need accounting information, which gives them the knowledge needed to support corporate management and supervision in several areas, such as cash flow and expenses. Long-term strategic company planning may also be aided by accounting information, particularly in highly competitive markets. According to previous research, the adoption of IT-based solutions to enable the gathering and sharing of accounting information should be seen as a top priority to improve a company's competitive edge and efficiency. Today's accounting processes rely heavily on Information Technology (IT). For SMEs, IT investment has become a necessity since the improvement of their accounting activities relies on their IT innovation. As a result of the use of IT innovation, organizations are able to get the accounting and financial information they need in a fast and correct manner, which ultimately affects their decision-making and operational performance. In addition, the survival of SMEs is a major concern for governments across the world. As the economic backbone of the vast majority of countries, SMEs should take the initiative to improve their competitiveness and productivity. Such challenges have been addressed in [2] who highlighted the disparities between the failures and successes of SMEs in the usage of accounting data.

Accounts and financial statements have long been considered the primary sources of information for small businesses. Businesses may use ERP as an IS to manage their resources, data, and operations by using a common repository of data (called a shared database). As a key component of their organizational design, ERP systems have been adopted by businesses of all sizes throughout the world in order to assist everyday operations and decision-making, as well as to guarantee smooth process integration across all functional areas. IT resources also tend to simplify and integrate internal business processes, resulting in greater efficiency for the company. As a result, organizations are better equipped to achieve their objectives by using an advanced accounting information and financial reporting system. Indeed, IT capabilities have expanded greatly, and in particular, the ERP system has revolutionized the way accounting and financial data are processed.

As a result, SMEs are generally unable to afford the same level of expertise in business process engineering and network architecture as their larger counterparts. In order to save customization costs, they choose ERP packages, which have more vertical solutions (add-ons) available, and rely on the same technological platform to ensure that their ERP package can grow with them. ERPs have been used in SMEs for some time, but there is not many research on the topic, and when there are, they are seldom taken into account. Only a few studies in the literature have looked at how ERP products may boost the system value as well as when firms can use the model. The majorities of ERP researches concentrate on the comparisons on the basis of ownership costs, duration, implementation and selection. The single study in [3], which examined ERP valuations in the contexts of SME's commercialized packages was the only one to undertake an empirical evaluation.

Prior research has also shown that ERP systems are needed for SMEs to improve performance. The absence of technology adoption (e.g., ERP) among SMEs has been noted in [4]. The usage of ERP and ERP adoption has been proven to be effective in facilitating departmental cooperation for a single database inside organizations, which ultimately leads to better service and product quality. For decades, SMEs have been considered as a foundation of the globalized economy. Only a few ERP studies (e.g., in [5]) have looked at the value and effect of system installation after deployment, and those who have only looked at the pre-adoption and adoption phases of ERP have done so. Authors in [6] have found some literatures, which examined ERP's impact on SMEs in emerging economies; however, the lack of an analytical framework for measuring ERP adoption was highlighted by Bhattacharya, Wamba and Kamdjoug [7].

For the time being, there is no business case for ERP adoption in SMEs in the literature, and there is no methodology for identifying how ERP deployment impacts their performance. Because of this, ERP adoption and its implications on company performance in developing countries (like in the Middle East, for example) must be thoroughly studied in order to add value to IT literature. Practitioners and researchers need to understand how ERP systems may add value to a company's operations and impact its performance in light of their rapid expansion. As a result, in order to investigate the influence of ERP adoption on organizational performance from the perspective of the organization, this study has developed and proposed a complete ERP adoption research paradigm. The following are the most important Research Questions: What are the factors that lead to ERP adoption? Is there a connection between the success of the business and ERP implementation? For a systematic approach towards answering these research questions, this paper has been organized as follows: Section II reviews the past literature texts about ERP and its adoption in SMEs. Section III focusses on analyzing the research model, with Section IV defining the research methodology. Section V critically analyses the measurement and structural model for the research to provide answers to the research questions in this paper. Section VI provides the final discussion of the entire research, while Section VII provides conclusions to the research and future directions.

II. LITERATURE REVIEW

Research on the relationship between ERP systems and corporate success has shown conflicting findings. ERP has been shown to have both good and bad effects on a company's performance, however the majority of the studies found that ERP had a favorable impact on performance, with measurable improvements in the company's business characteristics. When it comes to ERP implementations that have been a failure, there have been very few studies conducted. This lack of research

might be linked to enterprises' unwillingness to share their own failures, as noted by Smith [8]. Dell Computer, for example, canceled its ERP project deployment because of its inability to adapt to the company's expanding global operations. As a result of this widely accepted practice, organizations are increasing their investments in IS in order to boost their performance.

