



Exploring the Impact of Shifting ERP Systems to the Cloud

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Abstract: The demand for improving efficiency, productivity, and business processes through cloud-based enterprise resource planning (ERP) has grown substantially in recent decades. This study aimed to investigate the benefits and challenges of moving traditional ERP to the cloud, as well as the success factors that facilitate the transformation process. To the best of our knowledge, few studies have explored these areas in depth. To achieve the specified aims, semi-structured interviews were conducted with government, semi-government, and private companies that had moved their traditional ERP to the cloud. The data were analyzed using thematic analysis. It showed that the movement to the cloud would bring significant cost savings, standardization of business processes, improved accessibility, mobility, and usability and facilitate rapid implementations and upgrades and strict security standards. However, organizations may face challenges during the transformation process, such as customization limitations, organization, and user resistance, concerns about internet reliability and security issues. To ensure the success of the transformation process, the following typical success factors were identified: business process re-engineering, careful planning of the transformation approach, the quality of the project team, and effective communication. This paper provides valuable insights for businesses considering implementing or migrating to cloud-based ERP.

Keywords: cloud-based ERP; cloud ERP benefit; success factors; on-premise systems

1. INTRODUCTION

Enterprise resource planning (ERP) systems are considered a major technological innovation that have a profound impact on the development and transformation of companies and the business world [1], [2], [3]. The Gartner Group coined the term “ERP” and implemented the first ERP system in early 1990 [4], [5]. Nevertheless, ERP archives, which were created with the objective of integrating company processes, may have started as early as 1970 [6]. Historically, the use of ERP systems was limited to large and multinational companies, and the take-up rates for ERP systems were initially slow due to the time-consuming and costly nature of implementation [7]. However, current market growth and the increasing adoption of ERP systems by small and medium-sized businesses [8], [9], [10] suggest that the investment is worthwhile. Despite the high cost of implementation [9], a study indicates that ERP systems are intended to help companies, particularly small businesses, gain a competitive edge.

Despite a slow start, cloud ERP systems have made significant progress in recent decades and are now able to overcome the limitations and inconsistencies of traditional ERP systems that can be effectively remedied through cloud computing services [11], [12], [13], [4], [5]. Cloud computing environments provide a range of attractive properties, including self-service on-demand, resource pooling,

extensive network access, rapid elasticity, measurable services, economies of scale, multitenancy, cost-effectiveness, scalability, customization, maintainability, efficient resource utilization, virtualization, high performance, and environmentally friendly technology [14], [15], [16]. However, despite these benefits, recent research has focused on the major challenges associated with the adoption of cloud ERP, which include data security, customization, reliability, functionality fit, and data migration [17], [18].

Several studies have detailed a range of strategies and methodologies employed in the transition from on-premise ERP systems to cloud ERP [19], [20], [21], [22], [23]. The primary objective of this study is to identify the impacts of adopting a cloud-based system. To achieve this aim, a number of research studies were reviewed, and semi-structured interviews were conducted to collect in-depth information about the benefits of migrating traditional ERP to the cloud, the potential challenges that organizations could face during this transition, and the key factors that facilitate and contribute to the success of the transformation process.

The following sections are organized as follows: Section 2 reviews related studies; Section 3 outlines the methodology utilized in this study; Section 4 presents the analysis results; and Section 5 offers the conclusion and recommen-



datations for further research.

2. LITERATURE REVIEW

This section presents a comprehensive overview of the benefits and challenges of cloud ERP systems, which have been previously explored in depth in previous studies. The review also includes a consideration of the key factors that contribute to the successful implementation of ERP systems.

A. Enterprise Resource Planning (ERP) Systems

Enterprise resource planning (ERP) systems have made a significant contribution to the business world, offering tangible and intangible competitive advantages to organizations of all sizes [24]. They enable the integration and centralization of the entire organization's data into one system using a shared database and common language [25]. According to [26], an ERP system is defined as a software system that automates and integrates an organization's business processes, procedures, and functions into a single framework. In more detail, an ERP system replaces all isolated software packages in an organization, such as those used for marketing, finance, human resources (HR), and manufacturing, with a unified, developed system for real-time data extraction, processing, and communication. Moreover, they allow the organization to make quick decisions on real-time issues, control the entire business process, and improve their overall efficiency and productivity. ERP systems can improve an organization's quality, customer service, performance, and employee behavior and facilitate organizational change [7], [27].

