

The Role of Enterprise Resource Planning (ERP) Implementation in Corporate Business Performance in Indonesia

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ABSTRACT

Introduction/Main Objectives: Enterprise Resource Planning (ERP) systems are comprehensive software solutions that integrate various business processes and functions across an organization. ERP systems are widely used in modern organizations for streamlining operations, improving decision-making, and enhancing overall productivity.

Background Problems: While most studies indicate a positive relationship between ERP and various aspects of business performance, the exact nature of this impact can depend on factors such as the specific performance metrics examined, the industry context, and how ERP interacts with other business processes and strategies.

Novelty: research could further explore these nuances to provide a more comprehensive understanding of ERP's role in enhancing business performance.

Research Methods: This research was conducted on Manufacturing Companies listed on the Indonesia Stock Exchange (IDX) in 2016-2021 by accessing data online at www.idx.co.id and on the company's official website. The statistical analysis techniques used in this study are Partial Least Squares Structural Equation Modeling (PLS-SEM).

Finding/Results: ERP systems significantly enhance financial management by providing real-time financial data, which leads to more accurate forecasting and budgeting, ultimately improving financial decision-making and asset allocation.

Conclusion: The text further delves into the impact of ERP systems on business performance, citing previous studies that demonstrate positive effects on employee performance, financial results, and overall firm performance.

ARTICLE INFO

Keywords:
Enterprise Resource Planning (ERP);
Business Performance;
Sustainability;
Operational Efficiency;
System Integration

1. Introduction

Enterprise Resource Planning (ERP) systems are comprehensive software solutions that integrate various business processes and functions across an organization. These systems offer a centralized database and a suite of integrated applications to manage core business operations efficiently (Aslam et.al, 2022). ERP systems are widely used in modern organizations for streamlining operations, improving decision-making, and enhancing overall productivity (Jo & Park, 2023).

Interestingly, while ERP systems have traditionally been centered around individual enterprises, there is a growing need for closer interactions between enterprises worldwide. ERP systems continue to evolve to meet the changing needs of businesses. The integration of emerging technologies such as Blockchain and Big Data with ERP systems shows promise in addressing current limitations and enhancing ERP responsiveness (Bandara et.al, 2023). As organizations navigate the complex landscape of ERP selection and implementation, factors such as system quality, ease of use, and user satisfaction play crucial roles in determining the success of these systems (Jo & Park, 2023). Additionally, the transition from on-premise ERP to cloud-based ERP systems is gaining traction as businesses seek to enhance the sustainability of their operations (Ahn & Ahn, 2020). ERP systems enhance corporate sustainability in several ways. They improve operational efficiency, reduce costs, and enable better resource management across the organization (Mandičák et.al, 2022). By integrating various business processes and providing real-time data, ERP systems allow companies to make more informed decisions that support sustainable practices (Bataineh et.al, 2022). Interestingly, some studies highlight the emergence of Sustainable Enterprise Resource Planning (S-ERP) systems, which specifically focus on sustainability reporting and environmental information disclosure (Pizzi et.al, 2023). Additionally, the integration of blockchain technology with ERP systems can further enhance security, privacy, and facilitate closer interactions between enterprises worldwide, contributing to a more sustainable business ecosystem (Faccia & Petratos, 2021).

ERP systems play a crucial role in enhancing corporate sustainability by improving supply chain efficiency, reducing costs, and enabling better decision-making. The adoption of cloud-based ERP systems and the integration of big data technologies can further enhance ERP responsiveness and sustainability reporting quality. Moreover, ERP systems contribute to the development of circular supply chains, which are essential for sustainable business practices (Ramagnoli et.al, 2023). As technology continues to evolve, ERP systems are likely to become even more integral to corporate sustainability efforts.

