ANALYSIS OF SUCCESS FACTORS FOR ONE SINGLE ERP (ENTERPRISE RESOURCE PLANNING) IMPLEMENTATION (CASE STUDY OF SOE HOLDING)

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Abstract

This research examines the implementation of One Single ERP system in SOE Holding, which previously faced challenges in consolidating data from three State-Owned Enterprises (SOEs) with different ERP systems. This research uses the ADKAR framework (Awareness, Desire, Knowledge, Ability, Reinforcement) to manage organizational change, overcome cultural and business process differences, and minimize resistance. The result of this research is that Employee Readiness requires a large allocation of effort to improve employee readiness through training, mentoring, and reinforcement. Top Management Support is also important to ensure strategic support and policies are aligned with transformation goals. Not all factors have an equal influence on successful implementation. With limited resources, Holding needs to prioritize the most influential factors, such as Employee Readiness and Top Management Support, so that efforts can be focused effectively and increase the chances of success. This approach accelerates the ERP implementation process while minimizing risks so that digital transformation goals can be achieved more quickly and efficiently.

Keywords: Enterprise Resource Planning (ERP), Analytical Hierarchy Process (AHP), ADKAR Model

INTRODUCTION

Information technology's rapid development has significantly impacted how organizations manage operations. One of the most important innovations is Enterprise Resource Planning (ERP), which integrates various business functions such as finance, human resources, logistics, and production into one centralized platform (Zhang & Hua, 2014). ERP enables real-time data integration, which supports faster and more accurate decision-making (Santana et al., 2023). This system becomes very important to improve the operational efficiency and competitiveness of the organization (Bawa, 2024). The implementation of ERP in a company is interesting to study, given the success rate of implementing ERP Holding BUMN which is the discussion in this article (Wijayanto, 2020). Before the holding was implemented in 2021, 3 BUMNs had different ERP systems from each other. This caused difficulties experienced by the parent BUMN Holding to consolidate financial data, human capital, procurement, and so on. Data consolidation is done manually through spreadsheet forms so that it has an impact on the low speed of data consolidation, the level of data accuracy, efficiency and effectiveness of the data integration process.

To overcome these problems, the SOE Holding parent decided to implement One Single ERP in all three companies in the SOE Holding by 2023. This move aims to improve data management, simplify reporting, and support better decision-making. However, this implementation also presents risks in the form of potential operational disruptions, pressure on finances due to high investment costs, and negative impacts on the organization's reputation if the implementation is not successful. In addition, the long implementation duration, planned from 2024 to Go Live in 2026-2027, may impact the project timeline as well as the smooth operation of the company. In terms of cost, a large budget for ERP configuration, user training, and change management are additional challenges that require careful planning so as not to burden the company's finances. Not all companies successfully implement ERP, especially when it comes to migrating from different ERP systems to the new One Single ERP. Large costs, significant business process changes, and the need for time for users to adapt are challenges that must be faced. To mitigate failure, it is necessary to identify key factors that can be optimally managed.

Four main influences can affect the success of One Single ERP implementation in large organizations such as SOEs, namely: 1) Employee Readiness, which involves employees' knowledge and ability to adapt to the new system; 2) Top Management Support, which is critical in providing direction and resources for successful ERP implementation; 3) ERP Fit with Organization needs, which ensures that the implemented system is in line with the organization's goals and business processes; and 4) Business Process Re-engineering (BPR), which can facilitate the adaptation of work processes to achieve higher efficiency with ERP (Afif & Khomsiyah, 2024).

In its implementation, there are several key factors for ERP implementation, including Top Management Support, Employee Readiness, ERP fit with Organization, and Business Process Re-engineering (BPR) (Ranjan et al., 2018). With limited resources available, identifying the most influential factors is important so that efforts can be focused efficiently. The ADKAR model (Awareness, Desire, Knowledge, Ability, Reinforcement) is proposed as a practical framework for managing change at both the individual and organizational levels, by overcoming cultural differences and business processes while minimizing resistance (Setiawan et al., 2024). This research aims to provide recommendations to state-owned holding companies on how to manage the four (4) factors in the ADKAR model framework to increase the chances of successful ERP implementation. By identifying those factors and understanding the dynamics of change in the organization, this research intends to help the holding achieve its ERP implementation goals, minimize risks, and ensure long-term operational stability. The results of this study are expected to make a significant contribution to future ERP implementations, particularly in high-complexity organizations such as SOEs.