Cloud ERP can be defined as an ERP system that is accessible via the internet. This system offers the advantage of enabling integration and collaboration with customers and suppliers and improving the tracking of incoming raw materials and outgoing products to enhance internal and external visibility and control [28]. It is a computational environment that provides flexibility, availability, and scalability at a lower cost than traditional methods, and has experienced significant growth in recent years. This paradigm allows for the on-demand release of computer resources (such as servers, networks, storage, services, and applications) to users anywhere, at any time, with minimal management effort and service provider communication, as defined in [29].

Based on the 2020 ERP research conducted by the Panorama Consulting Group, the adoption of cloud ERP is primarily driven by the effects of the COVID-19 pandemic and the growing acceptance of cloud-based solutions. The pandemic has facilitated the full potential of modern ERP systems by enabling remote operation and utilizing the cloud to build robust and disaster-resistant systems globally. These systems can support a remote workforce while ensuring the security of data and business applications [30].

B. Benefits of Adopting a Cloud ERP Systems

It is noteworthy that the identification of potential risks faced by individual enterprises during the implementation

of enterprise resource planning (ERP) systems can be challenging [31]. [32] found that the main challenge of traditional ERP solutions is the significant amount of time for implementation, ranging from three months to two years [9]. Moreover, upgrading costs and heavy customization may pose risks for all businesses, especially small businesses without prior ERP implementation experience [15], [33]. However, as mentioned earlier, ERP cloud systems have overcome all ERP system inconsistencies [4], [5].

ERP cloud computing presents a compelling future environment for ERP systems, offering a number of benefits. According to [15], the costs associated with recruiting new development and technical support teams are substantial. In contrast, subscription fees for cloud-based services are significantly lower than those associated with recruiting new staff. Similarly, after ERP is migrated to the cloud, the costs of hardware configuration, additional power, cooling, and warehousing are significantly reduced. In addition, the burden of managing new technology upgrades and regular backups is eliminated when ERP is moved to a cloud environment. In [34], the study showed a reduction of 50% in budget costs and a 15% in daily back-up load. Furthermore, maintenance and energy costs are also reduced.

Krigsman [35] claimed that cloud deployment of ERP has minimal impact on IT staff due to the absence of on-premise infrastructure. Furthermore, vendor-operated upgrades alleviate the burden on IT resources while enabling the maintenance of ongoing enhancements and new versions, as well as the cost of ERP cloud upgrades. These benefits enable organizations to manage their business processes and implement organizational changes effectively.

The utilization of cloud-based ERP systems offers a multitude of advantages, notably the capability to grant access to all users and allow remote access at any time, on-demand, with minimal management effort and communication with the service provider [29]. Furthermore, the flexibility of the cloud-based approach is one of its most valued benefits, allowing organizations to focus on their own enhancements without being constrained by software implementation concerns. Therefore, the adaptability of cloud ERP provides organizations with competitive benefits in the market.

C. Challenges Of Adopting Cloud ERP Systems

In contrast to the above cloud ERP benefits, there are challenges associated with adopting and maintaining such a system, notably those related to data security. Since cloud-ERP data is stored and controlled by a cloud service provider, this could pose a privacy threat and compromise sensitive data [36], [37]. Therefore, data security is widely recognized as a primary challenge when adopting cloud ERP systems [18], [38]. As acknowledged in [18], security issues are the most significant challenge facing ERP clouds. Moreover, cloud-ERP packages are often standardized, which can make them costly and time-consuming to customize [15], [39]. Additionally, reliability, functionality



fit, and data migration are commonly cited challenges in adopting ERP cloud systems [17], [18].

D. Critical Success Factors

It is widely acknowledged that critical success factors (CSFs) play a crucial role in ensuring the success of enterprise resource planning (ERP) implementation projects [40], [41], [42]. Numerous studies have established the important qualities that project managers and management boards must possess in order to optimize their ERP adoption initiatives. While some of these CSFs, such as top management support and user involvement, are common to other IT projects, others are unique to ERP systems, such as business process re-engineering (BPR) [43]. Given the significance of top-level management support, it is widely regarded as the most critical CSF in cloud ERP adoption [44].

The transition from on-premise to cloud ERP is a crucial aspect of successful adoption. Therefore, organizational reactions to this transition are crucial for successful adoption. Employees may become a significant obstacle to organizations' efforts due to their lack of awareness of the benefits of cloud ERP or their reluctance to change their current working habits or business processes [45]. Organizational resistance is common when transitioning from traditional business processes to cloud ERP solutions [46]. Consequently, it is important to manage the organization's resistance through effective communication in order to ensure successful cloud ERP implementation [45], [46], [47], [48]. This is particularly important due to the potential impact of resistance on the overall outcome of the cloud ERP implementation.