Importance of ERP in modern business operations

Enterprise Resource Planning (ERP) systems have become increasingly important in modern business operations, offering significant benefits to organizations across various industries. ERP systems integrate multiple business processes and functions into a unified platform, enhancing efficiency and decision-making capabilities (Bataineh et.al, 2022). The importance of ERP in modern business operations is evident in several key areas:

1. Improved supply chain efficiency: ERP systems positively impact firm performance by enhancing supply chain management competencies (Bataineh et.al, 2022). This integration allows for better coordination and streamlined processes across the organization.
2. Enhanced business operations: ERP systems help businesses save time and effort in managing projects and utilizing resources, automating processes and reducing errors (Thanh, 2022). This automation and centralization of data contribute to improved operational efficiency.
3. Data management and integrity: ERP systems offer a centralized database for storing business-critical information, although this raises concerns about data integrity and single points of failure (Aslam et.al, 2022). To address these issues, innovative solutions such as blockchain integration are being explored to enhance data security and validation.
4. Adaptability to changing business environments: ERP systems are evolving to meet the demands of modern business operations, with cloud-based ERP solutions gaining popularity due to their

flexibility and scalability (Ahn & Ahn, 2020). This adaptability is crucial for businesses to remain competitive in rapidly changing markets.

5. Support for business model innovation: ERP systems can play a moderating role in business model innovation, particularly for small and medium-sized enterprises (SMEs). This suggests that ERP implementation can influence how organizations experiment with and develop new business models.
6. Alignment with Industry 4.0: ERP systems are adapting to the concepts of Industry 4.0, supporting organizational agility and the integration of advanced technologies. This alignment ensures that ERP systems remain relevant and valuable in the context of digital transformation.

In conclusion, ERP systems have become integral to modern business operations, offering comprehensive solutions for process integration, data management, and decision-making support. As businesses continue to evolve in the digital age, ERP systems are adapting to new technologies and business models, maintaining their importance in driving operational efficiency and competitive advantage.

ERP systems are complex, highly integrated software packages that play a vital role in an organization's growth and sustainability in the supply chain (14). They offer a system of integrated applications with a shared central database, allowing for efficient management of business processes (Aslam et al., 2022). The implementation of ERP systems has been shown to improve business performance, particularly for small and medium enterprises (SMEs). Interestingly, the integration of Blockchain Technology (BT) with ERP systems is opening up new possibilities for decentralization, allowing organizations to function frictionlessly in a unified ecosystem (Kitsantas, 2022). This integration can address issues such as data integrity assurance and single point of failure vulnerabilities (Aslam et al., 2022). Additionally, the transition from on-premise ERP to cloud-based systems is gaining traction as enterprises seek to enhance the sustainability of their business operations (Ahn & Ahn, 2020).

ERP implementations are critical for modern business operations, offering benefits such as improved supply chain efficiency, better resource utilization, and enhanced business performance. The importance of ERP is further underscored by its potential integration with emerging technologies like Blockchain and its adaptation to cloud-based systems, indicating its continued relevance in the evolving business landscape

Brief introduction to business performance metrics

Business performance is commonly measured using financial indicators such as Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM), and Earnings Per Share (EPS). These metrics provide insights into a company's profitability and efficiency from different perspectives.

ROA and ROE are widely used to assess a company's financial performance across various industries. For instance, in the Slovak agricultural sector, ROA and ROE were found to be significantly influenced by factors such as company size and capital intensity (Lehenchuck et.al., 2022). Similarly, in the US telecom industry, capital structure components like total liabilities to total assets ratio had a significant impact on ROA (Habibniya et.al., 2022). Interestingly, the importance of these performance indicators can vary across sectors and studies. In the UAE stock market, ROE was found to be the most significant predictor of stock prices, while ROA was the least significant (Mohamed et.al., 2021). However, in the European banking sector, both ROA and ROE were equally important in assessing bank profitability (Ercegovac et.al., 2021). While ROA, ROE, NPM, and EPS are all valuable indicators of business performance, their relative importance may depend on the specific industry, region, and context of

the study. It's crucial to consider multiple performance metrics to gain a comprehensive understanding of a company's financial health and operational efficiency (Dhar&Chowdury,2021).

2. Literature Review

Enterprise Resource Planning (ERP) systems

Definition and components of ERP systems

Enterprise Resource Planning (ERP) systems are complex, highly integrated software packages designed for business organizations to manage and streamline their operations (Kitsantas, 2022). These systems offer a set of integrated applications with a shared central database, allowing for efficient management of business processes (Aslam et al., 2022). ERP systems typically consist of several key components:

1. Accounting Information Systems (AIS): This forms the core module of any ERP system, traditionally designed as centralized systems (Faccia & Petratos, 2021).
2. Supply Chain Management: ERP systems aim to improve firm supply chain efficiency (Bataineh et al., 2022).
3. Human Resources Management: While not explicitly mentioned in the given papers, this is a common component of ERP systems.
4. Customer Relationship Management: Another typical component, though not specifically discussed in the provided context.