REVIEW OF LITERATURE

ERP System and Implementation

ERP (Enterprise Resource Planning) is a system that aims to integrate all company processes and functions, provide a comprehensive view of operations, and ensure the smooth flow of information throughout the organization (Febrianto & Soediantono, 2022). ERP systems consist of various modules such as financial accounting, manufacturing, human

resources, and logistics, which are designed to meet the specific needs of business processes (Mabert et al., 2003). ERP implementation includes various stages, from managerial decisions to full integration into the enterprise information system (Gargeya & Brady, 2005). This process involves the adaptation of technology, organization, and business processes, and requires careful management of change (Godbole, 2023).

ERP implementation stages generally include project preparation, system design, realization, final preparation (go live), to post-implementation support (Novitasari & Rahmawati, 2022). This implementation also changes the way individuals work, business processes, and information systems that support organizational operations (Putra et al., 2021). In addition, with mobile technology, ERP is now more flexible, allowing users to manage businesses anywhere while increasing productivity and cost efficiency (Setiawan et al., 2024)).

ERP Implementation and Change Management

Change management is an important aspect of ERP implementation, especially in balancing between changing business processes to fit the ERP system or customizing the ERP system to fit business processes (Errida & Lotfi, 2021). The level of ERP customization needs to be controlled and only done if business processes cannot be changed without losing competitive advantage. In addition, changes in organizational culture and structure, including human, organizational, and cultural management, must also be considered (Metaxiotis et al., 2005).

Barriers to change often include a lack of employee willingness, ability, or understanding (Jayeola et al., 2022). Resistance to change can be caused by threats to established resource allocation, structures, power relationships, and expertise (Rajendran et al., 2015). Therefore, an appropriate change strategy is key to the success of ERP implementation. This strategy is influenced by the level of resistance, magnitude of change, risk, implementation time, expertise, and dependency (Vihari & Yadav, 2022).

Devi and Aryani (2024) mentioned three ways to make organizational change: (1) changing individuals, (2) changing organizational structures and systems, and (3) changing organizational climate or interpersonal style. Several studies show the importance of change

management in ERP implementation, including business process changes, effective communication, and performance evaluation (Naslund, 2003).

Resistance to ERP implementation often stems from user attitudes that do not accept the new system. Ahmad et al (2013) offer a process-based integration framework that includes knowledge formulation, implementation strategy, and status evaluation to address this issue. Another study concluded that the success of ERP implementation depends largely on the extent to which ERP fits the organization (Basu et al., 2011).

RESEARCH METHOD

This research uses a mixed methods approach with an Exploratory Sequential design to analyze and assess the priority of each of the key factors for implementing a single ERP in SOE Holding. This research combines the case study method to provide in-depth context to the findings. Through the results of this study, the researcher intends to identify and provide recommendations regarding strategies for managing the four (4) factors affecting the implementation of one single ERP within the framework of the ADKAR model, to increase the chances of successful ERP implementation through a structured, effective, and minimal resistance approach within the organization.

The research consisted of two main stages, following an Exploratory Sequential design:

Stage 1: Qualitative Exploration (Case study)

This stage focuses on an in-depth exploration of the key factors of ERP implementation through a case study approach. Data collection was conducted through:

Literature Study: This research will review relevant literature related to ERP implementation, key factors, change management, and the ADKAR model. This literature study aims to build a theoretical foundation and identify potential key factors that influence the success of ERP implementation.

Interviews: Semi-structured interviews were conducted with key informants directly involved in ERP implementation. These interviews aim to explore the interviewees' experiences, perspectives, and understanding of the factors that contribute to the success or failure of ERP implementation in SOE Holding.