According to a comprehensive literature review [49], the top five CSFs for cloud ERP adoption are security, project management, communication, compliance, and network. In addition, other CSFs were classified as less important in the same study, such as organizational resistance, project budget, implementation strategy, strategic goals and objectives, senior management support, and user training. These findings differ from Leyh's top ten CSFs for on-premise ERP usage [50]. However, it is worth noting that both ERP models (on-premise and cloud-based) require effective communication, project management, strategic goals and objectives, and senior management support [51].

Therefore, to the best of our knowledge, this study investigated the benefits of transitioning from traditional ERP systems to cloud-based versions, specifically in the Saudi Arabian context, a topic that has not been extensively examined. Additionally, we discuss the potential challenges that organizations may encounter during the transition, and outline the key factors that play a pivotal role in a successful transition.

3. METHODOLOGY

This section presents the research methodology, which consists of three subsections: the research design, data collection, and data analysis, as illustrated in Figure 1.

A. Research Design

Given that the aim of this study was to investigate the benefits of migrating traditional ERP onto the cloud, as well as to identify the barriers to adopting cloud ERP systems, a qualitative methodology was utilized. This type of methodology is appropriate when in-depth understanding of a given phenomenon is required [52], [53]. Therefore, semi-structured interviews were conducted. This is the most common method used to collect data in qualitative research [54]. Moreover, the interview technique was used to establish the best balance between the freedoms granted to the participants and the depth of information requested [24]. The interview questions were formulated based on previous related work. The interviews were conducted online via Zoom.

In our study, to ensure methodological reliability and validity, we focused on two fundamental strategies: triangulation and member checking, as highlighted by Varpio et al. [55] Triangulation involved analyzing diverse data points and methodologies to ascertain the consistency and complementarity of our results, primarily through a detailed comparison of varied participant responses. This method significantly bolstered the confidence in our research findings. Additionally, member checking, also referred to as informant feedback or respondent validation, played a crucial role. This approach involved participants reviewing and providing feedback on data transcripts and interpretations, thereby validating the analysis and deepening their involvement in the research process. This procedure typically unfolded in two stages: initially, participants confirmed the accuracy of their statements in the transcripts, and subsequently they evaluated and reacted to the initial or final analyses, offering insights on emerging patterns or contextual aspects. This not only affirmed the validity of our findings but also enriched the interpretive depth of our study.

B. Data Collection

As stated previously, the data were collected through online interviews. Two types of questions were utilized. First, open-ended (non-directive) questions were used to elicit as much information as possible about the benefits and challenges of adopting cloud-based ERP systems in organizations, as well as the success factors that facilitate the moving process. The goal of these questions was to uncover the level of information held by the participants regarding what was central in their thoughts [56]. The second type, open-ended (semi-directive) questions, was generated based on the items and constructs identified in [57] in order to acquire information on benefit categories and essential success determinants.

Furthermore, the utilized questions were methodically crafted to ensure objectivity and lack of bias. To validate the efficacy and clarity of the questions, a pilot interview was conducted with a representative participant before proceeding with the full-scale interviews. This preliminary

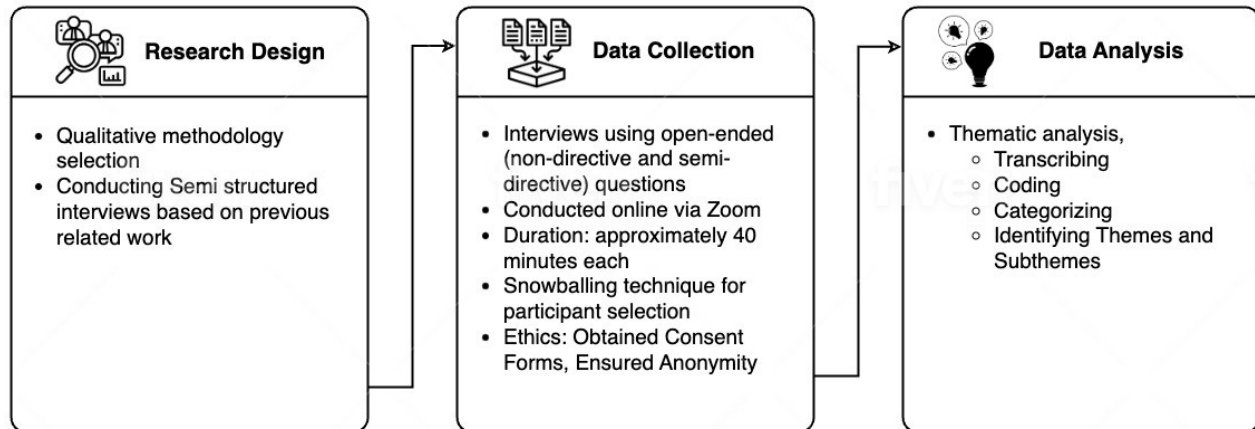


Figure 1. The Research Methodology.