Most of these organizations invest in ERP in order to enhance the skill of decision-making and overall performance. Avila and Garcés [9] also claimed that IS/IT is critical to the operation, performance, and productivity of businesses. Real-time data and the timelier cycle of production, and as market valuations as well as company performance improvement, have been a result of ERP system adoption. Using the IS success framework in [10], we utilized a quantitative method to demonstrate that ERP system and information quality positively influences user experiences, resulting to increases in the quality of decision making. Saudi SMEs' better performance may be attributed in large part to effective ERP implementation, according to [11]. Hall [12] identified ERPs to be a long-lasting strategic investment, which influences the whole company, although the results take several years to emerge. For SMEs, profitability relies heavily on the ERP system in place, according to a study conducted by Zach and Erik Munkvold [13].

Aside from these two studies ([14] and [15]), it is worth noting that ERP investment has a very favorable impact on the organizations' process performance. According to [16], ERP adoption have a vital effect on SMEs performance. For the purpose of investigating ERP's mediating role in the relationship between ME performance and eight different factors, the authors devised a framework that took into account organizational culture, communication processes, organizational structure, technological advancements, IT readiness, government policies, and information accessibility. The results showed that using ERP would enhance the capabilities of MEs. As a result of the lack of solid proof that technology investment adds value to businesses, ERP investment does not always result in favorable business performance results. A lack of quantitative evaluations of the ERP system's influence on the financial performance of a company has been shown.

Over the course of three years, [17] examined the post-installation performance of 50 ERP-using companies to determine the negative impact ERP deployment had on performance. However, he found that sales and revenue ratios, as well as managerial and general costs, did not change significantly over time during the implementation period; rather, a vital decline in the workers' ratio to the income and an improvement in the cost of goods sold to the net sales were found in the prior year. As a general rule, companies that installed ERPs saw a gain in efficiency over several years, but this rise was countered by an increase in expenditures.

Ma'arif and Satar [18] conducted a similar analysis comparing the 63 organizations in Hayes against those of their peers who were not ERP users. According to the researchers, ERP users outperformed non-users in terms of productivity. The deployment of ERP and its impact on the performance of the organizations were also explored by Monteiller [19], who made important contributions to our understanding of the link between supply chain management, ERP, and performance. Surveys were performed among 2170 companies in Australia that have implemented Supply Chain Management (SCM) or ERP systems. Firms with expertise and knowledge improved their performance after implementing ERP and SCM systems, according to the researchers. Despite the fact that ERP systems have been receiving growing attention from academics, just a few have examined its impact on Middle East's small and medium-sized enterprises' (SMEs) performance. As a result, this research aims to fill the gap in knowledge on implications of ERP adoption among SMEs in the Middle East.

III. RESEARCH MODEL ANALYSIS

ERP adoption in the Middle East's Small and Medium Enterprises (SMEs) is examined using a model that incorporates both a Technology-Organization-Environment (TOE) framework and a theory of organizational information (DOI). The literature study serves in understanding the determinants of ERP adoption of SMEs to their performances. Previously studied factors are used to develop the model that is subsequently utilized as a fundamental drive to initiate the process of research. The framework integrates three settings of components: technological, environmental, and organization. The subsections below present a discussion of the components as well as their postulated correlation with ERP adoption.

Technological Factors and ERP Adoption

There are many elements that may impact the adoption of new technologies, according to Bussell [20], as well as Li [21]. The relative advantage concept that relates to the dimensionality of invention is visualized as providing more merit to its alternatives, makes this statement clear. Comparable to some other IT model e.g., CRM, ERP is capable of gathering, storing and processing critical accounting and financial data for management decision-making. Previous studies have shown that relative advantage is a key element in the usage of information systems and that it has a beneficial impact on the adoption of information systems. Thus, the present research proposes the hypothesis below (**Table 2**).