The interviewee is the VP of integration and business processes at the holding consisting of 1 person, who acts as the person in charge of the ERP implementation process in the BUMN Holding under study. Participants were selected through purposive sampling with the following criteria:

a. Serves as a key user, the person in charge of the implementation team, VP of integration and business processes at the Holding, and is directly involved in the ERP project.
b. Have experience in ERP system implementation, especially in the Holding environment.

Qualitative data collected from the literature study and interviews were analyzed using thematic analysis to identify key themes related to the key factors of ERP implementation. These themes will then be used as alternatives in the AHP analysis at the quantitative stage, with the criteria of Risk, Time, and Cost. These themes will also be the basis for recommendations based on the ADKAR model.

Stage 2: Quantitative Testing/Expansion (AHP) and ADKAR Recommendations

This stage consists of two main parts:

1. AHP (Analytical Hierarchy Process) Analysis: Using the AHP method to prioritize the key factors of ERP implementation that have been identified in the qualitative stage. In this analysis, 3 main criteria will be used, namely:
   a) Risk: The potential negative impact that ERP implementation may have on the organization's operations, finances, and reputation.
   b) Time: The duration required for ERP implementation and its impact on the project schedule and the organization's operations.
   c) Cost: The budget required for ERP implementation and its impact on the organization's finances.
2. The AHP steps to be performed include:
   a) Hierarchy Building: Develop a hierarchy of problems, starting from the goal of successful ERP implementation, the criteria Risk, Time, Cost, and alternative key themes/factors identified from the qualitative stage, e.g. Employee Readiness, Top Management Support, Business Process Re-engineering, and ERP fit with Organization.

b) Pairwise Assessment: Pairwise assessment between criteria (Risk vs Time, Risk vs Cost, Time vs Cost) and between alternatives (each key factor is assessed based on Risk, Time, and Cost) by experts or decision-makers. This assessment uses Saaty's comparison scale with the following scale:

Table 1.
Saaty Comparison Scale

Scale	Level of Importance	Description
1	Equally Important	Two elements are equally important.
3	Slightly More Important	Experience and judgment slightly favor one element over the other.
5	More Important	Experience and judgment strongly support one element over the other.
7	Much More Important	One element is clearly much more important than the other.
9	Absolutely More Important	One element is absolutely more important than the other.
2, 4, 6, 8	Intermediate Values Between Two Judgments	Used when compromise is needed between two levels of importance above

c) Assessment Synthesis: Synthesize pairwise assessments to obtain priority weights for each criterion and alternative.

3. The result of the AHP analysis will be a prioritized order of key factors for ERP implementation based on Risk, Time, and Cost criteria.
4. ADKAR-Based Recommendations: The ADKAR model (Awareness, Desire, Knowledge, Ability, Reinforcement) is used to formulate specific and targeted recommendations based on the results of qualitative and quantitative analysis (AHP). Each element of ADKAR will be considered in formulating the recommendations:
   a) Awareness: Recommendations related to building awareness of the importance of change and the reasons behind ERP implementation.
   b) Desire: Recommendations related to cultivating the desire to participate and support the change.
   c) Knowledge: Recommendations related to providing the knowledge and training needed to use the new ERP system.

d) Ability: Recommendations related to developing the abilities and skills needed to implement the change.
e) Reinforcement: Recommendations related to reinforcing the change and ensuring its sustainability.

5. The prioritization of key factors generated from AHP will help focus ADKAR recommendations on the most critical areas based on Risk, Time, and Cost considerations.

RESULTS AND DISCUSSION

Implementation of one single ERP in SOE Holding

The implementation of one single ERP in SOE Holding consists of 2 main stages:

1. Business Process Re-engineering (BPR) stage: The initial stage to identify and redesign business processes to fit the needs of the ERP system. This process includes in-depth analysis, elimination of inefficient processes, and adjustment of workflows to be optimal in supporting ERP implementation.
2. Implementation Stage: The stage of implementing an ERP system that involves software installation, data migration from legacy systems, user training, and system testing. The main focus at this stage is to ensure the system integration runs smoothly and all users are ready to operate the new system.
3. Go-Live: The phase where the ERP system is officially used to run the organization's daily operations. In this phase, intensive technical support and monitoring is carried out to ensure the transition goes smoothly without major disruptions, as well as to deal with any initial problems that may arise.