step aimed to confirm that the questions were not only clear and comprehensive but also effective in eliciting in-depth responses relevant to the research objectives. The outcomes of this pilot interview were promising, demonstrating that the questions were well-aligned with the intended research domains [56]. Notably, the individual selected for this pilot phase was drawn from the same participant pool as the main study.

As noted earlier, the interviews were conducted online via Zoom, rather than face-to-face, as this was the interviewees' preference. The interviews took place between December 13 and 22, 2022, and lasted on average 40 minutes. To ensure accuracy, audio recordings were taken. Before the meetings were recorded, a consent form was signed by the participants, guaranteeing confidentiality of their participation. Following each interview, the audio recording was transcribed in Arabic and then translated into English, because the meetings were conducted with native Arabic speakers.

In total, ten participants from government, semi-government, and private organizations in Saudi Arabia were interviewed. These participants were either technical consultants or business functional managers, all of whom had extensive experience with the implementation of ERP systems. We specifically selected individuals from organizations that had already transitioned their ERP systems to the cloud, aiming to gain insights from those who had undergone this process.

To select our participants, we employed a strategic combination of purposeful and snowball sampling methods [58]. This approach enabled us to leverage the strengths of both techniques [59]. Initially, purposeful sampling was used to identify participants who possessed in-depth knowledge about the subject matter, ensuring the collection of accurate and relevant data. Subsequently, the snowball sampling method allowed us to expand our participant pool to include other experts in the field, contributing to richer and more

comprehensive insights for our study. The initial stage of participant selection involved a thorough examination of various profiles on LinkedIn. We extended invitations to 15 professionals, clearly outlining the study's objectives and emphasizing its ethical framework. This resulted in 6 appropriately qualified professionals agreeing to participate, and these individuals further recommended 4 additional potential participants. The final sample size was 10, as detailed in Table I. In line with qualitative research methodology, the interviews were conducted until data saturation was achieved, as outlined by Merriam & Tisdell [52]. For this study, data saturation was observed after completing ten interviews.

C. Data Analysis

After completing the interviews, the next step was to transcribe the recordings. The transcribed interviews were then analyzed using thematic analysis, which was deemed to be the most appropriate method for this study as it allows flexible examination of common themes in qualitative data [59]. This research employed thematic analysis, following these steps: First, we meticulously read the interview transcripts to identify relevant codes, noting significant or recurrent ideas, concepts, or phrases. This initial coding process was performed using tools such as Microsoft Word and Excel. The second step involved classifying these codes into families, grouping them based on their frequency and thematic similarity, focusing on each code's relevance to the research question. The third step was a diligent evaluation of these categories to discern major themes and subthemes. This required a detailed examination of the interconnections between codes, ensuring internal coherence within each sub-theme, and using criteria such as internal homogeneity for consistency and coherence of themes, and external homogeneity for clear distinction between them [58]. The final step involved carefully reflecting on the outcomes in the analysis section of the study. This reflective synthesis entailed a critical examination of the themes in relation to the study's objectives, discussing how they addressed the research questions and contributed to the broader field of

TABLE I. Overview of Participants.

Participant Number	Technical / Business Function	Organization Type
1	Business Function	Semi-government
2	Business Function	Semi-government
3	Business Function	Government
4	Business Function	Government
5	Business Function	Private
6	Technical Consultant	Private
7	Technical Consultant	Semi-government
8	Technical Consultant	Government
9	Technical Consultant	Private
10	Technical Consultant	Semi-government

knowledge.

4. RESULTS AND DISCUSSION

This section presents the key findings of our research, which show that the migration of ERP systems to the cloud benefits businesses, as this is the future of ERP systems. The early and successful adoption of cloud-based ERP will provide a competitive advantage in the market. All the participants expressed contentment and satisfaction with their decision to move their ERP systems to the cloud. In addition, they confirmed their willingness to adopt cloud-based ERP systems in their own businesses, which suggests that they are aware of and satisfied with the benefits of cloud ERP technology. Below, the benefits that resulted from the movement process are highlighted. Next, the challenges faced by an organization when it decides to move its traditional ERP system to the cloud were illustrated. Finally, the success factors that facilitated the transformation process were presented. For a concise overview, Figure 2 visually summarizes these main points regarding benefits, challenges, and success factors.

