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# Challenges encountered in the Implementation of Enterprise Resource Planning ERP in infrastructure contracting companies emphasis on business processes integration

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***Abstract*****—** *The purpose of this paper is to present an integrative and detailed review of the critical factors of enterprise resource planning (ERP) that influence effectiveness of business process integration. Organizations' use of Enterprise Resource Planning (ERP) systems has changed the way they provide information systems. The research applied quantitative research method to examine the current study which analyzing the integrative and detailed review of the critical factors of enterprise resource planning (ERP) that influence effectiveness of business process integration. The researcher distributed 180 questionnaires among several projects in Qatar, however it was able to gather only 168 questionnaires out of 180 questionnaires. The findings revealed that all independent variables are positively and significantly influence dependent variable, moreover it was found the highest value was between PMIS and ERP integration, on the other hand the lowest value was for between control environment and ERP integration.*

***Keywords*****— Enterprise Resource Planning, business processes integration, Projects, Qatar.**

## I. INTRODUCTION

A considerable of discussion has been generated over enterprise resource planning in the previous decade (ERP). In an ERP system, the numerous functional domains of an organization are integrated into one software solution, creating a link through the entire supply chain, which is aimed at providing the appropriate product at the right time, at the right place, and at the lowest cost (Hustad et al. 2020). Enterprise resource planning (ERP) is the foundation of many large organizations today across the world (Menon, 2019). Using these commercial software packages, companies may integrate all of their data, including financial and accounting data, human resources data, supply chain data, and consumer data, in a seamless manner (Ivanović & Marić, 2021). It is one of the most essential components of modern ERP systems that the integration that is implicit in the software design permits a significant level of integration between different business elements (Çınar & Ozorhon, 2018). So, ERP systems have become one of the most significant IT investments of the present day (Shukor et al. 2020). There are a wide range of functions that an ERP system may assist with, including production and logistics, financial management and accounting, sales and marketing as well as HR. An ERP system facilitates the exchange of data and knowledge, lowers operating expenses, and enhances the management of company processes. Many ERP systems, despite their advantages, fail (Khandaqji et al. 2022). Only a small amount of ERP implementation research has been done in the last few years, with the majority of studies focusing on specific organizations. Because so few implementation issues that led to these failures have been documented in the literature, practitioners and scholars are left in the dark when it comes to understanding why implementations fail. This is a reason to carry out empirical studies to investigate the difficulties of using ERP systems. ERP project implementation is

fraught with potential dangers that must be avoided if the project is to be a success. This research investigates the difficulties that user organizations in Qatar have had in implementing ERP systems. ERP system implementation issues were empirically determined through interviews with managers from five user organizations who were regarded as having a critical role in ERP system adoption (Ayani et al. 2021). According to Chauhan & Singh, (2020), quantifiable benefits of ERP include shorter lead times, 99 per cent on-time deliveries, increased business, an increase in inventory turnover of 30 per cent, a reduction in cycle time of 80 per cent, and a 70 per cent reduction in work-in-progress (WIP). Another set of potential advantages include a wealth of knowledge about client preferences, a significant savings in working capital, and an ability to view and control the entire extended enterprise of suppliers, partners, and customers as a single entity that can be managed (Rodríguez et al. 2020). For many firms, ERP systems have been installed to eliminate the patchwork of legacy systems and improve the communication and interactions with customers and suppliers (Taghipour et al. 2020). The advantages of a correctly designed ERP system include time and cost savings, faster transaction processing, improved operational performance, financial management, and customer service, web-based interfaces, and more effective communication (AboAbdo et al. 2019). ERP has gained a lot of interest from both practitioners in the business and academics in the field of ERP (Asif, 2018). "Complex technical, organizational, cultural, and political issues" have made ERP integration a "very challenging task" despite a decade's worth of advancements in ERP systems and ERP solutions (Dedan & Lyimo, 2019). An additional problem for organizations today is the dynamic and unpredictable nature of the business environment, as well as the growing number of customers with higher expectations (Chofreh et al. 2020). There are a number of reasons why ERP implementations fail, and they all have the potential to stifle the integration process. In spite of ERP systems' attempts to integrate all of a company's core processes, clients have noticed that certain essential functionality is missing. Hasheela-Mufeti, (2018) report this. Various business processes make up the network that is an ERP system, according to Katuu, (2021). Despite the widespread use of ERP software across a wide range of businesses, the difficulties encountered during and following deployment are a rising source of worry (Chofreh et al. 2018).

