EFFECTS AND SUCCESS FACTORS OF ENTERPRISE RESOURCE PLANNING IMPLEMENTATION ON ORGANIZATIONAL PERFORMANCE: A SYSTEMATIC LITERATURE REVIEW



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ABSTRACT

The rapid development of information technology today has prompted organizations or companies to invest in and implement information technology. Enterprise Resource Planinng (ERP) implementation is one such investment or information technology-related implementation. ERP implementation is carried out to assist organizations or companies in achieving their business goals. However, implementing ERP within an organization or company is not an easy task and comes with consequences that must be faced if the implementation fails. This study wants to identify the elements that affect whether ERP installation within businesses or organizations is successful or unsuccessful. This study also seeks to comprehend the effects of successful or unsuccessful ERP implementation within businesses or organizations. This study conducts a review of the literature concerning ERP implementation within organizations or companies. In accordance with the literature evaluation done for this study, user training, top management support, and vendor support are the three areas that have been extensively investigated in the context of implementing an ERP, all of which impact the success or failure of the whole process. Performance inside an organization is affected by both the success and failure of ERP adoption. This performance enhancement extends not only to the organization but also to the performance of the employees working within it. Apart from the advantages of successful ERP implementation, ERP implementation can also fail. Failures in the deployment of ERP can cause organizations or businesses to lose money on their information technology investments.

Keywords: Enterprise Resource Planning; ERP Success Factor; ERP Implementation Impact, Organization Performance; Unsuccessful ERP

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INTRODUCTION

The current development of information technology has significant implications for various aspects of society's life and organizations (Grundspenkis, 2006). Information technology is used and put away by businesses or organizations to boost the effectiveness and efficiency of their decision-making procedures for accomplishing their business objectives (Hunter & Tan, 2007). One of the applications of information technology to support organizational performance is ERP. ERP is an entire system designed for streamline business operations within an organization, making them more effective and efficient through putting information technology into practice, thereby generating data to support an organization's performance (Hofmann2008). The function of ERP is to integrate the various business processes within an organization, also referred to as the integration of processes from the initiation of a new product, starting with raw materials, up to the point where the product is ready to be introduced to the market (Ferbia 2018). Organizations can experience numerous benefits from the implementation of ERP, one of which is increased effectiveness in conducting business processes, resulting in enhanced productivity and improved performance of the organization (Grundspenkis, 2006). Moreover, organizations can reduce costs related to human resource allocation by leveraging ERP, which involves integrating divisions to facilitate easy access to information across various departments (Izzati & Najwa, 2018). However, the multitude of benefits that organizations can gain also entails several impacts, both positive and negative, on the organization. Studies have explored the effects of ERP implementation on organizations. According to research conducted by Nawaz & Channakeshavalu (2013), organizations derive significant benefits from ERP implementation efforts. However, these benefits are proportional to the challenges encountered during implementation, such as limited capabilities in developing and technically implementing ERP, and organizational structural changes post-ERP implementation, which also have an impact on the duties and roles of those working for the organization. Another study by (Zhang & Zheng, 2019) identified many of factors that contributed to the failure of ERP implementation to improve organizational performance, particularly within certain industry sectors, which prevented a notable increase in efficiency.

ERP implementation is strongly connected to organizational performance, organizational capabilities, and business strategy (Grundspenkis, 2006). Organizations benefit from the relationship between ERP implementation and business strategy because it increases productivity and effectiveness in achieving organizational business objectives and decision-making Nawawi (2018). Employees who use ERP systems in the material industry benefit from its implementation. Variables such as complexity, compatibility, and facilitating conditions, ERP users report that perceived usefulness, perceived usability, and individual performance are all beneficial. Implementing ERP in the leather industry hinges on key factors for success, including management commitment and user training in ERP system utilization (Liesnaningsih et al., 2020).

ERP implementation within organizations can be likened to a double-edged sword, as it can be deemed successful or unsuccessful. (Rudi et al., 2017) conducted research to demonstrate how implementing ERP affects organizational business productivity. Findings confirmed a link between ERP implementation and increased business productivity, underscoring a significant benefit of ERP adoption for supporting organizational business activities.

This study conducts a review of previous research, concentrating on how the implementation of ERP affects organizational performance. The evaluation involves a

variety of ERP deployments across numerous organizational fields with the goal of identifying how ERP deployment impact organizational performance.