A. Benefits of the Movement to Cloud-Based ERP Systems

1) Cost-effectiveness

Unanimously in the interviews, the cost-effectiveness of cloud-based ERP systems emerged as a prevailing benefit. According to a Director of IT Services Management for Business Transformation in one of the semi-government companies, “ERP cloud-based systems are a more efficient solution for both functional and financial utilization over an extended period.” He further emphasized the cost-effectiveness benefit by stating, “this technology affects cost positively by saving millions.” Additionally, the other interviewees mentioned that cost-effectiveness is a result of the absence of no on-premise system costs, because the database hardware, configuration, and network maintenance are shifted to the cloud provider. In turn, this shift not only reduces the technical IT support load but also eliminates the need for IT support team resources. These findings are consistent with those of [15], which established that moving ERP to a cloud-based system results in cost saving, as it is unnecessary to hire additional development and technical support teams or to manage physical resources.

Moreover, according to Pareek [60], the adoption of cloud-based technology significantly reduces the cost of ERP implementation.

2) Standardization

As noted earlier, cloud-based systems are classified into three types, one of which is SAAS. According to participant #7, this term refers to cloud-based service providers that offer ERP software [60] implemented with standard solutions. The analysis of the interview data showed that 90% of the interviewees confirmed that a common reason for transitioning to an ERP cloud-based system is standardization, as it is built with the best practice processes and procedures to ensure business continuity. For example, if a company encounters an issue, it can resolve it faster if it uses a standard solution as the cloud provider will immediately provide support. However, if a custom solution is used, it may take longer than the standard solution. Therefore, it is advisable to use standard solutions to ensure business operation continuity.

3) Improved accessibility, mobility, and usability

According to the interviewees, cloud-based systems operate in an open environment, which expands accessibility options and consequently enhances the utilization of cloud ERP, both within and outside the organization, as they can be accessed anytime and anywhere. Consequently, companies can guarantee business continuity by providing immediate access to up-to-date information, regardless of its origin [35].

4) Using strong security standards

This analysis contrasts with many articles that discussed security as the biggest concern for organizations adopting an ERP cloud-based system. That is, 70% of the participants believed that cloud-based ERP systems used robust security standards, particularly following the new cloud computing regulation of the Communications and Information Technology Commission (CITC) in Saudi Arabia in 2018. This has forced cloud providers to establish their data centers in Saudi Arabia. These regulations will enhance the security and clarity of regulations and promote the use of cloud computing services in Saudi Arabia [61]. Moreover, from