Interestingly, the architecture of ERP systems is evolving with the integration of new technologies. For instance, blockchain technology is being explored to overcome limitations of centralized systems, particularly in terms of security and privacy (Faccia & Petratos, 2021). This integration can facilitate closer interactions between enterprises worldwide, addressing a limitation of traditional ERP systems (Kitsantas, 2022). In conclusion, ERP systems are comprehensive software solutions that integrate various business functions into a unified system. They are designed to enhance organizational efficiency, productivity, and decision-making by providing a centralized platform for data management and process automation. As technology advances, ERP systems continue to evolve, incorporating new features and capabilities to meet the changing needs of businesses in the digital age.

Evolution of ERP technology

Enterprise Resource Planning (ERP) systems have evolved significantly over time, adapting to technological advancements and changing business needs. The evolution of ERP technology can be observed through several key developments: Cloud-based ERP (C-ERP) represents a major advancement in ERP technology, offering advantages such as ease of use and resource elasticity (Marinho et al., 2021). This shift from traditional on-premise ERP to cloud-based solutions has enabled organizations to enhance their operational efficiency and flexibility. The transition to cloud-based ERP is driven by factors such as organizational culture, regulatory environment, relative advantage, and trialability (Ahn & Ahn, 2020). The integration of Blockchain Technology (BT) with ERP systems marks another significant evolution, ushering in a new era of decentralization and allowing organizations to function seamlessly in a unified ecosystem (Kitsantas, 2022). This integration addresses limitations of traditional ERP systems, particularly in facilitating closer interactions between enterprises worldwide.

Interestingly, the evolution of ERP technology has not been uniform across all aspects. While cloud adoption and blockchain integration represent major advancements, some studies have found that certain factors, such as information and communications technology skill, complexity, and data security, do not significantly influence the intention to adopt cloud-based ERP (Ahn & Ahn, 2020). This

suggests that the evolution of ERP technology is driven more by organizational and environmental factors than by technical considerations alone. In conclusion, the evolution of ERP technology is characterized by a shift towards cloud-based solutions, integration with emerging technologies like blockchain, and a focus on enhancing organizational agility and responsiveness. As businesses move towards Industry 4.0 and 5.0, ERP systems continue to evolve, incorporating features such as big data management and improved responsiveness to large volumes of data (Bandara et al., 2023; Morawiec & Sołtysik-Piorunkiewicz, 2023). This ongoing evolution ensures that ERP systems remain critical tools for modern business management and decision-making.

Benefits and challenges of ERP implementation

Enterprise Resource Planning (ERP) systems offer numerous benefits and challenges for organizations across various industries. The implementation of ERP systems can significantly enhance business performance and sustainability. ERP systems integrate business processes, functions, and data, leading to improved productivity and effectiveness (Mandičák et al., 2022). They can positively impact financial results, reduce costs, and increase revenues for companies, particularly in the architecture, engineering, and construction (AEC) sector (Mandičák et al., 2022). For small and medium enterprises (SMEs), ERP usage has been shown to improve both financial and non-financial performance (Almuhayfith & Shaiti, 2020).

However, ERP implementation also presents several challenges. The adoption of cloud-based ERP systems, while offering advantages such as ease of use and resource elasticity, is influenced by factors like organizational culture, regulatory environment, and vendor lock-in (Ahn & Ahn, 2020). Data security and customization concerns can hinder adoption intentions (Ahn & Ahn, 2020). Additionally, the centralized nature of traditional ERP systems raises issues of data integrity assurance and vulnerability to single points of failure (Aslam et al., 2022). In conclusion, while ERP systems offer significant benefits in terms of process management, performance enhancement, and economic sustainability, organizations must carefully consider the challenges associated with implementation. Factors such as technology readiness, regulatory compliance, and data security need to be addressed for successful ERP adoption. The integration of emerging technologies like blockchain with ERP systems may offer solutions to some of these challenges, particularly in enhancing security and data integrity (Aslam et al., 2022; Faccia & Petratos, 2021).