Conceptual Framework

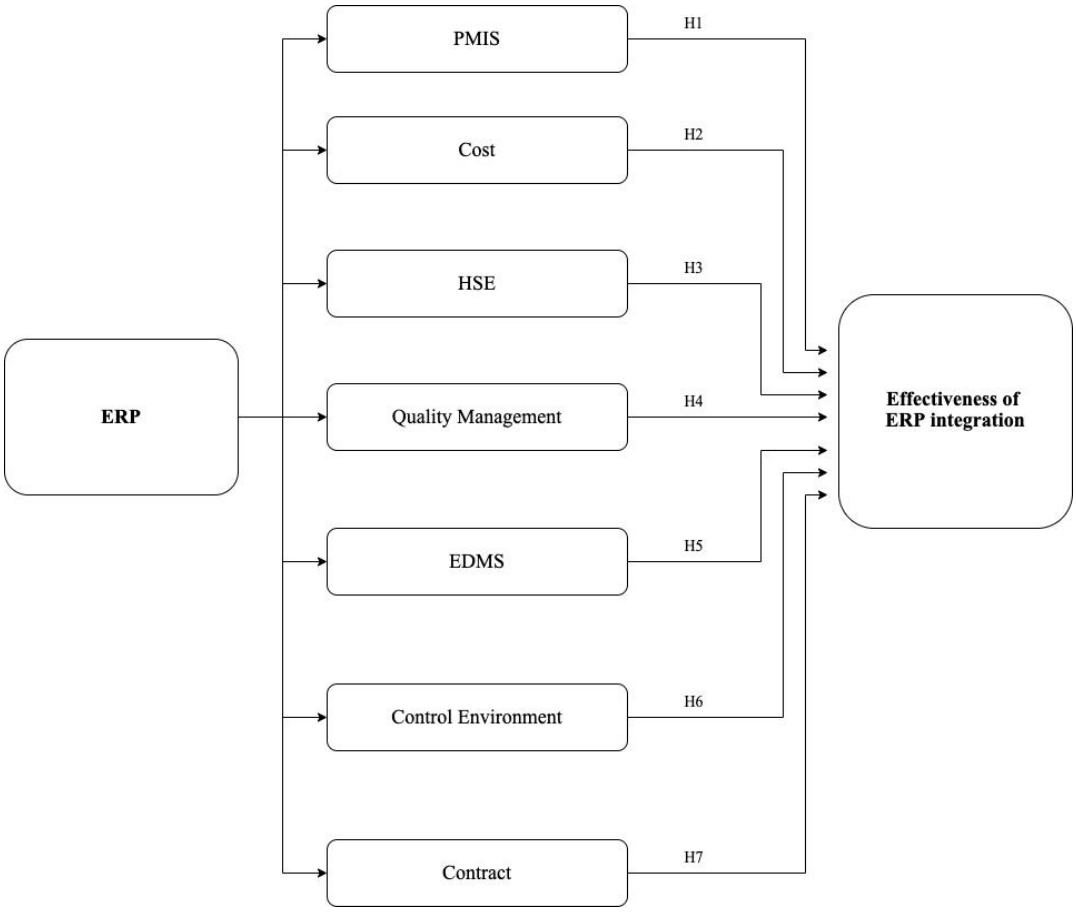


*Figure 1: Conceptual Framework*

**Research Hypotheses**

H1: Project management information system (PMIS) has positive and significant influence on effective ERP integration

H2: Cost has positive and significant influence on effective ERP integration

H3: Health, Safety and Environment (HSE) has positive and significant influence on effective ERP integration

H4: Quality Management has positive and significant influence on effective ERP integration

H5: Electronic Document Management System (EDMS) has positive and significant influence on effective ERP integration

H6: Control Environment has positive and significant influence on effective ERP integration

H7: Contract has positive and significant influence on effective ERP integration

## II. LITERATURE REVIEW

**Enterprise Resource Planning (ERP)**

Enterprise Resource Planning (ERP) systems could well be characterized as the installation of standard software modules for fundamental company activities, often mixed with customised modification for competitive differentiation. A single pilot project or business function may serve as the starting point for this type of growth in many organizations. However, an ERP implementation's ability to expand to a company-wide and/or worldwide level remains a critical element (Herath & Wijenayake, 2019). This may be done via a Business Process Re-engineering (BPR) effort, which may be considered as the prologue to the execution of the project. Historically, organizations have preferred to acquire rather than construct their information systems by using commercially available off-the-shelf software since the 1960s. An ERP system, on the other hand, is more than just a collection of pre-written programs. It is a change management program that requires careful management of the human aspects involved with a review of business processes throughout the whole organization. ERP systems have witnessed a tremendous increase in use over the past decade, particularly among large corporations that are looking to implement a worldwide information systems strategy. A corporation, is the top ERP provider in the industry (You & Wu, 2019) offering enterprise integration of information systems and e-commerce operations. There is more to ERP initiatives than just establishing a computer system, according to Morrisson, (2020). Instead, corporations are reorganizing their businesses and going against the dominant corporate culture. ERP systems are rarely cited as a source of competitive advantage by Pakhale & Pal, (2020). In reality, prominent failures such as Dell Computers, Dow Chemicals, Fox-Meyer, and Mobil have been recorded (Neto & Neumann, 2020). Financial and human resources software, sales and order processing, material requirements planning (MRP) and MRP II were all launched in the 1970s as industry standards. They were designed primarily to serve business applications in an organization that was functionally driven. As a result, there was an increase in functional islands of information rather than a focus on process optimization. As a result, organizations were forced to function at sub-optimal levels in these information islands from a process standpoint. It was in Germany that initially an Integrations model (Dariea, 2021) and then, much later, Computer Integrated Manufacturing (CIM) were introduced in an attempt to prevent this sub-optimal scenario and to get closer to an overall ideal (Senaya et al. 2022). The processing of information was given a strong mechanistic bent in these advancements. It was Surung et al. (2020) that made the fundamental breakthrough in process-oriented thinking in IT. The outcome was the rising usage of integrated systems like SAP's R/3, which provided real-time support of whole business processes e.g., from the reception of a client order through the delivery of the completed items (Tavana et al. 2020). To simplify the process of standard software implementation, see it as a set of tasks that must be completed in order for a company to make efficient use of the program (Shkurti & Manoku, 2021). As a result, the software must be integrated into the company's operations and any resulting adjustments. A business process-oriented implementation is a step-by-step introduction of full business processes that are supported by the software, regardless of the functional structure of the organization and potentially even the program itself (Cadersaib et al. 2020). A business process focused approach is therefore a vital aspect of process-based information management and helps to optimize business processes independent of the software's design philosophy (Taghavi et al. 2019). ERP systems have now been adopted by the majority of Fortune 500 companies, and as the high end of the market gets saturated, ERP systems are flowing down to medium-sized organizations and to regions outside those originally penetrated in Europe and North America. While ERP systems are widely used in Europe and North America, they are significantly less common in underdeveloped nations. ERP suppliers, on the other hand, are increasingly targeting developing nations like Qatar because of their economic development (Kenge & Khan, 2020). Large and medium-sized businesses in Qatar and other developing nations are using ERP solutions and more are likely to do so. According to Shamshuddin &

Venkateswarulu, (2020), most adopting organizations have assumed that the so-called "best-of-suite solutions" that are included into these generic packages may be accessed with reasonable simplicity. However, the transfer of ERP systems to poor nations is generally hampered by issues of mismatch with local, cultural, economic and legal constraints, which are normally designed in rich countries. More recently, there's been little study done on ERP implementation: mostly individual case studies have been presented. Because so few implementation issues that led to these failures have been documented in the literature, practitioners and scholars are left in the dark when it comes to understanding why implementations fail. This is a reason to carry out empirical research to investigate the difficulties of using ERP systems. ERP project implementation is fraught with potential dangers that must be avoided if the project is to be a success. This research investigates the difficulties that user organizations in Qatar have had in deploying ERP systems. ERP system installation issues were experimentally determined through interviews with managers from five user organizations who were regarded as having a critical role in ERP system adoption (Ursacescu et al. 2019). According to Hewavitharana et al. (2019), quantifiable benefits of ERP include shorter lead times, 99 per cent on-time deliveries, increased business, an increase in inventory turnover of 30 per cent, a reduction in cycle time of 80 per cent, and a 70 per cent reduction in work-in-progress (WIP). Another set of possible advantages include a wealth of knowledge about client preferences, a significant savings in working capital, and an ability to see and control the entire extended business of suppliers, partners, and customers as a single entity that can be managed (Lubasi & Seymour, 2021). For many firms, ERP systems have been installed to eliminate the patchwork of legacy systems and enhance the communication and interactions with customers and suppliers (Jesus & Lima, 2021). The advantages of a correctly designed ERP system include time and cost savings, quicker transaction processing, improved operational performance, financial management, and customer service, web-based interfaces, and more efficient communication (Fiaz et al. 2018). ERP has gained a lot of interest from both practitioners in the business and academics in the field of ERP (Costin et al. 2020). Complex technical, organizational, cultural, and political issues have made ERP integration a "very challenging task" despite a decade's worth of advancements in ERP systems and ERP solutions (Chan & Chin, 2021). An additional problem for organizations today is the dynamic and unpredictable nature of the business environment, as well as the growing number of customers with higher expectations (Razmi et al., 2009). There are a number of reasons why ERP installations fail, and they all have the potential to stifle the integration process. In spite of ERP systems' attempts to integrate all of a company's core operations, clients have noticed that certain important functionality is missing. Alam & Uddin, (2019) describe this. Various business processes make up the network that is an ERP system, according to Hustad et al. (2020). Despite the widespread use of ERP software across a wide range of businesses, the difficulties encountered during and following deployment are a rising source of worry (Menon, 2019).