METHOD

The systematic literature review (SLR) methodology is used as part of the research methodology. SLR is a method of research that involves a methodical procedure for identifying, assessing, and interpreting facts and findings derived from previously conducted studies (Diponegoro et al., 2021). Various stages are undertaken in conducting research through SLR.



Source: Draw.io, 2023

Figure 1 Stages of SLR

Identification of Problems

In this phase, the aim and desired outcomes of the research utilizing a systematic literature review are determined. This study is conducted to understand the impacts resulting from ERP implementation on organizational performance. The questions that follow can be developed to achieve the objective in question:

- Q1: What organizational domains use ERP to enhance their performance?
- Q2: What are the elements that will determine whether an ERP implementation is successful or unsuccessful?
- 03: How does ERP implementation impact organizational performance?

Literature Search and Results

In this phase, literature is gathered from various sources, including domestic journals, international conferences, and international journals. The literature search is conducted using several keywords such as ERP implementation, Organizational performance, the effect of implementing ERP, the impact of implementing ERP, and crucial success factors of implementing ERP. The literature obtained from the search is as follows:

Table 1 Result of Literature

| Keywords | Science Direct | IEEE | Spinger Link |
|-------------------------|----------------|------|--------------|
| The effect of ERP | 6.863 | 24 | F 620 |
| Implementation | 0,803 | 24 | 5,638 |
| Impact of ERP | 6.052 | 33 | 6.056 |
| Implementation | 0,032 | 33 | 6,036 |
| Critical success factor | 1.408 | 20 | 2.041 |
| of ERP implementation | 1,400 | 30 | 2,941 |

Source: Searching process, 2023

Selection of Literature Results

In this stage, the focus lies on categorizing the findings from the earlier literature search by refining the selection to include reputable journals or conference papers previously published. This selection process adheres to pre-established criteria, outlined as follows:

- a) Papers or conference proceedings published between 2013 and 2023.
- b) Papers or conference proceedings sourced from credible and trustworthy journals or conferences.
- c) Papers or conference proceedings selected from the search must address the specific research questions outlined in this study.
- d) Papers or conference proceedings are ideally skewed toward case study research methodology, leveraging surveys as the primary data collection tool.

20 papers in total were chosen as the pool of literature, as a result, guided by these criteria.

Analysis of Literature Results

This phase involves analyzing the selected literature based on the predetermined criteria. The analysis entails summarizing the findings from the literature search that are relevant to the impact of organizational performance on ERP implementation. The analysis is completed by classifying the paper's types and contents following the previously determined keywords, namely 'the effect of ERP Implementation' and 'impact of ERP Implementation'.

The outcomes of the literature search analysis can also help identify the success or failure factors that influence organizational performance in ERP implementation. These success or failure factors can be utilized by organizations to prevent failure and mitigate the risks associated with ERP implementation.

By conducting this analysis, the study aims to gather insights into the relationship between organizational performance and ERP implementation, enabling organizations to better anticipate and address challenges in their ERP initiatives.

RESULT AND DISCUSSION

In the searching phase, the outcomes consist of literature search results comprising papers or conference proceedings. These prior findings encompass a variety of business sectors that have implemented ERP systems to enhance their organizational activities. The following list outlines the sectors within which companies have applied ERP to support their organizational endeavors:

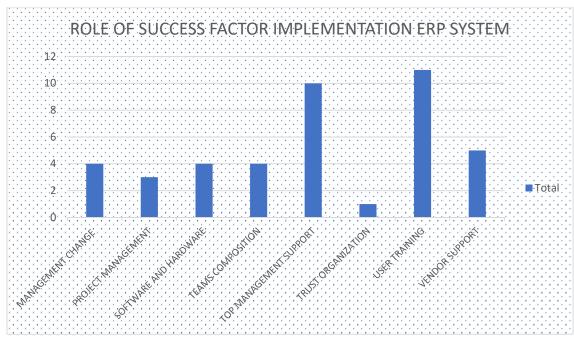
Table 2
Distribution Organization Literature