Table 2: Hypothesis H1

| | |
|---------------|--|
| Hypothesis H1 | Relative advantage has a positive implication of the adoption of ERP |
|---------------|--|

In addition to the ERP's ability to integrate with the company's present beliefs and practices, another ERP aspect is called compatibility. An IS system's compatibility with IT components (such as hardware and software) may be assessed. ERP compatibility is defined as the degree to which a new system's adoption and implementation procedures mirror those of an

existing system. According to Kannan [22], the incompatibility of computer hardware and software is a key reason why most businesses are unable to fully use IS technology. Adopting and using new technologies requires new skills and methodologies, therefore any incompatibilities may impede or delay adoption. When it comes to encouraging technology adoption, this is the most important factor. Because of this, the findings of this research indicate the hypothesis shown in **Table 3**.

Table 3: Hypothesis H2

| | |
|---------------|--|
| Hypothesis H2 | Compatibility has a positive implication of the adoption of ERP. |
|---------------|--|

Organisational Factors and ERP Adoption

According to authors, organizational factors are the factors about the company, which influence technological adoption and deployment, and they exist within the firm, associating directly to its policy about business environment and its resources, in order to fulfil its missions and goals. An important organizational characteristic that affects the usage of IS/IT in SMEs is organizational preparedness. It is necessary for ERP capitalization processes to be carried out by organizations in order to get money for the necessary materials, personnel and abilities to minimize the unanticipated risks. These operations include data collection, transfer, analysis and storage. Specifically, a lack of organizational preparation may contribute to the failure of ERP implementation in businesses, which is important for provident funds, systems acquisition, equipment acquisition, and security. Typically, businesses lack organizational preparedness to use IT/IS or lack the professionalism needed to stimulate its effective usage. As Agbonlahor and Oyekan [23] have shown, this holds true for complicated technologies as well. Organizational preparedness has been shown to be critical in the adoption of technological innovation according to previous research by Irum, Ismail and Ashfaq [24]. Similarly, better-prepared organizations are more likely to be successful in their IT/IS endeavors than less-prepared ones. As a result, the following hypothesis (**Table 4**) is being tested in this study:

Table 4: Hypothesis H3

| | |
|---------------|---|
| Hypothesis H3 | Organizational preparedness has a positive impact on the adoption of ERP. |
|---------------|---|

The organizational element, top management support, refers to the degree of backing, dedication, and active involvement of organization in the firm's design and deployment of technological systems to assure employee utilization. In SMEs, top management is responsible for making decisions, thus it is vital to make sure that they are committed to providing the necessary tools for successful ERP deployment, minimizing adoption resistance, or conquering it. Support from senior management is essential for the success of IS technology, which benefits such success in SMEs. For ERP deployment to be successful, management support is essential. Thus, the following hypothesis (in **Table 5**) is anticipated:

Table 5: Hypothesis H4

| | |
|---------------|---|
| Hypothesis H4 | Support of the top management has a positive impact on the adoption of ERP. |
|---------------|---|

The "training" concept is another aspect of organizational factors that referred to as the extent to which a business instructs its staff on how to use tools in both quantity and quality. ERP is a sophisticated IS type, therefore businesses should educate and teach their staff on its adoption and use before actually adopting it. This will help workers feel less stressed and anxious about it and will also help them understand its advantages for their jobs. Along with supporting in knowledge growth for efficient and effective system installation, training also lessens difficulties and confusion. Therefore, the present research recommends the following hypothesis (**Table 6**):

Table 6: Hypothesis H5

| | |
|---------------|---|
| Hypothesis H5 | Training has a positive effect on the adoption of ERP |
|---------------|---|

Environmental Factors and ERP Adoption

Environmental variables are external influences that are outside the control of SME management. One of these factors is competition pressure that denotes to the pressure, which SMEs are subjected to from market rivals. Strategic justifications for this kind of pressure include innovation diffusion drivers, which assume that via the adoption of new innovations, businesses may alter competition laws, affect the industrial structure, and utilize novel strategies to outperform their competitors, all of which would fundamentally alter the competitive environment. Such analyses may be applied to ERP, with prior IS research indicating that enterprises experience pressure when their sector becomes oversaturated with companies using technology, necessitating the adoption of the same technology in order to stay competitive. Competition puts pressure on SMEs to adopt ERP, mostly according to Haji Salum and Abd Rozan' [25] claim that contextual variables could block or support firms' adoption behaviors towards adopting a particular innovation. Therefore, by undertaking an empirical analysis of the competitive pressure as a predictive variable on the adoption of ERP among the Middle East SMEs,

this research aims to corroborate the findings of previous studies and add to the body of knowledge. The research suggests the following (Table 7):