## III. THE IMPLEMENTATION PROCESS

ERP implementations are frequently fraught with dread and anxiety, and this has been well-documented in the IT press. In any company, implementing a new business system is unquestionably a major undertaking. It should not come as a surprise given the magnitude of organizational change induced by the average deployment. Enterprise systems demand a high degree of organizational discipline in order to succeed. Consequently, a complete intervention will be difficult for businesses that are not used to this level of discipline. An R/3 deployment, for example, encourages a business to analyze all of its current processes and compare them to the "best practices" integrated in the package. Generally, the company must reengineer its processes to match R/3 in order to reconcile the disparities (Ivanović & Marić, 2021). Despite the fact that it is technically feasible to edit R/3 (make changes to the source code), few experts would recommend this technique. Nowadays, it is widely accepted that software should be implemented "as-is." Increased implementation costs and difficulties in adopting future software changes are a price to pay for "chocolate chips." Although the connection between the strategic and operational layers of the business process may appear insignificant, it is not. An incorrect company vision or aim might lead tactics to be called into question and even rejected. As a result, these techniques may and should be modified. It is possible to facilitate dialogue and an outlet for revising the vision by including strategic visioning into the implementation program. Decentralization of procurement procedures, for example, might be a strategic goal for one government agency (Çınar & Ozorhon, 2018). However, if the vision comes to fruition, the organization may have to make significant changes to its business operations and incur significant costs in the form of software licenses in order to do so. A cost-benefit analysis may show that the plan, while widely acknowledged as the "best" business practice, isn't really the "best practice" for the organization as a whole. Changing the strategic vision of decentralized procurement procedures can be made possible if strategic visioning is a component of the

implementation program. As a result, the company might avoid needless and expensive software license payments and align business operations with a more suitable vision, which may be better addressed with a more central procurement process. Many layered plans exist for various organizational units, and while the strategy goals at a higher level may be the same, each domain plan will most likely contain distinct objectives (Shukor et al. 2020). These many goals are frequently seen as conflicting ones in the real world, as seen by past experience. Because of this, it is necessary to document and analyze the connections between organizational goals and the operational architecture to uncover any potential inconsistencies. Establishing managerial accountability for previously agreed-upon or negotiated organizational agreements can be difficult without adequate evidence. Following this, we'll show you how 'linking' works and point you that, despite their importance, these linkages are generally not part of an ERP deployment program. However, our experience shows that if the ERP implementation program is not fully aligned with the company's long-term strategic goals, the deployment will be far less successful. Even if it isn't part of the implementation plan, strategic visioning may and should be utilized as a catalyst for alignment even if it isn't the primary motivator. With deregulation, privatization, and globalization, huge firms have been turned into giant multinational corporations because of these recent developments in the corporate environment (Khandaqji et al. 2022). It has become imperative for businesses to look for new strategies to survive and prosper in this shifting business climate. Companies may be able to adapt more effectively and efficiently to these developments thanks to IT. Although organizations must stay up with the latest technology in order to compete in today's highly automated and IT-driven corporate world (Ayani et al. 2021). Examples of these technologies include enterprise resource planning systems (ERPs) (Chauhan & Singh, 2020). An ERP system is a general word for a computer network that serves a whole company. Accounting, stock control and logistics are among the operations that may be carried out by the modules in this system (Rodríguez et al. 2020). Automating corporate operations, sharing common data, and producing real-time data are all essential components of an ERP system. It appears that traditional information systems (IS) do not meet the needs of today's business leaders in terms of transaction processing, reporting, and information for decision making in a modern corporate environment that emphasizes operational automation, effectiveness, and efficiency. By providing fast and accurate information, ERP systems may help firms make better decisions by allowing them to get the information they need. In addition, ERP software may help with better operations planning and management. Because of this, operations become more efficient and effective, which in turn improves customer satisfaction (Taghipour et al. 2020). A questionnaire will be used to gather data on the impact of ERP systems on businesses that use them, with a focus on the accounting functions that they support. To find out how ERP systems have contributed to these alterations in accounting processes, this research aims to find out how much support they have provided. When it comes to ERP systems, advanced manufacturing technologies (AMT) were designed to improve quality by reducing inventory and enhancing customer service (AboAbdo et al. 2019) Furthermore, MRPII looks to be an essential feature of an ERP system that is considered "complete" (Asif, 2018). ERP systems are also being implemented because of the year 2000 issue, currency consolidation (Euro), integration of all corporate operations and procedures, and an Internet interface (Dedan & Lyimo, 2019). ERP systems regard transactions as one of the interconnected operations that make up the whole enterprise (Chofreh et al. 2020). Automating and integrating corporate processes, sharing data across departments, and producing and accessing information in a real-time environment are just some of the benefits of these systems (Hasheela-Mufeti, 2018). If a customer order is entered into the system, for example, the system's stock levels, general ledger, and logistics will be updated. An ERP system that is "complete" includes not just the typical accounting information system, but also inventory control, manufacturing resource planning (MRP), and logistics. EDI systems and e-commerce may also be part of an ERP system (Katuu, 2021). This all-inclusive IS capable of generating tremendous benefits to organizations via increased effectiveness and efficiency in operations, business processes and strategic decision making (Chofreh et al. 2018). These include operational, managerial, strategic, IT infrastructure, and organizational components, which are all intertwined in a corporate enterprise's operations and management. There have also been discussions on ERP systems' usefulness (Scott and Kaindl, 2000) and their flexibility (Herath & Wijenayake, 2019). To address both inflexibility and functionality issues, the "best of breed" approach has also been pushed forward as a solution (You & Wu, 2019). The integration of ERP systems with existing systems is another significant issue (Morrisson, 2020). The interdependencies that are at the heart of this system's strength can also be its greatest weakness, resulting in data mistakes and service disruptions (Pakhale & Pal, 2020). It appears that significant cost and schedule overruns are a significant impediment to their success, as are issues with the organization, such as employee opposition (Neto & Neumann, 2020). Despite this, ERP systems aren't a one-size-fits-all solution for