| Distribution of Organization | Literature |
|---------------------------------|--|
| Manufacture | (Nkasu, 2020), (Saleh & Thoumy, 2018), (AboAbdo et al., 2019) |
| SMEs | (Nikitović & Strahonja, 2016), (Deshmukh et al., 2015), (Ağaoğlu et al., |
| | 2015), (Nofal & Yusof, 2015) |
| Financial | (Wijaya et al., 2018) |
| Distributor | (Putri et al., 2020), (Suroso et al., 2018) |
| Oil Company | (Jafari & Nair, 2018), (Kembaren & Budiastuti, 2016) |
| Automotive | (Aini et al., 2020), (Prasetyo et al., 2019) |
| Public Sector | (Appelbaum Et Al., 2017), (Fernandez Et Al., 2017) |

| Education | (Tchatchouang Et Al., 2019), (Abu-Shanab Et Al., 2015), (Widjaja Et Al., 2020) |
|-----------|--|
| Industry | (Hasanah Et Al., 2016) |

Source: Searching process, 2023

Based on Table 2, the distribution of organizational sectors implementing ERP to support their business activities can be mapped. This mapping reveals that ERP utilization in organizations is prominently observed within the SMEs (Small and Medium-sized Enterprises) sector. The success of ERP implementation within an organization is influenced by a variety of elements, such as top management support, change management, and others. Considering the mapping of various organizational sectors, Following are some key factors that can be found and are significantly linked to the success of ERP implementation, such as:



Source: Data processed, 2023

Figure 2
Role of success factor implementation ERP

Numerous elements that contribute to the implementation of ERP successfully are shown in Figure 2. Among these factors, there exist three key determinants that are consistently emphasized in the literature across diverse organizational fields when discussing the outcomes of ERP implementation User Training, Top Management Support, and Vendor Support

User Training

In this stage, the first determinant of success or failure in an ERP implementation within an organization is User Training. ERP users may span various organizational tiers, including operational levels, middle management, and top management. As indicated by research conducted by Dezdar (2017), A key element influencing the success of ERP implementation in an organization is user training. Enterprise Resource Planning user training encompasses the comprehensive utilization of ERP features and is grounded in

knowledge transfer principles intrinsic to the ERP system. The primary goal of user training is to empower users to adeptly navigate and adapt to the new ERP system and the ensuing modifications to organizational business processes, ultimately yielding positive impacts in the organization's ERP implementation (Cruz-Cunha & Varajao, 2011).

Implementing ERP in an organization is a pivotal endeavor, attributed to the complexity of ERP systems and the requisite need for user training (SØrheller et al., 2018). It becomes apparent that inadequate training during this phase affects whether ERP installation inside a business is successful or unsuccessful (Wright, 2023). Users constitute a pivotal component that requires an understanding of ERP usage to enhance their performance within the organizational context (Taghipour et al., 2020).

According to research conducted by Danielsen et al. (2019), user training encompasses two distinct types: classroom training and shop-floor training. Classroom training comprises a variety of sessions and training types, all geared toward enhancing ERP utilization. Conversely, shop-floor training introduces ERP to users by providing functional-specific training within the ERP environment. Prospective ERP users undergo training to comprehend the ERP system's usage and gain insights into changes in organizational business processes, which subsequently influence their job roles.

Three key aspects are employed in user training: understanding ERP logic and concepts, exploring ERP software features, and hands-on training (Jha et al., 2018). Users who complete this course will be prepared to traverse the organization's changing business processes because of the adoption of its ERP system. Furthermore, it ensures users are well-versed in adapting their accustomed tasks to the new ERP-enabled workflow (Malik & Khan, 2021).

Research by Jiwasiddi & Mondong (2018) emphasizes the importance of training for organizational success in ERP implementation. Training aids in change management throughout the ERP adoption process, facilitating transitions in organizational business processes. User training for the ERP system serves as a preventive measure and risk management strategy against user incapability to operate ERP and support organizational performance. User incapability has the potential to lead to ERP implementation failures within an organization (Jiwasiddi & Mondong, 2018).

Targeted user training stands as a pivotal determinant in gauging the success of ERP implementation within an organization (Wright, 2023). Organizations poised to implement or currently adopting ERP systems must prioritize user training as a key factor, ensuring successful ERP implementation that positively impacts organizational performance (Wright, 2023). Furthermore, user training extends benefits to the users themselves, providing them with insights into evolving company business processes and their job responsibilities (Wright, 2023). Notably, user training aids change management in monitoring the transition between pre- and post-ERP implementation phases. Moreover, training minimizes resistance among users or employees within organizations undergoing or about to undergo ERP implementation, alleviating concerns about job displacement due to the introduction of new systems (Wright, 2023).