Table 7: Hypothesis H6

| | |
|----------------------|---|
| Hypothesis H6 | Competition pressure has a positive impact on the adoption of ERP. |
|----------------------|---|

Government regulations are another environmental aspect that may prohibit or encourage enterprises to use a certain technology. In light of technology standards, law, and encouragement, government regulations and policies play a supportive role in businesses' choices to use ERP. This was shown by Witanti and Hadiana [26], who discovered that enterprises with significant levels of government influence and regulation are more likely to embrace cloud-based solutions. This presumption of ERP adoption is used in the current research, which also takes into account government incentives, restrictions, and assistance. As a result, the following hypothesis (Table 8) is made:

Table 8: Hypothesis H7

| | |
|----------------------|--|
| Hypothesis H7 | Support from the government has a positive impact on the adoption of ERP. |
|----------------------|--|

Business Performance and ERP Adoption

The best way to describe ERP adoption is the degree to which the ERP system is utilized, together with associated initiatives, to enhance business performance. Financial performance (FP) and market performance (MP) are two categories that businesses typically fall under when evaluating their performance, with the former being linked to revenue growth and profitability and the former being linked to improving the company's position in the market to achieve and maintain a competitive advantage. In order to save on costs and enhance growth, timely delivery, innovativeness and profitability, businesses have been known to implement ERP before their competitors. Business performance is strongly impacted by the business value of ERP, and previous research have shown a favorable correlation between business performance valuation and the ERP adoption.

Seddon [27] argued that an ERP's acquired capabilities would help businesses become more competitive by reducing the cost. This claim may be shown by the system's assistance in reducing fraud as well as waste while assisting in the improvement of decision-making skills. System utilization and system effect are closely related in terms of the traditional IS success framework put forth by Daghour, Mansouri and Qbadou [28]. The TOE framework also presupposes that the quantity of technology utilization for business transactions and activities will have a significant influence on those activities' outcomes. Additionally, compared to businesses that use ERP sparingly, those who effectively utilize it often show improvements in performance. As a result, it is important for businesses to utilize the ERP system properly in order to improve their performances.

Additionally, ERP gives companies the chance to achieve administrative clarification from hidden information/data for rapid business development, as well as those that effectively use ERP have shown to be better at turning data into meaningful information across a variety of corporate divisions. Additionally, they were better able to facilitate a number of procedures, such as improving marketing, developing human resources, creating new products and services, improving operations, and encouraging innovation inside the organization. Therefore, it is anticipated that the broad and in-depth use of ERP would likely provide effects that are both beneficial and long-lasting over time and unmatched by competitors. On the basis of the aforementioned, this research suggests testing the following hypotheses (Table 9):

Table 9: Hypotheses H8 and H9

| | |
|---------------|--|
| Hypothesis H8 | The adoption of ERP has a vital impact on SMEs' financial performance. |
| Hypothesis H9 | The adoption of ERP has a vital impact on SMEs' market performance. |

IV. RESEARCH METHODOLOGY

A combination of quantitative and qualitative research methodology that included quantitative and qualitative data was used in this study over the course of two phases. Following were the two stages: (1) identification of ERP adoption variables and enterprise performance metrics based on prior research; and (2) assessment of the empirical research utilizing input from detailed interviews with different manufacturing SMEs in the Middle East. This integrated methodology is considered to be effective in the accomplishment of this research's goal and purpose. Additionally, it avoids the investigation from being restricted to just correlating existing data. Research on ERP systems has also included a lot of qualitative methods.

Quantitative Method Results

The survey questionnaire used in this study was prepared in three phases utilizing a quantitative technique. First, past research on TOE variables, ERP adoption, and the influence of ERP on business performance metrics were analyzed. There were 43 closed-ended research questions that measured 10 components after conducting a literature review. In order to better fit the

study environment, each construct's measuring items were adapted from the literature. The 5-point Likert Scale: 1 to 5 (i.e., strongly disagree to strongly agree). Stage two included interviews with SME owners/managers to verify the questionnaire's accuracy and completeness, as well as its validity in terms of content. After 45 samples were used in the third stage, the questionnaire was pre-tested for reliability and validity. Even though the 45 SMEs in the pilot test were not integrated in the general survey, developments were initiated to the instrument with regard to the findings.