"false" underlying corporate structures and processes. ERP system implementations often hinge on a variety of variables, including organizational culture, top-level management support, open lines of communication, and the suitability of existing business and IT systems (Dariea, 2021). Accounts Receivable and Payable, Fixed Assets, Cash Management, Cost Control and Budgeting are all part of the accounting module of an ERP system. ERP systems, on the other hand, give firms the potential to optimize business operations by integrating all of an organization's functional areas. Financial and non-financial data can be merged into a single system. Only one Australian study has examined this topic to yet, according to the authors' research (Senaya et al. 2022). ERP systems have been shown to be successful in transaction processing, but less so in reporting and decision support. It's been suggested that ERP systems make it easier to use cutting-edge accounting techniques like activity-based budgeting (ABB), product lifecycle costing (PLC), and balanced scorecards. There are several advantages to using ERP systems in accounting, which is why we conducted this investigation. Because of this, despite their enticing nature, enterprise resource planning (ERP) systems suffer from several drawbacks. Examining how ERP systems affect the accounting operations of organizations, this research explores the viewpoints of managers of companies that have implemented ERP systems. ERP systems' motivations and benefits are also examined. It is the goal of this article to throw more light on the advantages of ERP systems over the old Information System (Surung et al. 2020).

## IV. RESEARCH METHODOLOGY

### Research Method

This research applied quantitative research and executing description approach with open ended questions in order to confirm that every circumstance provided complete evidence of their knowledge. In this research, the questionnaires are distributed their knowledge in their empirical learning procedure. This examination will give rich portrayals of cycles and miniature level, and encourage designs for additional exploration. This examination will empower to develop involvement with miniature level and comprehend the function of experiential learning on the enterprising goal. There are three transcendent exploration draws near: subjective, quantitative and blended strategies. Tavana et al. (2020) guarantee that early business research was prevalently supported by quantitative examination. Such a quantitative establishment has limited business research. Regardless of quantitative research producing critical information amassing, business analysts have commonly fizzled in building up a hypothesis. Thusly, this study applied quantitative research method to examine the integrative and detailed review of the critical factors of enterprise resource planning (ERP) that influence effectiveness of business process integration.

### Research Design

This section offers the aspects of the research design to attain data applicable to concentrating successfully the questions of the research. As mentioned earlier in the previous section, the research applied quantitative research method to examine the current study which analyzing the integrative and detailed review of the critical factors of enterprise resource planning (ERP) that influence effectiveness of business process integration. The researcher developed seven research hypotheses to measure the examine the integrative and detailed review of the critical factors of enterprise resource planning (ERP) that influence effectiveness of business process integration in Qatar, by developing an academic questionnaire which was adapted from different academic sources and then to be distributed among employees at selected projects in Qatar.

### Data Collection

Deciding concerning the study sample is important since selecting an accurate sample effect in gathering suitable data that aids with examine the study successfully. Because of the circumstance that there would be a resilient relationship between the purpose of the study and study design (Shkurti & Manoku, 2021), and additional, selecting the study members requests to be well-matched with the study concentration. Consequently, selecting these members is probable to not be an easy job till the study concentration is well-defined (Cadersaib et al. 2020). The chief dependence of quantitative studies for gathering data is on probability sampling. By depending on such, academics practice their personal decisions to select the study sample and population, therefore, entirely of the study population will get the equivalent chance to be selected (Kenge & Khan, 2020). Therefore, quantitative studies, inconsistently does not typically employment sampling approaches that pursue to create statistical representativeness. In this respect, Lubasi & Seymour, (2021) claims that one of the central thoughts once choosing the sample for quantitative studies is that the persons designated can great aid with discovering an essential occurrence detailed, consequently, quantitative studies purposely choice the sample for their study. Such a sample includes of a number of approaches obtainable for scholars to select from. The choice overdue choosing the sample of the current research has been completed on two stages: universities assortment and people assortment. With respect to universities assortment, the two principles recognized by Fiaz et al. (2018) have been applied to create this collection.

Primary, the examiner requests to have sufficient admission to the data essential for directing her study. Second, the chosen circumstances should be one of the greatest possible situations that can successfully measure developed research hypotheses. Several projects in Qatar were chosen to be the chief foundation for obtaining data. Nowadays, it is significant to recognize that obtaining enough admission to the places and people is one of the important measures applied to choose the quantitative study sample (Jesus & Lima, 2021). Notwithstanding this, academics preferably purpose at gathering data from a collection of contributors in a specific public/group or cluster of societies. Their capabilities to attain such a goal are related with, initially, retrieving those societies/societies and target participants, and secondly, gaining permission for collecting the required data (Costin et al. 2020). It is value stating that the additional two foundations of indication of the current thesis are available from all selected projects that signify the study population. As for specific collection, the managers of projects and employees are selected to be segment of the current study. Further, to the convenience debated earlier, there are two additional details for selecting these management levels to handle and manage research questionnaire.

**Participants and Sample Size**

The contributors of the thesis are from four different projects in Qatar. They are eagerly chosen to take part and the aim to choose them is that they signify the greatest effective language workers in the learning setting of the thesis. The researcher distributed 180 questionnaires among several projects in Qatar, however it was able to gather only 168 questionnaires out of 180 questionnaires.

**Instruments**

The study used a survey of reliable resources published in high international journals. The study on the Likert scale examined all survey questions. The scales ranged from 1, which means completely disagree to 5, which means strongly agree. However, the questionnaire was adapted from (Gattiker, 2007; Ha et al. 2014; Spathis & Constantinides, 2004).