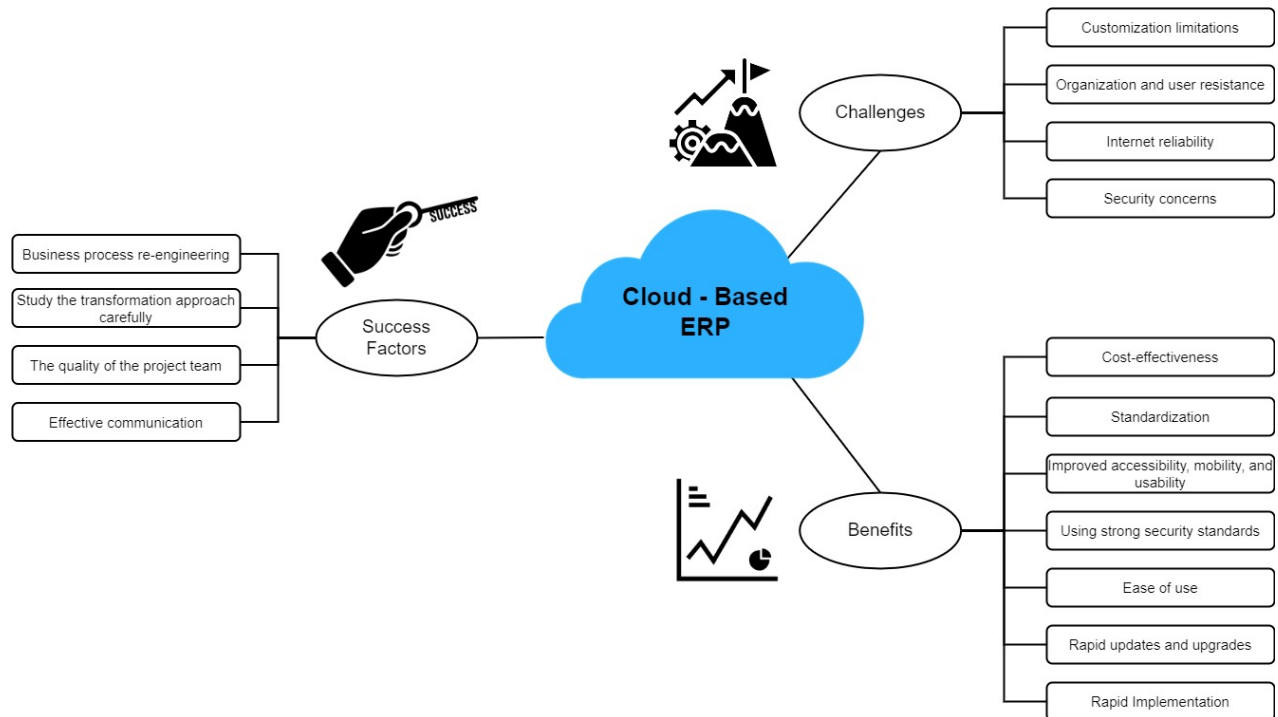


Figure 2. A summary of the main points of benefits, challenges, and success factors.

the viewpoint of ownership cost, some of the interviewees claimed that the costs of managing a cloud ERP system security are considerably lower as they are included in the cloud ERP subscription fees, thereby reducing the IT technical support burden.

5) *Ease of use*

The majority of the interviewees confirmed that users preferred cloud-based ERP systems due to their user-friendly interface design. As observed by participant #2, These systems were able to enhance users' experience by integrating the system with their natural habits. As a result, the user experience is better in ERP cloud-based systems than ERP on-premise systems.

6) *Rapid updates and upgrades*

Based on the analysis of the interviews, 50% of the interviewees indicated that cloud-based solutions are updated or upgraded faster than traditional ERP systems. Participant #7 noted that these updates are provided by the cloud provider on a quarterly basis to "increase the system efficiency and cover all required business needs." Furthermore, in [15], the researcher indicated that after migrating from the traditional ERP to the cloud, the cost was reduced by 50%, and the daily backup load was reduced by approximately 15%. These outcomes motivate a business to adopt cloud-based technologies to reduce costs and effort, as well as to keep the business processes updated with new upgrades, even if they are not requested.

7) *Rapid implementation*

The analysis of the interview data further indicates that an ERP cloud-based system is built with pre-configured solutions that are readily available. These solutions are designed to address the majority of business requirements as they are built with standard solutions that reflect the best practice, as illustrated earlier. Moreover, these solutions are owned and managed by the cloud provider, which provides pay-per-use services to clients [62]. Therefore, an ERP cloud-based system is a highly effective option as it significantly reduces the time and effort required for implementation, especially for small and medium-sized companies.

B. Challenges of Moving to ERP Cloud-Based Systems

1) Customization limitations

Despite the benefits of the standardized solutions mentioned earlier, the analysis shows that these solutions also present customization limitations. The solutions do not always provide a good fit with all the organizations' business needs. Even if the cloud provider offers platforms that help organizations customize its solutions, such as PAAS, this will be costly as these platforms will be managed, supported, and updated by the company itself, not by the cloud provider. These customization limitations are considered the greatest challenge in adopting ERP cloud-based solutions, because customization is difficult, costly, and time-consuming for adopters.

2) Organization and user resistance

Based on the interview findings, 80% of the participants unanimously agreed that organization and user resistance challenges are common for any organization that decides to change its system or procedures to new ones. Moreover, this challenge is often associated with other challenges such as the business process re-engineering challenge, which leads to changes in employees' daily work routines. As participant #4 indicated, employees tend to resist the changes: "*people hate change.*" Additionally, the adoption of cloud-based ERP technology will lead to a loss of IT competencies as mentioned earlier, as the data center, network, and infrastructure maintenance will be handled by the cloud provider. Therefore, the company will reduce the number of technical IT support staff, and this may create resistance from the IT team.

3) Internet reliability

Internet reliability was also identified as a challenge by 40% of the participants. According to Participant #3, the reliance of cloud-based ERP technology on internet connectivity is a concern for organizations with employees operating in areas with poor internet connectivity. These limitations cause employees to blame the inefficiency of the system itself rather than the internet connection. In other words, internet reliability is considered one of the barriers to cloud-based ERP adoption.

4) Security concerns

As noted by participants #4, 5, and 8, despite the implementation of robust security standards in cloud-based ERP systems, concerns pertaining to security remain prevalent among organizations. Participant #8 explained that this is "*because the organization's sensitive data is still handled and controlled by a third party.*" Data security issues are commonly recognized as one of the primary concerns associated with cloud-based technologies.