The survey was sent to SME owners and managers who are in positions of authority, have extensive knowledge of their companies, and have access to all relevant data. They were picked because of their level of expertise and willingness to participate in the study. The samples were selected using a non-probability selection approach based on their availability and interest. This solution was chosen above others because it requires less technical resources and can be implemented more quickly. According to Hayashi and Klee [29], data from technology adoption studies is often collected via the use of unintentional sampling. Copies of the poll were sent out to 300 people during the months of June and September 2020. 7 copies were discovered to have incomplete feedbacks (not filled up or irrelevant/missing answers) out of the initial distributions of a hundred and ten (about 36%). The remaining 102 copies were declared complete, usable, and suitable for further study. Utilizing PLS-SEM (Partial Least Squares Structural Equation Modeling), the usable copies had the fewest need for further analysis (90 answers for seven independent variables).

Data Analysis and Results

Multivariate statistical techniques such as PLS-SEM were utilized to test the hypotheses that were put forward. It works well with complicated frameworks, which integrate different latent variables, sample sizes, and moderating variables that are relatively small, since it enables multiple variables to be evaluated at the same time in a single model. It was decided to employ Multivariate Logistic Regression (MLR) instead of PLS in this investigation, given that the model tested moderating factors and was quite sophisticated. As an added bonus, the sample size of 102 was far smaller than that necessary for other approaches. It is important to note that this is an exploratory study, which utilizes both TOE and DOI, thus a path-modelling approach is needed based on the presumptions that, for prediction-based researches or ones, which extend memory, PLS-SEM is a vital approach to use.

V. MEASUREMENT AND STRUCTURAL MODEL

Assessment of the Measurement Model

According to authors, the measurement model assignment is a vital PLS-SEM phase in order to establish the rationality of the observable indicator constructors, and if they are considered to be unreliable, this limits the structural model assessment. Hair et al. An examination of the measuring model confirms item and concept validity and reliability. With the measurement model's indicators, it can be deduced that the overall constructs' validity and validity scores above the Cronbach's alpha coefficient, convergent validity, and Average Variance Extracted (AVE) threshold values defined by authors in [30]. For each item, factor loadings on the associated constructs were more than or equal to 0.40. With a comparison to the AVEs' square roots as well as the correlation coefficients across constructs with the assistance of the Fornell–Larcker analysis allowed us to determine if the components had discriminant validity.

Assessment of the Structural Model

The structural model evaluation is the next phase in PLS-SEM after the measurement model analysis. A moderator is either present or absent as a moderator in this stage, which entails examining the status of the connections between the dependent and independent variable. It is the primary goal of this research to investigate the link between ERP implementation and company performance. This importance in route coefficients was discovered and tested for using the PLS algorithm and bootstrap approach with 5000 re-samples.

VI. DISCUSSION

As a result of the year 2000 issue and the advent of the Euro, which disrupted previous systems, ERP systems substantially advanced in the 1990s. Many businesses took advantage of the opportunity to switch to ERP. The sales decreased in 1999 once these issues were resolved. Computers are used as part of the ERP strategy to carry out various business operations, such as accounting, inventory control, and human resources. The advantages and benefits of ERP (see **Table 10**) in SMEs must be emphasized since it is essential to all business operations. Within the confines of the company, they assist in managing connections with external stakeholders and facilitating information flow across various business divisions.

Table 10: Advantages, benefits and disadvantages of ERP

| Advantages, Benefits and Disadvantages | Descriptions | |
|--|---|--|
| Advantage | ERP's most basic advantage is the reduction of costs and time associated with managing a wide range of corporate operations. Decisions may be made more quickly and with fewer mistakes by management. As a result, data is now accessible to everyone in the business. | This integration is advantageous for the following tasks: <ul style="list-style-type: none"> • Inventory management via the use of forecasting demand. • A chronological record of every transaction based on the collection |