**Data Analysis**

*Table 1: Reliability Analysis*

| No | Variables | Number of questions | Cronbach Alpha |
|---|---|---|---|
| 1 | PMIS | 7 | .749 |
| 2 | Cost | 8 | .755 |
| 3 | HSE | 5 | .729 |
| 4 | Quality Management | 7 | .761 |
| 5 | EDMS | 6 | .772 |
| 6 | Control Environment | 5 | .769 |
| 7 | Contract | 5 | .791 |
| 8 | ERP integration | 7 | .786 |

The study applied reliability analysis to measure the reliability for each variables used to examine the integrative and detailed review of the critical factors of enterprise resource planning (ERP) that influence effectiveness of business process integration. The results of reliability analysis showed that the Cronbach alpha for PMIS was .749 for seven questions, this indicated that all seven questions used to measure PMIS were reliability for the current study. The Cronbach alpha for cost was .755 for eight questions, this indicated that all eight questions used to measure cost were reliability for the current study. The Cronbach alpha for HSE was .729 for five questions, this indicated that all five questions used to measure HSE were reliability for the current study. The Cronbach alpha for quality management was .761 for seven questions, this indicated that all seven questions used to measure quality management were reliability for the current study. The Cronbach alpha for EDMS was .772 for six questions, this indicated that all six questions used to measure EDMS were reliability for the current study. The Cronbach alpha for control environment was .769 for five questions, this indicated that all five questions used to measure control environment were reliability for the current study. The Cronbach alpha for contract was .791 for five questions, this indicated that all five questions used to measure contract were reliability for the current study, and the Cronbach alpha for ERP integration was .786 for seven questions, this indicated that all seven questions used to measure ERP integration were reliability for the current study.

*Table 2: Correlation Analysis*

| Correlations | | |
|---|---|---|
| | | ERP Integration |
| PMIS | Pearson Correlation | .701** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| Cost | Pearson Correlation | .612** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| HSE | Pearson Correlation | .639** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| Quality Management | Pearson Correlation | .691** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| EDMS | Pearson Correlation | .598** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| Control Environment | Pearson Correlation | .624** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| Contract | Pearson Correlation | .501** |
| | Sig. (2-tailed) | .000 |
| | N | 168 |
| ** Correlation is significant at the 0.01 level (2-tailed). | | |

The study applied correlation analysis to measure the correlation between each independent variable and dependent variable. The correlation analysis results showed that the Pearson correlation between PMIS and ERP Integration was .701**, this indicated that there is a positive and strong correlation between PMIS and ERP Integration. The Pearson correlation between cost and ERP Integration was .612**, this indicated that there is a positive and moderate correlation between cost and ERP Integration. The Pearson correlation between HSE and ERP Integration was .639**, this indicated that there is a positive and moderate correlation between HSE and ERP Integration. The Pearson correlation between quality management and ERP Integration was .691**, this indicated that there is a positive and strong correlation between quality management and ERP Integration. The Pearson correlation between EDMS and ERP Integration was .598**, this indicated that there is a positive and moderate correlation between EDMS and ERP Integration. The Pearson correlation between control environment and ERP Integration was .624**, this indicated that there is a positive and moderate correlation between control environment and ERP Integration, and the Pearson correlation between contract and ERP Integration was .501**, this indicated that there is a positive and moderate correlation between contract and ERP Integration.

**Multiple Regression Analysis**

*Table 3: Model Summary*

| Model Summary | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .631a | .641 | .674 | .26458 |
| a. Predictors: (Constant), ERP Integration | | | | |

Table (3) demonstrates the value of R, the value of R Square and the value of Adjusted R Square, the findings showed that the value of R is .631 and the value of R Square is .641 and the value of Adjusted R Square is .674, these referred that there is a strong connection between (PMIS, Cost, HSE, Quality Management, EDMS, Control Environment, Contract) as independent variables with ERP Integration as dependent variable.

*Table 4: ANOVA*

| ANOVA | | | | | | |
|---|---|---|---|---|---|---|
| Mode | | Sum of Square | df | Mean Square | F | Sig. |
| 1 | Regression | 31.015 | 1 | 36.524 | 456.123 | .000b |
| | Residual | 20.651 | 358 | .071 | | |
| | Total | 71.256 | 342 | | | |
| a. Dependent Variable: ERP Integration | | | | | | |
| b. Predictors (Constant), PMIS, Cost, HSE, Quality Management, EDMS, Control Environment, Contract | | | | | | |

Table (4) demonstrates ANOVA between (PMIS, Cost, HSE, Quality Management, EDMS, Control Environment, Contract) as independent variables and ERP Integration as dependent variable. It can be seen that the value of Sum of Squares, the value of Mean square, the value of F and Significant value. The findings showed that the value of Sum of Squares is 31.015 at the regression level and 20.651 at residual level as total is 71.256, the value of Mean square is 36.524 at regression level and .074 at residual level, the value of F is 456.123 and Significant value is .000, all these referred that there is a strong connection between (PMIS, Cost, HSE, Quality Management, EDMS, Control Environment, Contract) as independent variables and ERP Integration as dependent variable.

*Table 5: Multiple Regression*

| Coefficients | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. error | Beta | | |
| 1 | (constant) | .081 | .123 | | .547 | .493 |
| | PMIS | .711 | .019 | .732 | 2.352 | .000 |
| | Cost | .592 | .021 | .601 | 2.239 | .000 |
| | HSE | .612 | .032 | .619 | 1.872 | .000 |
| | Quality Management | .623 | .015 | .628 | 1.792 | .000 |
| | EDMS | .683 | .025 | .689 | 1.342 | .000 |
| | Control Environment | .529 | .011 | .536 | 2.877 | .000 |
| | Contract | .536 | .029 | .541 | 2.335 | .000 |
| a. Dependent Variable: ERP Integration | | | | | | |

The study applied multiple regression analysis to measure developed research hypotheses. The findings showed that the B value was .711, Beta value was .732 respectively between PMIS and ERP integration, this showed a positive and significant relationship between PMIS and ERP integration; accordingly, the first research hypothesis is supported which stated that '' Project management information system (PMIS) has positive and significant influence on effective ERP integration ''. The B value was .592, Beta value was .601 respectively between cost and ERP integration, this showed a positive and significant relationship between cost and ERP integration; accordingly, the second research hypothesis is supported which stated that '' cost has positive and significant influence on effective ERP integration ''. The B value was .612, Beta value was .619 respectively between HSE and ERP integration, this showed a positive and significant relationship between HSE and ERP integration; accordingly, the third research hypothesis is supported which stated that '' HSE has positive and significant influence on effective ERP integration ''. The B value was .623, Beta value was .628 respectively between quality management and ERP integration, this showed a positive and significant relationship between quality management and ERP integration; accordingly, the fourth research hypothesis is supported which stated that '' Quality management has positive and significant influence on effective ERP integration ''. The B value was .683, Beta value was .689 respectively between EDMS and ERP integration, this showed a positive and significant relationship between EDMS and ERP integration; accordingly, the fifth research hypothesis is supported which stated that '' EDMS has positive and significant influence on effective ERP integration ''. The B value was .529, Beta value was .536 respectively between control environment and ERP integration, this showed a positive and significant relationship between control environment and ERP integration; accordingly, the sixth research hypothesis is supported which stated that '' Control environment has positive and significant influence on effective ERP integration ''. The B value was .536, Beta value was .541 respectively between contract and ERP integration, this showed a positive and significant relationship between contract and ERP integration; accordingly, the seventh research hypothesis is supported which stated that '' Contract has positive and significant influence on effective ERP integration ''. The findings revealed that all independent variables are positively and significantly influence dependent variable, moreover it was found the highest value was between PMIS and ERP integration, on the other hand the lowest value was for between control environment and ERP integration.