The interviewee said, “Before the implementation of the holding in 2021, there were 3 SOEs that had different ERP systems from each other. This caused difficulties experienced by the SOE Holding parent to consolidate financial data, human capital, procurement, and so on. Data consolidation is done manually through spreadsheet forms so that it has an impact on the low speed of data consolidation, the level of data accuracy, efficiency and effectiveness of the data integration process. To overcome these problems, the SOE Holding parent decided to implement One Single ERP in all three companies in the SOE Holding by

2023. This move aims to improve data management, simplify reporting, and support better decision-making. However, this implementation also presents risks in the form of potential operational disruptions, pressure on finances due to high investment costs, and negative impacts on the organization's reputation if the implementation is not successful. In addition, the long implementation duration, planned from 2024 to Go Live in 2026-2027, may impact the project timeline as well as the smooth operation of the company. In terms of cost, a large budget for ERP configuration, user training, and change management is an additional challenge that requires careful planning so as not to burden the company's finances.

The implementation of One Single ERP in SOE Holding requires two phases, and currently, in 2024, SOE Holding is in the second phase, namely the implementation phase. This phase is a very crucial part of determining the success of One Single ERP implementation. In this phase, the role of change management is very important, given the potential resistance that can occur at the individual and organizational levels. Therefore, four main key factors must be considered to ensure the success of ERP implementation, namely: 1) Employee Readiness, which ensures employee readiness to adapt to the new system; 2) Top Management Support, which provides full support from top management to direct and provide the necessary resources; 3) Business Process Re-engineering (BPR), which ensures existing business processes can be adapted to the new ERP to achieve higher efficiency; and 4) ERP Fit with Organization, which indicates the extent to which the selected ERP fits the culture and needs of the organization, and can support the organization's strategic goals in the long term."

Furthermore, the speakers described the four (4) key factors of one single ERP along with their importance values. The following is the value of Saaty's 1-9 comparison scale for the four key factors for ERP implementation in BUMN Holding, based on three main criteria: Risk, Cost, and Time.

Employee Readiness:

a) Value: **9** (Absolutely more important)
b) Explanation: Employee readiness to adapt to ERP changes is the most crucial factor. Without their support and readiness, the ERP system may face resistance that hinders its success. Therefore, this factor is considered very important, with the highest score.

Top Management Support:

a) Score: **7** (More important)
b) Explanation: Top management support is critical to ensure successful ERP implementation, but this factor is still slightly lower than employee readiness. Strong management can motivate the entire organization, but without employee readiness, success will be hindered.

Business Process Re-engineering (BPR):

a) Score: **5** (Equally important)
b) Explanation: BPR is a very important part of the ERP implementation process, but this score is lower than employee readiness and management support. BPR requires sufficient time and resources, but its success depends on other factors

ERP Fit with Organization:

a) Score: **3** (Slightly more important)
b) Explanation: ERP system fit with organizational needs is important, but less urgent than employee readiness, management support, and BPR processes. While system fit is important, it is more easily adjusted when compared to the other factors.

By using Saaty's comparison scale, resource allocation will be focused more on Employee Readiness, which is the most prioritized factor in the success of ERP implementation in SOE Holding.

Table 2.
Key Factors for ERP Implementation Based on Resource Person Assessment Using Analytical Hierarchy Process (AHP)

Faktor	Priority	Rank	(+)	(-)
ER (Employee Readiness)	49.2%	1	11.8%	11.8%
TM (Top Management Support)	33.4%	2	10.7%	10.7%
BPR (Business Process Re-engineering)	10,0%	3	3.3%	3.3%
ER (ERP fit with the organization)	7.4%	4	2.0%	2.0%

Implementation of the ADKAR model

With the results of this prioritization, the ADKAR model will be implemented as a recommendation for Holding in managing change, focusing on the efforts that need to be made so that potential resistance can be minimized based on four main factors: Employee

Readiness, Top Management Support, Business Process Re-engineering (BPR), and ERP Fit with Organization, which will be implemented through the five stages of the ADKAR model-Awareness, Desire, Knowledge, Ability, and Reinforcement-with steps tailored to each of these factors, while still paying attention to the four main influences, namely people, organization, process, and technology so that changes can run effectively and minimize resistance at every level.