| | | |
|----------------------------|---|---|
| | | <p>of pertinent data from every operational area.</p> <ul style="list-style-type: none"> • Monitoring of orders from acceptance to fulfillment • Tracking revenue from the invoice to the cash receipt <p>Reconciling invoices (what was purchased), receipts (what delivered), and costs (what was invoiced).</p> |
| | <p>ERP models are capable of centralizing business information/data</p> | <ul style="list-style-type: none"> • Requires less synchronization across systems, resulting in the convergence of financial, marketing, sales, and employee-resources software applications. • Ensures that each piece of statistical data has the validity and openness it deserves. • Allows for consistent product name and coding • The ability to access real-time information from any location and at any time enables managers to make informed decisions by eliminating "islands of data." • A single safety system is used to protect numerous types of sensitive data. |
| <p>Benefits</p> | <ul style="list-style-type: none"> • ERP improves a company's ability to react to change by making it more flexible and nimbler. It also helps a firm become more adaptable and less rigidly organized, allowing its many parts to work together more efficiently and effectively both inside and outside the corporation. • In a controlled setting, ERP may enhance data safety. ERP systems, for example, provide firms with the opportunity to more easily verify that critical corporate data is protected. ERP security mechanisms and internal corporate regulations addressing security will need to be examined more closely in an open environment. • ERP opens the door to further cross-departmental cooperation. In today's business, data may be stored in a variety of formats, including papers, files, questionnaires, video and audio, and email messages. Each data media has its own technique for facilitating cooperation. When using ERP, workers can focus on creating content together rather of having to learn how to communicate in several forms across numerous dispersed systems. <p>One integrated system, consistent reporting, better key performance indicators (KPI), and accessibility to data types are just a few of the advantages of ERP. It is not uncommon for businesses to misunderstand the meaning of ERP's integrated system advantage. All main corporate operations, such as HR, management, procuring, sales, customer support, finance and analytics as well as other related applications, are tightly integrated with the ERP system. ERP may be thought of as a centralized, integrated business system in this manner.</p> | |
| <p>Disadvantage</p> | <ul style="list-style-type: none"> • By comparison, ERP may be considered as providing the lowest common denominator requirements for a business, requiring the organization to discover solutions to meet specific objectives. • Competitiveness and concentration may be harmed by re-engineering corporate processes to meet the ERP system. • ERP systems might be more expensive than less interconnected or less complete alternatives. • The ERP vendor's negotiation leverage may be increased by high ERP transaction cost, which can lead to higher maintenance, service, and upgrade charges for the ERP. • ERP system synchronization may be a huge undertaking that demands a lot of time, preparation, and resources. <p>Firms' unwillingness to adapt and a brief hyper-care phase are only few of the obstacles that need to be addressed before the project team may be disbanded swiftly following the implementation.</p> | |

In addition, ERP is a fully automated and seamless e-enabled system that combines all essential business operations. It is a strategy designed to make the best use of any company's resources. It is a technique to improve the whole dealing firm's functioning. There is a need for globalization in order for small and medium-sized businesses to access the global market and benefit from it. For the implementation of ERP in SMEs, modifications to current company processes are often required. ERP, in other words, is one of those management trends that is most noticeable. It is a comprehensive information technology solution created with the aim of completely integrating all crucial data into a single database.

In today's fast-paced environment, it is difficult to manage and keep track of every resource. The majority of SMEs face challenges in different business sectors, such as strategic planning, inventory control, operations, as well as accounting. To overcome these issues and improve company performance, a solution is required. ERP will help you manage your business and improve your company's performance across the board. In order to create a productive, effective and collaborative environment, which will assist in preventing data duplication and ensure data integrity with a single source of truth, ERP is a holistic approach, which is capable of uniting systems, people as well as data from different business operations.

ERP systems are primarily designed to manage tasks, increase efficiency, and simplify business processes. It will let you effectively handle modern techniques, which are very beneficial for the real growth of the company. It is a system that coordinates all of your company's divisions to accomplish a common goal, namely to improve business performance. Every successful firm now relies on ERP as its foundation. It has changed the way firms operate in the modern age, and this is basically true for firms with different activities as well as large staffing. The employment of ERP might fundamentally enhance a firm's performance by establishing effective tools for resource planning. **Table 11** below illustrates how adopting ERP improves business performance.