## V. CONCLUSION

The influence of ERP systems on Qatar's accounting procedures was examined in this study for the first time. According to the results of the poll, organizations are using ERP systems to stay competitive and flourish in today's market. ERP users are driven primarily by the need for application integration, real-time data, and, in particular, data for decision-making. This shows that ERP systems are becoming a need for organizations to remain competitive in this new business climate rather than a new strategic decision, as some had previously thought. ERP systems, on the other hand, provide firms with the ability to re-engineer their operations and update their IT systems as well as their business procedures. The findings revealed that all independent variables are positively and significantly influence dependent variable, moreover it was found the highest value was between PMIS and ERP integration, on the other hand the lowest value was for between control environment and ERP integration. ERP systems have brought about a lot of modifications in accounting practices, according to empirical research. Non-financial performance indicators, segmental/product profitability analyses, and the installation of an internal audit role are among the most commonly cited examples. It's worth noting, however, that these alterations are the result of ERP systems' primary advantages, which have also been the driving factor for managers' adoption of them.. This is further supported by the most highly ranked perceived advantages of ERP system adoption, as reported by respondents. Accounting software can be integrated, information can be generated more quickly, and the quality of financial reports and choices may be enhanced with fast and accurate accounting information. The fact that ERP systems are still in their infancy has also been cited as a reason for the lack of widespread adoption of ERP improvements and the potential advantages of doing so. ERP systems have yet to make a significant influence on accounting processes because these firms have just recently implemented them. In addition, ERP systems' complexity necessitates some time before users can enjoy the full benefits. As a general rule, long-term advantages come from ERP installation (Poston and Grabski, 2001). The improvements and advantages that come with them, however, do not represent true innovation, but rather just keeping up with the rapid pace of change in the commercial world. ERP systems have become a need for firms in this increasingly competitive, highly automated, and IT-driven corporate world. Further study may explore the influence of both technical and "softer" variables in bringing about drastic changes in accounting processes. to procedures. Employee resistance to change might be a factor in the latter. ERP solutions necessitate not just a restructuring of company processes and structures but also, and perhaps

most crucially, a shift in management philosophy and culture (Wood and Caldas, 2001). Hence, senior management backing, internal and external cooperation, as well as training and engagement by employees, appear to be key factors in successful ERP systems. In addition, in today's IT-driven workplace, accountants must have strong IT abilities in order to put their training to good use. Examining their ability to adapt to this new, more demanding duty might also help explain these results. ERP systems are a good choice for businesses looking for a comprehensive set of capabilities throughout their whole organization, as well as the advantages of integration and best practices in their information systems. As a result, there has been an increase in the number of businesses utilizing ERP. It has been stated that ERP implementations are often unsuccessful. More than a dozen studies have examined ERP installations, and the findings have led to the conclusion that only around ten percent of them succeed. In this research, a comprehensive literature review was used to identify a variety of crucial failure variables. These studies, while providing valuable insight into ERP deployments' successes and failures, were lacking in certain cases.

## REFERENCES


[1] AboAbdo, S., Aldhoiena, A., & Al-Amrib, H. (2019). Implementing Enterprise Resource Planning ERP system in a large construction company in KSA. *Procedia Computer Science*, *164*, 463-470.

[2] Alam, M. S., & Uddin, M. A. (2019). Adoption and implementation of enterprise resource planning (ERP): An empirical study. *Journal of Management and Research*, *6*(1), 1-33.

[3] Asif, M. S. (2018). An Appraisal of Issues Faced by Manufacturing Companies, when Selecting an Enterprise Resource Planning (ERP) System. *International Journal of Business and General Management*, *7*(1), 1-8.

[4] Ayani, S., Mirzaei, M., Abbasi, N., & Moulaei, K. (2021). Enterprise resource planning in the health industry: Problems of its usage based on the extent of the countries' development. *Applied Medical Informatics.*, *43*(1), 1-13.

[5] Cadersaib, B. Z., Ahku, Y., Sahib-Kaudeer, N. G., Khan, M. H. M., & Gobin, B. (2020, November). A review of skills relevant to enterprise resource planning implementation projects. In *2020 International Conference on Informatics, Multimedia, Cyber and Information System (ICIMCIS)* (pp. 172-177). IEEE.

[6] Chan, Y., & Chin, S. W. (2021). Evaluating the Enterprise Resource Planning (ERP) System of a Bread Manufacturing Organisation from the Perspectives of Stakeholders. *Journal of Techno-Social*, *13*(2), 39-55.

[7] Chauhan, V., & Singh, J. (2020). Enterprise Resource Planning Systems Implementation in Online Travel Agencies. *International Journal of Hospitality & Tourism Systems*, *13*(1).

[8] Chofreh, A. G., Goni, F. A., & Klemeš, J. J. (2018). Sustainable enterprise resource planning systems implementation: A framework development. *Journal of cleaner production*, *198*, 1345-1354.

[9] Chofreh, A. G., Goni, F. A., Klemeš, J. J., Malik, M. N., & Khan, H. H. (2020). Development of guidelines for the implementation of sustainable enterprise resource planning systems. *Journal of Cleaner Production*, *244*, 118655.

[10] Çınar, E., & Ozorhon, B. (2018). Enterprise resource planning implementation in construction: challenges and key enablers. *Journal of Construction Engineering*, *1*(2), 75-84.

[11] Costin, B. V., Anca, T., & Dorian, C. (2020, October). Enterprise resource planning for robotic process automation in big companies. A case study. In *2020 24th International Conference on System Theory, Control and Computing (ICSTCC)* (pp. 106-111). IEEE.

[12] Dariea, C. M. (2021). Inherent Conflict on Implementation of Strategic Tools Enterprise Resource Planning (ERP). *Accounting and Management Information Systems AMIS 2021*, 333.