ERP implementation and business performance

Previous studies on ERP impact on business performance

Previous studies have shown that Enterprise Resource Planning (ERP) systems generally have a positive impact on business performance:

ERP implementation has been found to positively affect employee performance in Peruvian education enterprises, with process management mediating this relationship (Cruz-Torres et al., 2021). Similarly, ERP usage has been shown to enhance both financial and non-financial performance of Saudi SMEs (Almuhayfith & Shaiti, 2020). The impact of ERP on firm performance is further supported by research indicating that enhanced ERP affects supplier integration, internal integration, and green supply chain management, which in turn influence firm performance (Tarigan et al., 2021). While most studies indicate a positive relationship between ERP and various aspects of business performance, the exact nature of this impact can depend on factors such as the specific performance metrics examined, the industry context, and how ERP interacts with other business processes and strategies. Future research could further explore these nuances to provide a more comprehensive understanding of ERP's role in enhancing business performance.

Based on the provided papers, several research gaps in the implementation of ERP systems and their impact on business performance can be identified:

1. There is a lack of comprehensive studies examining the mediating effects of business strategy and organizational capabilities on the relationship between ERP implementation and firm performance (Cruz-Torres et al., 2021). This gap suggests the need for more research on how ERP systems interact with other organizational factors to influence performance outcomes.
2. The moderating role of ERP in Business Model innovation for SMEs has not been extensively explored (Molina-Castillo et al., 2022). This presents an opportunity for further research on how ERP systems affect the relationship between business model experimentation and performance, particularly in the context of smaller enterprises.
3. The critical success factors (CSFs) for cloud ERP adoption have not been thoroughly investigated, unlike those for on-premises ERP systems (Salih et al., 2021). This gap highlights the need for more research on the specific factors that contribute to successful cloud-based ERP implementations.
4. There is a lack of conclusive findings related to security, usability, and vendor critical issues in cloud ERP adoption (Salih et al., 2021). This suggests a need for more targeted research to clarify the nature and importance of these factors in cloud ERP implementation.

These research gaps indicate that while ERP implementation and its impact on business performance have been studied extensively, there are still areas that require further investigation, particularly in relation to emerging technologies, and the specific contexts of different types of organizations.

Theoretical frameworks linking ERP to business performance

Several theoretical frameworks link Enterprise Resource Planning (ERP) systems to business performance:

The technology-organization-environment (TOE) framework, along with the diffusion of innovation and model of innovation resistance theories, has been used to analyze the adoption of cloud-based ERP systems. This comprehensive approach reveals that factors such as organizational culture, regulatory environment, relative advantage, trialability, and vendor lock-in significantly influence the intention to adopt cloud-based ERP, which in turn affects business performance (Ahn & Ahn, 2020).

The relationship between ERP and business model (BM) innovation has been explored using structural equation modeling. This research shows that ERP implementation moderates the impact of BM experimentation on BM performance, with firms implementing ERP showing better performance depending on the degree of downstream novelty in their business model (Molina-Castillo et al., 2022).

The unified theory of acceptance and use of technology (UTAUT) model has been extended to understand ERP adoption in higher education institutions. This framework provides insights into the factors affecting behavioral adoption and acceptance of ERP systems, which ultimately influence organizational performance (Bamufleh et al., 2020). Interestingly, the technology-organisation-environment (TOE) framework has also been integrated with diffusion of innovation (DOI) and institutional factors to examine ERP adoption antecedents in small and medium-sized enterprises (SMEs). This integrated model identifies factors such as relative advantage, top management support, organizational readiness, and government support as significant influences on ERP adoption and subsequent performance improvements (Lutfi et al., 2022). These theoretical frameworks provide diverse perspectives on how ERP systems impact business performance, considering factors such as

technology adoption, business model innovation, and organizational context. The studies consistently show that successful ERP implementation and adoption can lead to improved business performance across various sectors and organizational sizes.