Top Management Support

Top Management Support is the second factor that will determine if an ERP implementation in a firm is successful or not. Support from senior-level management involves ensuring the availability of necessary resources and authority to bolster the success of ERP implementation projects (Taghipour et al., 2020).

As highlighted by research conducted by Shao et al. (2016). The effectiveness of ERP adoption within organizations or businesses depends critically on top management support. In this context, leadership approaches adopted by top-level managers significantly influence their ability to address challenges and make effective organizational decisions. There are two leadership styles that play a role in the effective ERP implementation: transformational leadership and transactional leadership (Shao et al. 2016).

The importance of top management's involvement and support in the success of information technology adoption is highlighted by research by Lee et al. (2016). The success of an ERP implementation is significantly influenced by the leadership style exhibited by top management (Suhaimi et al., 2017). Starting with the initial planning stage, and more specifically with the planning of ERP deployment, the leadership style may be seen. Additionally, with the adoption of ERP, the senior management's leadership style influences the development of an organizational environment that supports ongoing learning and progress toward business objectives (Suhaimi et al., 2017).

The role and support offered by top management encompass their involvement and participation in overseeing and monitoring ERP implementation projects within the organization or company (Chaveesuk & Hongsuwan, 2017). This support entails endorsing the ERP implementation process and supervising all activities conducted by the project team to ensure alignment with the objectives and expectations set by top management (Chaveesuk & Hongsuwan, 2017)

The most important criteria determining the success or failure of ERP adoption within organizations or firms are top management support, dedication, and engagement (Chen et al., 2006). The support provided by senior management substantially affects how ERP implementation proceeds, affecting its trajectory (Motiwalla & Thompson, 2012). Factors such as inadequate leadership style or insufficient support can impact the ERP implementation process and potentially lead to its failure (Suhaimi et al., 2017).

An illustrative case from research conducted by Suhaimi et al. (2017) involves two scenarios of top management support in an ERP implementation project. The distinguishing factor between the two scenarios lies in the level of support provided throughout the ERP implementation project. In the first case, top management exhibited commitment only at the outset of the project, subsequently losing focus and negatively impacting the ERP development initiative. Conversely, in the second scenario, top management demonstrated commitment from inception until the conclusion of the ERP implementation project, maintaining consistent monitoring and guidance throughout its progress. Based on these two cases, the level of senior management involvement and support has a big impact on whether an ERP rollout is successful (Dezdar & Ainin, 2011).

The success or failure of ERP adoption is significantly influenced by the active participation of senior management in helping and participating in project execution (Dezdar & Ainin, 2011). Leadership style, decision-making processes, the commitment offered, and direct involvement in monitoring, directing, and decision-making during the implementation project significantly shape the organizational outcomes (El Santty et al., 2023).

Vendor Support

According to research findings, vendor support is the third element that affects whether an ERP implementation is successful or unsuccessful (Beardwood, 2020). The support provided by vendors can encompass software or hardware provisioning as well as ERP

development for organizations or companies (Beardwood, 2020). Research conducted by Garg & Khurana (2017) emphasizes the pivotal role of vendors in extending support for ERP implementation within organizations, a factor that significantly influences the success of ERP applications.

Organizations must also make the right vendor selection to facilitate ERP implementation (El Santty et al., 2023). Choosing the appropriate vendor to support ERP implementation can impact the success or failure of the endeavor. Organizations or companies determine vendors by considering various factors, including the vendor's level of experience and their track record with previous cases of ERP implementation (Suroso et al., 2018). On the other hand, vendor support can also be a determinant of whether an ERP implementation is successful. Due to the preliminary analysis, vendors must be actively involved in the deployment of the ERP project to guarantee that the entire project stays on track (Beardwood, 2020). Moreover, maintaining a good relationship with the organization is essential to building trust with the organization utilizing the vendor's services (Suhaimi et al., 2017).

Research by Ali & Miller (2017) states that ERP implementation failures can stem from vendor support issues. Failures in ERP implementation can occur due to vendor support inadequacies, driven by several influencing factors. These include the vendor's inability to adjust to the organizational culture, failure to redesign the organization's current business procedures, a lack of information within the organization, an inability to adjust to shifting business and economic conditions, failures in cost control during the ERP implementation project, and technical issues during the actual ERP application process.