[13] Dedan, J., & Lyimo, B. (2019). Assessment of the implementation of Enterprise Resource Planning in Public Organizations, a case of Tanzania Revenue Authority-Arusha Region, Tanzania. *Olva Academy–School of Researchers*, *2*(3), 1-38.

[14] Fiaz, M., Ikram, A., & Ilyas, A. (2018). Enterprise resource planning systems: Digitization of healthcare service quality. *Administrative Sciences*, *8*(3), 38.

[15] Gattiker, T. F. (2007). Enterprise resource planning (ERP) systems and the manufacturing–marketing interface: an information-processing theory view. *International journal of production research*, *45*(13), 2895-2917.

[16] Ha, Y. M., & Ahn, H. J. (2014). Factors affecting the performance of Enterprise Resource Planning (ERP) systems in the post-implementation stage. *Behaviour & Information Technology*, *33*(10), 1065-1081.

[17] Hasheela-Mufeti, V. (2018). Current prospects and challenges of enterprise resource planning (ERP) adoption in developing countries. *International Science and Technology Journal of Namibia*, 094-106.

[18] Herath, H. M. R. P., & Wijenayake, S. I. (2019). The strategic importance of enterprise resource planning (ERP) systems implementation in the fast moving consumer goods (FMCG) industry in Sri Lanka. *International Journal of Recent Technology and Engineering (IJRTE)*, *8 (2S9)*, 2277-3878.

[19] Hewavitharana, T., Nanayakkara, S., Perera, A., & Perera, J. (2019). Impact of Enterprise Resource Planning (ERP) systems to the construction industry. *International Journal of Research in Electronics and Computer Engineering*, *7*, 887-893.

[20] Hustad, E., Sørheller, V. U., Jørgensen, E. H., & Vassilakopoulou, P. (2020). Moving enterprise resource planning (ERP) systems to the cloud: the challenge of infrastructural embeddedness. *International journal of information systems and project management*, *8*(1), 5-20.

[21] Ivanović, T., & Marić, M. (2021). Application of modern Enterprise Resource Planning (ERP) systems in the era of digital transformation. *Strategic Management*, *26*(4), 28-36.

[22] Jesus, C., & Lima, R. M. (2021). Business processes reconfiguration through the implementation of an enterprise resource planning system. *Journal of Applied Engineering Science*, *19*(2), 488-497.

[23] Katuu, S. (2021). Trends in the enterprise resource planning market landscape. *Journal of Information and Organizational Sciences*, *45*(1), 55-75.

[24] Kenge, R., & Khan, Z. (2020). A Research Study on the ERP System Implementation and Current Trends in ERP. *Shanlax International Journal of Management*, *8*(2), 34-39.

[25] Khandaqji, A. K., Sweis, R., Sukkari, L., Sweis, G., & Abdallah, A. B. (2022). The extent of enterprise resources planning systems' implementation and its impact on the performance of pharmaceutical manufacturing companies. *International Journal of Logistics Systems and Management*, *41*(3), 371-394.

[26] Lubasi, M., & Seymour, L. F. (2021, July). Understanding the Significance of Enterprise Resource Planning Education in Zambia: A Case of an ERP Short Course at University of Zambia. In *Annual Conference of the Southern African Computer Lecturers' Association* (pp. 149-164). Springer, Cham.

[27] Menon, S. (2019). Critical challenges in enterprise resource planning (ERP) implementation. *International Journal of Business and Management*, *14*(7).

[28] Morrisson, M. K. (2020). Best Practice Models for Enterprise Resource Planning Implementation and Security Challenges. *Journal of Business*, *8*(2), 55-60.

[29] Neto, A. A., & Neumann, C. (2020). Implementation of Enterprise Resource Planning in a metal industry with differentiated product lines. *Sistemas & Gestão*, *15*(2), 143-155.

[30] Pakhale, P. D., & Pal, A. (2020). Digital project management in infrastructure project: a case study of Nagpur Metro Rail Project. *Asian Journal of Civil Engineering*, *21*(4), 639-647.

[31] Rodríguez, R., Molina-Castillo, F. J., & Svensson, G. (2020). The mediating role of organizational complexity between enterprise resource planning and business model innovation. *Industrial Marketing Management*, *84*, 328-341.

[32] Senaya, S. K., van der Poll, J. A., & Schoeman, M. (2022). Towards a Framework to Address Enterprise Resource Planning (ERP) Challenges. In *Proceedings of Sixth International Congress on Information and Communication Technology* (pp. 57-71). Springer, Singapore.

[33] Shamshuddin, S., & Venkateswarulu, T. (2020). A Study on Selecting and Implementing Enterprise Resource Planning in Current Digital Transformation Era. *EPRA International Journal of Multidisciplinary Research (IJMR)-Peer Reviewed Journal*, *2*, 416-26.

[34] Shkurti, R., & Manoku, E. (2021). Factors of Success in Implementation of Enterprise Resource Planning Systems. *WSEAS Transactions on Business and Economics*, *18*, 1084-1093.

[35] Shukor, S. A., Sheikhi, A., Husna, A., & Nashir, M. (2020). Enterprise resource planning (ERP) adaptation in Malaysia agricultural SME: issues and trends. *Journal of Theoretical and Applied Information Technology*, *98*(12), 2046-2062.

[36] Spathis, C., & Constantinides, S. (2004). Enterprise resource planning systems' impact on accounting processes. *Business Process management journal*.

[37] Surung, J. S., Bayupati, I., & Ayu Putri, G. A. (2020). The Implementation Of ERP In Supply Chain Management On Conventional Woven Fabric Business. *International Journal of Information Engineering & Electronic Business*, *12*(3).

[38] Taghavi, F., Antucheviciene, J., & Yaghobian, S. A. (2019). Assessment of Universities' and Higher Education Centers' Preparedness for Successful Establishment of Enterprise Resource Planning Based on SWARA Method. *Engineering Economics/Inžinerinė ekonomika*, *30*(4), 496-506.

[39] Taghipour, M., Shabrang, M., Habibi, M. H., & Shamami, N. (2020). Assessment and Analysis of Risk Associated with the Implementation of Enterprise Resource Planning (ERP) Project Using FMEA Technique (Including Case-Study). *Management*, *3*(1), 29-46.

[40] Tavana, M., Hajipour, V., & Oveisi, S. (2020). IoT-based enterprise resource planning: Challenges, open issues, applications, architecture, and future research directions. *Internet of Things*, *11*, 100262.