Hypothesis Development

ERP implementation has been shown to have a positive impact on firm performance, including Return on Assets (ROA). Several studies provide evidence supporting this relationship:

ERP implementation positively affects employee performance, which in turn can lead to improved organizational performance (Cruz-Torres et al., 2021). The study found that ERP implementation has a direct positive impact on employee performance, and process management mediates this relationship. This suggests that ERP systems can enhance overall organizational efficiency, potentially leading to improved ROA. Research indicates that ERP implementation can positively influence firm performance through various mechanisms. For instance, Tarigan et al. (2021) demonstrates that enhanced ERP affects supplier integration, internal integration, and green supply chain management, all of which contribute to improved firm performance. This holistic improvement in organizational processes and supply chain management can potentially lead to better asset utilization and, consequently, higher ROA. Interestingly, some studies highlight the importance of certain factors in ensuring the success of ERP implementation and its impact on performance. Malik and Khan (2020) identifies critical success factors such as top management commitment, project management, change management, and business process re-engineering as having strong relationships with successful ERP implementation. These factors could be crucial in realizing the potential benefits of ERP on ROA.

Based on the provided context, the hypothesis development for the effect of ERP implementation on Return on Equity (ROE) can be formulated as follows:

ERP implementation has been shown to have a positive impact on firm performance, which can be reflected in financial metrics such as ROE. Cruz-Torres et al. (2021) reports that "ERP implementation has a positive impact in the performance of employees" and that "process management had a mediation effect between ERP implementation and performance" (Cruz-Torres et al., 2021). This suggests that ERP implementation can lead to improved process management, which in turn enhances overall performance.

Interestingly, the impact of ERP on firm performance is not always direct. Tarigan et al. (2021) indicates that "green supply chain management, internal integration, and supplier integration mediate the effect of enhanced ERP on firm performance" (Tarigan et al., 2021). This implies that the relationship between ERP implementation and financial performance metrics like ROE may be mediated by various organizational factors.

ERP implementation has been shown to have a positive impact on various aspects of organizational performance, including New Product Management (NPM). Research indicates that ERP implementation positively influences process management, which in turn enhances employee performance (Cruz-Torres et al., 2021). This improvement in process management and employee performance can be expected to contribute to more effective NPM. Additionally, ERP implementation has been found to have a direct positive impact on firm performance (Almuhayfith & Shaiti, 2020; Bataineh et al., 2022; Tarigan et al., 2021). This overall improvement in firm performance is likely to extend to NPM processes as well.

Interestingly, the success of ERP implementation is influenced by several factors, including top management commitment, project management, change management, and business process re-

engineering (Malik & Khan, 2020). These factors may also play a role in how effectively ERP impacts NPM. Furthermore, the adoption of new technologies such as cloud computing, big data, and blockchain in ERP implementation could potentially enhance its impact on NPM (Morawiec & Sołtysik-Piorunkiewicz, 2022). This hypothesis is supported by the observed improvements in process management, employee performance, and overall firm performance following ERP implementation. However, the specific impact on NPM may vary depending on factors such as management support, user satisfaction, and training (Almuhayfith & Shaiti, 2020), as well as the organization's ability to leverage new technologies in ERP implementation.

ERP implementation has been found to have a positive impact on firm performance and employee performance (Cruz-Torres et al., 2021; Tarigan et al., 2021). The process management mediated the relationship between ERP implementation and performance (Cruz-Torres et al., 2021). Additionally, green supply chain management, internal integration, and supplier integration mediate the effect of enhanced ERP on firm performance (Tarigan et al., 2021).

Interestingly, while ERP implementation can lead to improved performance, there are also high rates of implementation failures (Malik & Khan, 2020). Successful implementation depends on factors such as top management commitment, project management, change management, and business process re-engineering (Malik & Khan, 2020). Furthermore, the adoption of ERP systems has been shown to enhance both financial and non-financial performance of SMEs (Almuhayfith & Shaiti, 2020). While there is no direct evidence linking ERP implementation to EPS, the positive impact on firm performance suggests that successful ERP implementation could potentially lead to improved financial results, which may positively affect EPS. However, the relationship is likely complex and dependent on various factors such as implementation success, industry context, and specific organizational characteristics.