ERP implementation's success or failure might be affected by vendor assistance. There are steps that an organization can take to determine the best vendor to provide support for ERP implementation (Motiwalla & Thompson, 2012), as follows:

- 1) Vendor selection and gathering various information related to ERP products and the success of projects undertaken by vendors.
- 2) Identifying the needs required by the organization for ERP implementation.
- 3) Establishing a responsible team to execute the ERP implementation project.
- 4) Filtering by eliminating existing vendors and selecting the top two choices from the obtained vendors.
- 5) Conducting a comparison between vendors to obtain the best price and negotiating the price for the ERP implementation process.

The role and support provided by the vendor are determined based on the organization's selection of the vendor to provide support for ERP implementation (Suhaimi et al., 2017). As the role and support available from the vendor are also influenced by the vendor's experience in deciding the success or failure of ERP implementation, the organization's choice will determine the ERP deployment's success (Beardwood, 2020). Additionally, trust is important when choosing providers and using them to support the adoption of ERP within an organization or business (El Santty et al., 2023). The trust established between the vendor and the organization can determine the project's sustainability during the ERP implementation. When either or both parties lack trust, it can lead to project failure or ERP implementation failure (Beardwood, 2020).

Effect of Implementation ERP

The impact of ERP implementation on an organization will influence its overall performance. The effects resulting from success or failure can be directly felt by the

organization, each contributing to different outcomes, particularly in organizational performance (Nkasu, 2020).

According to a study conducted by Suroso et al. (2018), performance of an organization can be impacted by the ERP implementation's success. In businesses that use ERP to support their job, employee performance is influenced by how smoothly the ERP implementation is performed. The quality of information generated from ERP implementation affects the performance improvement of employees who directly utilize the system. The quality of outcomes obtained through the deployment of an ERP system is influenced by how well-liked the system is among employees.

An illustrative case from a study by Appelbaum et al. (2017) highlights that implementing ERP in the finance department can positively impact the performance of accountants in their roles. Enhanced performance experienced by financial accountants comes from increased access to data within the company they work for. Furthermore, these accountants can easily utilize larger storage media provided by the ERP system. ERP implementation, which integrates the entire system, impacts the consolidation of data access across all departments of the company. This aids accountants in generating financial reports or financial planning for the company. Not only does it lead to more effective and efficient data utilization, but the ERP system also supports the processing of data into financial reports or planning, facilitating the work of accountants and enhancing overall organizational performance, leading to quicker goal achievement for the organization or company (Kembaren & Budiastuti, 2016).

Developments in organizational or business performance are the result of a successful ERP setup process (Fong et al., 2013). This improvement extends beyond the company's overall structure and includes both individual employee performance and performance within organizational areas. The achievement of predefined objectives is subsequently impacted by the improvement of organizational or corporate performance, which has an impact on the efficacy and efficiency of business processes (Lee et al., 2016).

However, the impact of ERP implementation is not always successful in augmenting organizational or company performance (Molina-Castillo et al., 2022). Failures can occur during ERP implementation in organizations or companies due to various factors or mistakes made by the organization or company in policy determination or ERP system implementation (Christiansen et al., 2021). Contributing factors to ERP implementation failure (Ali et al., 2009) include errors in training methods for ERP users, faulty implementation planning, inadequate management support, changes in business processes, and resistance to newly implemented systems.

CONCLUSION

The implementation of ERP within an organization can enhance the overall performance across various departments. The supportive elements of ERP deployment success are credited with performance improvement throughout these many organizational areas. Following to analysis findings from the literature, user training, top management support, and vendor support are the three most frequently referenced aspects that affect an ERP implementation's success or failure. This does not, however, rule out the possibility of other significant elements that may affect how an ERP deployment turns out (Suhaimi et al., 2017).

Additional elements may have a role in determining whether an ERP implementation is successful or unsuccessful. Performance within an organization will be impacted by the success or failure of ERP deployment. Failure in ERP implementation results in losses for the company in terms of investing in information technology.

Furthermore, unsuccessful ERP implementation leads to time and cost implications for re-planning the implementation within the organization. The impact of successful ERP implementation is that organizations or companies can experience improved performance in achieving their business objectives. This performance enhancement is not only felt by the organization or company itself, but also by employees who find it easier to support the tasks assigned by the organization or company (El Santty et al., 2023).

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