Finally, the participants reposted other challenges associated with the shift from on-premise to cloud ERP systems, including data migration, integration limitations, functionality fit, and limited skilled manpower. However, they confirmed that data migration, integration limitations, and functionality fits are normal challenges that any organization might face when deciding to transfer their system to another system. In addition, the last challenge is a result of the scarcity of skilled workers in the market, due to the novelty of ERP cloud-based systems common, which are newer than on-premise systems. Furthermore, the development and support provided by the cloud provider limits the IT competencies and knowledge, thereby making it challenging for companies that require custom solutions.

C. Success Factors for the Movement Process

1) Business process re-engineering

Organizations should re-engineer their business processes to mitigate customization challenges, as stated by the participants. Failure to do so may compromise the success

of ERP implementations, as reported in [63]. While business process re-engineering is considered a major obstacle to the adoption of cloud-based ERP systems from a business perspective, with 60% of participants expressing this view, 80% of participants agreed that the practice is important to facilitate the moving process. Therefore, organizations need to prioritize standardizing their processes and evaluating the business process re-engineering plan to avoid cloud-based ERP implementation failures.

2) Scrutinize the transformation approach carefully

According to the participants, studying the transformation approach is of utmost importance to ensure a smooth and seamless transfer of an organization's data and related processes to the new system. Some of the participants encountered difficulties when attempting to gradually move their traditional ERP system onto the cloud; they claimed that this transformation approach was costly because some data were still required in both systems simultaneously.

Participant #7 presented an example of the challenge faced by the organization when it attempted to move its HR module and finance module to a new system in a sequential manner. An employee applied for a business trip allowance through the new system self-services portal, but the finance team was unable to proceed the payment until the approved request details were reflected in their module (in the old system). This scenario highlights the need for data duplication and the resulting integration costs. To avoid such issues, participant #5 recommended employing a gradual approach to the transformation process. The appropriate transformation approach must be carefully studied and based on the organization's business needs to ensure the success of the transformation process.

3) The quality of the project team

The findings show that the quality of the project team is considered a significant factor for successful implementation. The project team should have both technical and business expertise because, as a project team, they must be conversant with the business processes of their organizations and have fundamental knowledge of the industry's best practices, in addition to technical knowledge [64], [65]. The findings show that project team quality is a significant factor for successful implementation [66].

4) Effective communication

The last success factor mentioned by the participants was effective communication. They confirmed the importance of clear and convincing communication in overcoming potential users' resistance to change, and of motivating them by informing them about the transition benefits to embrace the new daily routines that come with ERP system implementation. Good communication is also essential for the successful implementation of the system, as it involves collaboration and coordination between the various organizational roles and levels, between the different departments within the organization, and mainly between the business



staff and the IT team [67]. Therefore, it is vital to maintain open and transparent communication to avoid implementation failures.

5. IMPLICATIONS

This section presents the overall managerial and technical implications of our study.

A. Technical Implications

The migration to cloud-based ERP systems marks a transformative shift in the way businesses handle their core operations, presenting a spectrum of technical implications that have reshaped the IT landscape. This shift to cloud ERP is characterized primarily by its scalability and flexibility, empowering businesses to adapt their resources in line with fluctuating demands, while reducing the need for significant capital investment in physical infrastructure. Enhanced data accessibility is another critical feature, with cloud ERP enabling real-time access to data from any location and at any time, thereby facilitating more effective decision-making and fostering collaboration across the organization. However, this transition necessitates robust internet connectivity and depends heavily on the reliability and security protocols of the cloud service provider. Concerns such as data security, privacy, and compliance emerge, particularly as sensitive data is now stored off-premises. Furthermore, businesses must navigate the technical requirements for integrating cloud ERP with existing systems and the potential necessity for customization, which varies based on the selected cloud ERP solution.

On the positive side, the transition to cloud ERP brings notable technical advantages. Cost-effectiveness and operational efficiency are at the forefront, with substantial savings in areas like on-premise system costs – a reduction in the requirements for database hardware, configuration, and maintenance. Cloud-based ERP systems promote standardization and best practices, contributing to quicker issue resolution and ensuring uninterrupted business operations. Enhanced accessibility and usability are also significant benefits, as cloud systems provide constant access to critical business information, maintaining seamless business processes. Contrary to initial apprehensions, cloud-based ERP systems have been found to comply with stringent security standards, bolstered by region-specific regulations that enhance data security. Additionally, the ability of cloud solutions to offer rapid updates and upgrades aligns well with the evolving needs of businesses, increasing system efficiency. Particularly for small and medium-sized enterprises, cloud ERP systems are advantageous, offering rapid implementation through pre-configured solutions that address a broad spectrum of business needs, thus significantly reducing the time and effort required for system setup and deployment.