3. Method, Data, and Analysis

The research approach chosen to study the impact of ERP implementation on business performance is quantitative, using secondary data in the form of the Company's financial statements and statistical analysis methods. This approach includes several factors: Empirical data collection using purposive sampling techniques through financial statements Companies listed on the IDX allow researchers to collect information from a large number of ERP users and organizations, providing a broad perspective on the impact of ERP implementation (Faccia&Petratos,2021). This research was conducted on Manufacturing Companies listed on the Indonesia Stock Exchange (IDX) in 2016-2021 by accessing data online at www.idx.co.id and on the company's official website The statistical analysis techniques used in this study are Partial Least Squares Structural Equation Modeling (PLS-SEM) and Structural Equation Modeling (SEM), used to test the relationships between variables and validate the proposed model. These methods allow researchers to examine the complex relationships between various factors simultaneously, providing a comprehensive understanding of the impact of ERP implementation on business performance. The quantitative approach also allows researchers to measure specific performance indicators and outcomes, such as financial performance metrics (Almuhayfith & Shaiti, 2020), This allows for a more objective assessment of the impact of ERP implementation on various aspects of business performance.

4. Result and Discussion

Outer Model

Validity Test An indicator is considered valid if its loading factor exceeds 0.5 for the specific construct it is meant to measure. The results from Smart-PLS 4.0 for loading factors are as follows:

Table 1. Loading Factor

	BP	ERP
ERP		1.000
ROA	0.751	
ROE	0.988	
NPM	0.811	
EPS	0.842	

Source:SmartPLS4.0 output processed

Table 1 shows that each value has a factor load above 0.5 on the targeted construct. A discriminant correlation test was conducted to assess the correlation between one construct and another. If the AVE square root value of each construct is greater than the correlation value between the construct and other constructs in the model, it can be concluded that the construct has a good level of validity, as shown in table 2 below:

Table 2. Cross Loading

	BP	ERP
BP		
ERP	0,180	

Source:SmartPLS4.0 output processed

An indicator is considered valid when it exhibits the highest loading factor for its designated construct, surpassing the loading factors for other constructs (Hair et al., 2014). As illustrated in Table 2, each indicator's loading factor is greater for its own construct than for any other constructs.

Reliability Test

Table 3. Cronbach's alpha and Composite reliability

	Cronbach's alpha	Composite reliability
BP	0.90	0.770

Source:SmartPLS4.0 output processed

Utilizing Sem-PLS 4.0 software for data processing, as illustrated in table 3, it was determined that the composite reliability values for constructs exceeding 0.70 apply to all variables, indicating they pass the reliability test. Additionally, the Cronbach's alpha values for all constructs are considered satisfactory, being greater than 0.50. These findings lead to the conclusion that all reflective construct indicators are reliable and meet the reliability test criteria.

Inner Model

R-Square Test

R-Square Test for Inner Model Once the estimated model satisfies the criteria for the Outer Model, the subsequent step involves evaluating the structural model, also known as the Inner Model. Below is the R-Square value for the construct:

Table 4. R-square

	R-square
BP	0.420

Source: SmartPLS4.0 output processed

Table 4 reveals that the R-Square value for the ROA variable is 0.49, indicating that 51% of the factors or variables influencing ROA, ROE, NPM, and EPS remain unaccounted for.

To assess the structural connections between latent variables, it is necessary to conduct hypothesis testing on the path coefficients by comparing the p-value to an alpha level of 0.1. The p-value is derived from the output of SemPLS 4.0.

Table 5. Path Analysis

Research Hypothesis	Path	T-statistics	P-Value	Description
H	ERP → BP	2,16	0,02	Supported

This section presents descriptive data, correlations between variables, and hypothesis testing results. Followed by discussion and interpretation of hypothesis testing, and presentation of other results.

Here are some discussing the positive effects of ERP implementation on Business Performance:

1. Improved asset utilization: ERP systems provide better visibility into asset usage, allowing companies to optimize their asset allocation and reduce idle time. ERP systems indeed play a crucial role in improving asset utilization through enhanced visibility and optimization of resource allocation. This is evident in various aspects of business operations: In manufacturing, ERP systems can significantly enhance gate allocation efficiency at airports. A three-objective gate allocation model has been proposed to optimize passenger walking distances, balance idle time of each gate, and maximize the use of large gates simultaneously (Deng et al., 2020). This approach improves practical efficiency and addresses issues related to passenger convenience, robustness, and costs in airport management.
2. Enhanced inventory management: ERP helps businesses maintain optimal inventory levels, reducing carrying costs and freeing up capital for more productive uses. Enhanced ERP systems can significantly improve inventory management, helping businesses maintain optimal inventory levels and reduce costs: Enhanced ERP systems integrate various business functions, including inventory management, to provide real-time visibility and control over stock levels (Tarigan et al., 2021). This integration allows for more accurate demand forecasting and inventory planning, reducing the risk of stockouts or excess inventory. The improved accuracy in inventory management can lead to reduced carrying costs and free up capital for more productive uses (Govindasamy & Antonidoss, 2021; Tusar & Sarker, 2022). Interestingly, while ERP systems generally help optimize inventory levels, there are situations where companies may intentionally maintain higher inventory levels for strategic reasons. For instance, Hamm et al. (2021) documents that managers may stockpile excess inventory to mitigate operational risks posed by labor unions and maintain bargaining power in labor negotiations. This highlights the complex interplay between inventory management and other business factors.
4. Better financial management: ERP provides real-time financial data, enabling more accurate forecasting and budgeting, which can lead to improved financial decision-making and asset allocation. ERP systems significantly enhance financial management by providing real-time financial data, which leads to more accurate forecasting and budgeting, ultimately improving financial decision-making and asset allocation (Lutfi et al., 2022). The integration of business and finance through ERP

not only facilitates business expansion but also improves overall management levels, contributing to enhanced core competitiveness (Ren, 2022).

Interestingly, while ERP systems offer numerous benefits, small and medium-sized enterprises (SMEs) have been slower to adopt them. However, studies have shown that ERP usage positively impacts both financial and non-financial performance of SMEs (Almuhayfith & Shaiti, 2020). This suggests that even smaller organizations can benefit from the improved financial management capabilities offered by ERP systems. ERP systems play a crucial role in enhancing financial management by providing real-time data and integrating various financial management modules. This leads to more accurate forecasting, improved budgeting, and better financial decision-making. While adoption rates may vary, particularly among SMEs, the benefits of ERP systems in financial management are clear, making them an essential tool for organizations seeking to optimize their financial performance and resource allocation.

9. Scalability: ERP systems can accommodate business growth without significant additional investment, allowing companies to improve their ROA,ROE,NPM,EPS as they expand.ERP systems can indeed accommodate business growth and potentially improve financial performance metrics such as ROA, ROE, NPM, and EPS as companies expand. However, the relationship between ERP implementation and financial performance is complex and not always straightforward. Several studies suggest that ERP systems can enhance business performance and financial metrics. For instance, research on Saudi SMEs found that ERP systems usage significantly impacts both financial and non-financial performance (Almuhayfith & Shaiti, 2020). The study identified key factors contributing to successful ERP implementation, including management support, user satisfaction, and training. These factors positively influence ERP usage, which in turn enhances SMEs' performance.

However, it's important to note that the impact of ERP systems on financial metrics may vary depending on various factors. For example, a study on Vietnamese firms found that investment in R&D, which can be facilitated by ERP systems, has positive impacts on revenues, profits, ROA, and ROE (Tung & Binh, 2021). This suggests that ERP systems, by enabling better resource management and decision-making, can indirectly contribute to improved financial performance.While ERP systems can potentially improve financial metrics as companies grow, their effectiveness depends on proper implementation and utilization. The integration of emerging technologies like blockchain with ERP systems may further enhance their capabilities and benefits (Faccia & Petratos, 2021; Kitsantas, 2022). Companies should consider factors such as organizational culture, regulatory environment, and relative advantage when adopting or upgrading ERP systems to maximize their potential for improving financial performance (Ahn & Ahn, 2020).

5. Conclusion and Suggestion

ERP systems integrate various business processes and functions into a unified platform, enhancing efficiency and decision-making capabilities. The text highlights the benefits of ERP implementation, such as improved supply chain efficiency, enhanced business operations, and better data management. It also discusses the challenges associated with ERP adoption, including data security concerns and the need for organizational readiness. The evolution of ERP technology, including the shift towards cloud-based solutions and the integration of emerging technologies like blockchain, is also explored. The text further delves into the impact of ERP systems on business performance, citing previous studies that demonstrate positive effects on employee performance, financial results, and overall firm performance. The importance of critical success factors, such as top management commitment and change management, in ensuring successful ERP implementation is also emphasized.

The text concludes by discussing the potential for ERP systems to accommodate business growth and improve financial performance metrics, while acknowledging the complex nature of this relationship and the importance of proper implementation and utilization.

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