Table 11: How adopting ERP improves business performance

| Basis of performance enhancement | Description |
|--|---|
| Data Security | Every company has to worry about data security. A greater risk of data security occurs when you exchange data amongst numerous platforms. ERP software provides a single database where all of the company's data is safe and secure. This promotes safety while minimizing the danger of failure. |
| Automation of Business Tasks | ERP helps in automating many corporate operations and procedures while enhancing productivity in multiple areas. It also helps to decrease repeated processes, providing more time for other procedures. |
| Streamline Business Processes | The ERP system aids in the optimization of corporate operations by digitizing manual activities as well as the optimization of inventory control. With an effective ERP available, interdepartmental communications is considered smooth and straightforward. |
| Finance Management and Compliance | Every country has certain laws and policies whenever it comes to corporate operations, such as financial planning. ERP software aids firms maintain conformity with these kinds of laws and policies. |
| Transparency and Real-time Analysis | The main USPs of ERP software are transparency and access controls. It gives you complete insight into every facet of your company and gives you access to every department. Real-time data is accessible to all organizational departments, allowing them to plan their workload accordingly. This guarantees that you can see everything as it happens. |
| Improved Customer Service | The advantages of ERP software extend beyond a company to its customers. The sales team can concentrate on fostering customer relationships because customer data is standardized and consolidated. Businesses can offer better customer service thanks to end-to-end tracking. |
| Better Planning | Proper planning is one of ERP's main advantages. Companies have access to a wide variety of tools for conducting in-depth analyses of every aspect of their operations. This enables managers to plan more effectively and decide wisely. |
| Streamlines Customer Relation Management | CRM features are present in the majority of ERP software today. This helps with process automation in customer service. Transactions, service requests, orders, complaints, and much more can all be tracked by the software. Although these features improve customer service, the accurate customer analytics represent the true benefit. It aids in targeted marketing, which raises customer acquisition and retention rates. |

ERP has a hard time delivering value and economic returns because of the organizational modifications needed for its adoption as well as the challenges in assessing the return on investment. Small and medium-sized companies (SMEs) have a large and pervasive role in the Iranian economy. Significant variables impacting the adoption of ERP in this business are cost, complexity, and compatibility. The likelihood of ERP adoption decreases in costly and complicated businesses, and the "Impacts" of ERP systems rely on the organizational environment and deployment process. A successful installation of an ERP system in SMEs may decrease inventory due to better material management, shorten production cycles, increase

demand accuracy for sourcing and materials management, among other benefits. Additionally, it may be a crucial tool for re-engineering.

Although there is not much study on the impact of ERP systems, it is growing gradually (e.g., a study by Wickramasinghe and Karunasekara [31]). These studies often include industry surveys, interviews, and case studies or a collection of case studies. Once a small business decides to install an ERP system and selects a supplier, there are numerous steps it can take to ensure a successful installation. The implementation of ERP will be more effective if it is framed as a strategic business issue and combined with a process reform program. The ERP system must, of course, complement the company's entire business plan and enhance customer service. Additionally helpful strategies include selecting a dedicated, cross-functional project team and a project leader who is driven. The proprietor of a small business should confirm that these individuals have the power to choose how the ERP system will be installed. Businesses should take the implementation project in modest, well-defined segments and pull back from the targeted deadlines in order to create a sense of urgency. Starting with the most basic systems before going on to more complicated ones could be advantageous.

ERP requires a lot of collaboration from the affected areas of the company, thus handling the human component of the project should be done using change management techniques. Finally, for the ERP system to help with business planning, organizations must carefully and accurately examine the data produced when the system is in place. Despite the fact that ERP systems may seem complex and pricey, even small businesses are finding it essential to invest in such technological advancement to achieve competitive advantage. Currently, ERP are being adopted to issue a stable foundation to an increased number of firms across different sectors. Adoptions in SMEs and farther down the supply chain are increasing considerably as the upfront costs and total cost of ownership decline. An ordinary ERP system could impose a rigid structure on a company, jeopardizing the adaptability of many SMEs. Versions that have already been pre-configured and pre-tested are now minimizing project complexity and risk while reducing implementation costs. These new technologies are revitalizing development and putting a solid, well proven product into production. The technique is always evolving, and the results are superb.

This study proposed an integrated model, supported by the TOE model in order to emphasize on ERP adoption and the interrelation between such adoption and presume implications provided the deficiency in the theoretical foundation for ERP at the organizational level. Its major objective was to evaluate the perceived benefits (business performance) and its elements from this level. With respect to these results of empirical study, it was thus determined that, with the exceptions of comparability, the TOE factors (competitive pressure, training, organizational preparedness and top management support) were major predictors of ERP adoption. Starting with the technical aspects, it was discovered that relative advantage had a considerable impact on ERP adoption, which was in line with the prediction of the DOI theory and previous research, which supported the constructs on the IT/IS applications. Moreover, the degree to which ERP models may minimize costs whereas enhancing efficiency might influence a firm's decision to adopt it. Managers and owners often utilize technological advancements in case they believe it would minimize the gap of the perceived performance, capitalize of business opportunities, or enhance the probability of fulfilling a particular need. The findings on comparability that contradicted those published by Ugrin [32], were surprising and had not significant effect on ERP adoption. Nonetheless, SMEs, as distinguished to their larger counterparts, are typically effective at making changes in their values, procedures, business processes and culture since their size allows them greater flexibility. For SME managers and owners, compatibility between their present processes and ERP is usually not a huge concern.