B. Managerial Implications

Our study provides valuable insights for practitioners and policymakers aiming to enhance their organization's

competitiveness in a dynamic environment through the implementation of cloud ERP. These insights are particularly useful for firm managers in making informed investment decisions regarding cloud ERP. We suggest that managers should thoroughly evaluate the impeding forces or barriers associated with cloud ERP implementation. Effectively managing these barriers and capitalizing on enabling factors will lead to a smooth implementation, thereby boosting the organization's competitiveness and innovation.

From a managerial standpoint, this study has critical implications, offering substantial, reality-based information about the benefits and challenges of cloud ERP implementation. This knowledge significantly improves decision-makers' capacity to make appropriate choices about adopting cloud ERP. The adoption of cloud-based ERP systems involves navigating unique challenges and considerations. A key issue is the need to balance the benefits of standardization with the customization requirements specific to each organization. Achieving this balance is essential to ensuring the ERP system's alignment with the company's unique processes and needs. Moreover, resistance from the organization and users, particularly from IT staff affected by the transition, is a common hurdle, requiring effective change management strategies. The reliance of cloud-based systems on stable and robust internet connectivity is another pivotal factor. Despite advancements in security standards, there remains a need for diligent management and communication to address security concerns, especially with data being controlled by third-party cloud providers.

Successful implementation of cloud ERP often necessitates re-engineering business process to align them with the new system's capabilities, ensuring seamless transition and effective utilization. Careful planning is also essential to address potential integration issues and control costs. The quality of the project team is crucial, with a need for members who possess both technical expertise and a comprehensive understanding of business processes for successful implementation. Lastly, effective communication across the organization is essential to overcoming resistance, encouraging adoption, and ensuring the successful implementation of the cloud-based ERP system.

6. CONCLUSIONS AND FUTURE WORK

ERP systems are comprehensive technological innovations that automate and integrate the operations of an enterprise. Previously, only large multinational corporations had access to this technology, which began with traditional on-premise ERP systems. However, now the trend is shifting and a growing number of companies worldwide across various industries and sectors are adopting cloud-based ERP systems [68]. However, there are challenges for each innovation, and cloud ERP has emerged to overcome the limitations of on-premise ERP systems.

This paper aimed to explore the benefits of migrating traditional ERP to the cloud, including cost savings, standardization of business processes, increased accessibility,



usability, and mobility, rapid implementation and upgrades, and enhanced security. However, the transition process can also present challenges, such as customization constraints, resistance from employees and users, internet reliability issues, and security concerns. To ensure the success of the migration, the paper identifies key success factors, including business process re-engineering, careful analysis of the transformation strategy, project team quality, and effective communication.

This outcome has the potential to assist organizations in determining whether to adopt cloud-based ERP or proceed with its implementation. Further investigation into the factors that contribute to the success of cloud-based ERP is necessary to gain a deeper understanding of the benefits highlighted in this study. Moreover, the applicability of our findings is primarily limited to organizations in Saudi Arabia. To enhance the external validity of the results, future research endeavors should aim to increase the sample size and extend the scope to diverse industries and geographies. It should be noted that this narrow focus was intentional and central to our study.

This study recognizes a key limitation in its methodology: the absence of quantitative measures to assess the impact of transitioning to cloud-based ERP systems. While our research offers valuable insights through qualitative data analysis, the incorporation of quantitative metrics could significantly enhance the empirical foundation. Future research is thus planned, involving the integration quantitative data, providing a more balanced and comprehensive analysis. An important avenue for our future research involves exploring why some organizations remain hesitant to adopt cloud-based ERP systems. This exploration will focus on the distinct priorities guiding ERP system selection among various organizational types, such as government entities, non-governmental organizations, and businesses in the service and manufacturing sectors. Such analysis is crucial and is intended to be elaborated in subsequent papers, aiming to provide a more comprehensive understanding of the factors influencing ERP system choices in diverse organizational contexts. Another significant direction for future research is to investigate best practices in the process of transitioning from an on-premise ERP system to a cloud-based ERP system. This exploration will update and expand the existing literature by examining the methodologies and strategies employed by various organizations during this transition. Understanding these best practices is crucial in guiding organizations that are still hesitant about adopting cloud-based ERP systems.

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