[41] Ursacescu, M., Popescu, D., State, C., & Smeureanu, I. (2019). Assessing the greenness of enterprise resource planning systems through green IT solutions: A Romanian perspective. *Sustainability*, *11*(16), 4472.

[42] You, Z., & Wu, C. (2019). A framework for data-driven informatization of the construction company. *Advanced Engineering Informatics*, *39*, 269-277.

## Appendix - Survey

### Background information

- **Gender:**

☐ Male

☐ Female

- **Age**

☐ 18-20

☐ 20-25

☐ 26-30

☐ 31-35

☐ 36 -40

☐ 41-45

☐ 46 and over

- **Marital Status**

☐ Single

☐ Married

- **Level of education**

☐ High School

☐ Diploma

☐ Bachelor

☐ Master

☐ PhD

Below questions describe the Challenges encountered in the Implementation of Enterprise Resource Planning ERP in infrastructure contracting companies emphasis on business processes integration. Please tick (√) one cell for each statement that most closely describes your overall opinion of each item.

1= Strongly disagree, 2=Disagree, 3= Neutral, 4=Agree, 5= Strongly agree

| **Project management information system (PMIS)** | | | | | | |
|---|---|---|---|---|---|---|
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | Information provided by company is critical to the performance of the business processes integration | | | | | |
| 2 | Increased flexibility in information generation is significant to the performance of the business processes integration | | | | | |
| 3 | Improved decisions based on timely and reliable information is important during the implementation of Enterprise resource planning | | | | | |
| 4 | Improved decision-making process in project information system | | | | | |
| 5 | Reduction of time for transaction processing during the project | | | | | |
| 6 | It is important to reduce of personnel of information system department during the implementation of Enterprise resource planning | | | | | |
| 7 | Increased integration of information applications is significant during the implementation of Enterprise resource planning | | | | | |
| **Cost** | | | | | | |
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | Reduction of time for closure of annual accounts is essential during the implementation of Enterprise resource planning | | | | | |
| 2 | It is important to increase use of financial ratio analysis during the implementation of Enterprise resource planning | | | | | |
| 3 | Planning to reduce time for issuing of reports – statement of accounts during the implementation of Enterprise resource planning | | | | | |
| 4 | Planning to improve internal audit function during the implementation of Enterprise resource planning | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Company should reduce time for closure of monthly accounts during the implementation of Enterprise resource planning | | | | | |
| 6 | Reduction of time for closure of quarterly accounts is significant during the implementation of Enterprise resource planning | | | | | |
| 7 | Improved working capital control is critical during the implementation of Enterprise resource planning | | | | | |
| 8 | Reduction of time for issuing payroll is vital during the implementation of Enterprise resource planning | | | | | |
| **Quality Management** | | | | | | |
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | Continuous investment of significant time and resources in training employees in the post-implementation stage | | | | | |
| 2 | Continuous and adequate on-the-job training to internal user groups in the post-implementation stage | | | | | |
| 3 | Continuous provision of both technology and process training to employees in the post-implementation stage | | | | | |
| 4 | ERP helps this project adjust to changing conditions within the implementation of Enterprise resource planning | | | | | |
| 5 | ERP has improved this project's coordination with the implementation of Enterprise resource planning | | | | | |
| 6 | ERP makes this project aware of important information from the implementation of Enterprise resource planning | | | | | |
| 7 | ERP helps this project synchronize with the implementation of Enterprise resource planning | | | | | |
| **Health, Safety and Environment (HSE)** | | | | | | |
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | Using HSE measurement items for Implementation Success | | | | | |
| 2 | Business processes should control HSE to ensure correctness in the post-implementation stage | | | | | |
| 3 | Business processes should check continuously to prevent defects in HSE in the post-implementation stage | | | | | |
| 4 | Business processes should evaluate continually for improvement of HSE in the post-implementation stage | | | | | |
| 5 | Process improvement standards of HSE are raised continuously in the post-implementation stage | | | | | |
| **Electronic Document Management System (EDMS)** | | | | | | |
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | Regular consultation between EDMS and business managers for business and technical decisions in the post-implementation stage | | | | | |
| 2 | Sharing ideas, information, and resources between the departments using ERP in the post-implementation stage | | | | | |
| 3 | Development of mutual understanding of responsibilities of EDMS in ERP in the post-implementation stage | | | | | |
| 4 | Making joint decisions about EDMS to improve overall operation efficiency in the post-implementation stage | | | | | |
| 5 | Shared vision for how EDMS will support the business in the post- implementation stage | | | | | |
| 6 | Overlapping frequent use of formal and informal channels of communication between EDMS and business departments in the post- implementation stage | | | | | |

| **Control Environment** | | | | | | |
|---|---|---|---|---|---|---|
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | To be successful, this project must be in constant contact and control environment during the implementation of Enterprise resource planning | | | | | |
| 2 | Frequent information exchanges with internal and external business environment are essential during the implementation of Enterprise resource planning | | | | | |
| 3 | The actions or decisions of environmental control have important implications for the operations during the implementation of Enterprise resource planning Improved quality of reports – statement of accounts | | | | | |
| 4 | Close coordination with environment control is essential during the implementation of Enterprise resource planning | | | | | |
| 5 | Qualification of personnel in charge of ERP during the implementation of Enterprise resource planning | | | | | |
| **Contract** | | | | | | |
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | This project works independently and has legal background | | | | | |
| 2 | If this project's legal links and communications are significant during the implementation of Enterprise resource planning | | | | | |
| 3 | The degree to which legal problems regarding ERP are solved whenever they occur during the implementation of Enterprise resource planning | | | | | |
| 4 | Whether enough legal personnel with functional knowledge are included in the team during the implementation of Enterprise resource planning | | | | | |
| 5 | The permanence of the ERP legal team during the implementation of Enterprise resource planning | | | | | |
| **Enterprise Resource Planning ERP** | | | | | | |
| No | Questions | 1 | 2 | 3 | 4 | 5 |
| 1 | In terms of its business impacts on the project, the ERP system has been a success during the implementation of Enterprise resource planning | | | | | |
| 2 | ERP has seriously improved this project's overall business performance during the implementation of Enterprise resource planning | | | | | |
| 3 | From the perspective of this project, the costs of ERP outweigh the benefits during the implementation of Enterprise resource planning | | | | | |
| 4 | ERP has had a significant positive effect during the implementation of Enterprise resource planning | | | | | |
| 5 | Demonstration of continuous enthusiasm and interest in the post- implementation stage | | | | | |
| 6 | The overall level of management support in the post- implementation stage | | | | | |
| 7 | Personal involvement of upper-level managers in ERP in the post- implementation stage | | | | | |