According to statistical analysis results on organizational characteristics, training, organizational preparedness and top management support have a vital impact on ERP adoption for SMEs under study. This result is consistent with what has been found in previous studies on top management support and organizational preparedness as key factors in promoting high IS/IT adoption. According to Cai [33], organizations with more top management support and greater organizational preparedness tend to implement ERP at faster rates and to a greater extent. The presence of resources, in the form of ready accessibility to technical and financial resources, verifies the successful adoption of ERP. Relative advantage encourages corporate adoption of ERP. As a result, SMEs with quick access to both people and material resources have a greater degree of ERP adoption. Regarding employee training, this element makes it easier for staff members to comprehend the technical aspects and operations of ERP and get first-hand experience and knowledge with the system. Training results in a workforce that is informed, experienced, accountable, and well-prepared to adopt ERP successfully since it is simpler for them to comprehend and use ERP in connection to job accomplishment. By improving their technical understanding and expanding their ERP usage, management that develops strong ERP training modules might make it easier for their employees to adopt the ERP system.

Finally, in terms of the environmental factors, the results showed that competitive pressure significantly influences the uptake of ERP among SMEs. This finding is consistent with TOE hypotheses and the results of earlier studies e.g., Xu, Ou and Fa in [34], which also showed that competitive pressure significantly influences the uptake of IS/IT among SMEs. To meet the demands of a competitive environment and beat their competitors, SMEs seem to leverage such adoption. As a result, ERP adoption is necessary, especially when it may be used to gain an edge over competitors in the market. In those current rules and regulations may have an impact on how quickly new technologies are adopted, the present investigation indicated a substantial association between government backing and ERP adoption. According to this line of thinking, assistance from the government may either encourage or discourage enterprises from adopting ERP. Businesses will be more likely to do so when the government imposes strict rules and guidelines on them. Notably, according to the study's findings,

ERP adoption significantly affects SMEs' MP and FP. Previous research in this area found that adopting ERP in many IS/IT areas greatly increased the value of businesses and their capabilities. Innovation has a positive impact on market performance because it enables businesses to create goods and services that provide higher consumer value and set them apart from their competitors. Due to the accuracy and understanding of the information produced by the ERP, the company may also increase profitability and choose the best course of action.

VII. CONCLUSION AND FUTURE DIRECTIONS

Any study will undoubtedly have limitations; thus, it is important to take them into account when interpreting the results. On the positive side, these restrictions may open up new possibilities for future research. The first constraint of this research is due to the emphasis on manufacturing Small and Medium-Sized Enterprises (SMEs) in the Middle East, which prevents generalizing the findings to SMEs in the Middle East as well as other comparable developing economies and countries. Future research can duplicate the findings in this research in other nations and industries, which may provide results that are similar to or equal to those of the current work and give detailed explanations of how and why Enterprise Resource Planning system (ERP) is used. Future research may corroborate the results using a bigger sample size and covariance-based SMEs to achieve reliable and accurate results, irrespective of the sample size being enough for validating the model fit and statistical conclusions. A bigger sample size may enhance knowledge of the connections between the latent variables and boost confidence in the findings. The third drawback is that a causal link between the components could not be established using the cross-sectional data that was used. This restriction might be best addressed with longitudinal data. However, despite different theoretical viewpoints that may be merged with Technology-Organization-Environment (TOE) to identify additional ERP adoption antecedents, this research only focused on TOE variables. It may be argued that such a comprehensive and robust model, including TOE and other theories, could provide a critical understanding of the usage and adoption of IT/IS. The incorporation of characteristics-related aspects would also help to better explain ERP adoption, according to the same line of thinking. Finally, this research looked at the connections between ERP adoption and business performance as well as the link between TOE characteristics and ERP adoption. This inquiry may be furthered in future studies, which will evaluate the direct impacts of TOE elements on the impacts of technological advancement to identify any possible links.

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