Employee Readiness (Score: 9 - Highest Priority)

Awareness

a) **Efforts**: Intensive internal campaign using various communication media such as emails, town hall meetings, educational videos, posters, and corporate social media. Appointment of "Change Agent" in each department to socialize the importance of ERP.
b) **Objective**: Ensure all employees understand the importance of ERP in supporting the company's transformation.

Desire

a) **Effort**: Involve employees in decision-making related to work process changes. Provide incentives such as bonuses or awards for employees who actively participate. Hold personal consultation sessions to hear employees' concerns.
b) **Objective**: Make employees intrinsically motivated to support the change.

Knowledge

a) **Effort**: Intensive training for all employees on ERP usage, new business processes, and benefits. Provide online-based interactive training modules for self-access. Conduct refresher training to ensure consistent understanding.
b) **Objective**: Equip employees with in-depth knowledge of the ERP and new processes.

Ability

a) **Effort**: Direct assistance through mentors in each team during the transition period. Simulation of ERP usage in daily work before the system was fully implemented. Provision of additional tools such as quick guides and FAQs to assist employees.
b) **Objective**: Ensure employees have the practical ability to use the ERP.

Reinforcement

a) **Effort**: Evaluate employee adaptation through surveys, interviews, and system trials. Publicly recognize departments or individuals that show the best adaptation. Provide dedicated communication channels to provide feedback on obstacles encountered.
b) **Objective**: Ensure the change is accepted on an ongoing basis.

Top Management Support (Score: 7 - Second Priority)

Awareness

a) **Effort**: Special workshop for top management on their strategic role in ERP success. Provide a data-driven ERP benefit analysis report as a policy reference.
b) **Objective**: Increase management's understanding of the importance of their support.

Desire

a) **Effort**: Link ERP implementation success to management KPIs. Involve management in making key decisions related to ERP implementation. Promote management's role as role models of change for employees.
b) **Objective**: Build management's will to support ERP implementation.

Knowledge

a) **Effort**: Conduct technical training to understand ERP modules relevant to managerial functions. Provide consulting sessions on data-driven decision-making from ERP.
b) **Objective**: Equip management with strategic knowledge related to ERP.

Ability

a) **Effort**: Involve management in ERP pilot projects to understand the practical application of the system. Provide hands-on technical support to help them use the ERP.
b) **Objective**: Ensure management can utilize ERP optimally.

Reinforcement

a) **Effort**: Provide regular ERP implementation progress reports to management. Organize an internal discussion forum for management to share experiences and solutions.
b) **Objective**: Ensure long-term commitment from management.

Business Process Re-engineering (BPR) (Score: 5 - Third Priority)

Awareness

a) **Effort**: Socialize to all parties the purpose and benefits of business process change. Use case studies on efficiency improvements through BPR.
b) **Objective**: Increase understanding of the need for business process change.

Desire

a) **Effort**: Encourage active participation of cross-departmental teams in business process redesign. Create an internal competition for innovative ideas in process redesign.
b) **Objective**: Get the team to support the process change.

Knowledge

a) **Effort**: Provide in-depth training on business process changes and their impact on ERP. Organize workshop sessions to understand the new business processes in detail.
b) **Objective**: Provide in-depth knowledge of the new process.

Ability

a) **Effort**: Pilot the new business process in an ERP simulation. Ensure there is direct supervision to help overcome obstacles in the initial implementation.
b) **Objective**: Ensure smooth adaptation to the new process.

Reinforcement

a) **Effort**: Periodic audits of the implementation of the new process. Reward teams that effectively implement the change.
b) **Objective**: Ensure sustainability of the new process.

ERP Fit with Organization (Score: 3 - Lowest Priority)

Awareness

a) **Effort**: Socialize ERP fit with the organization's strategic goals.
b) **Objective**: Increase awareness of the importance of ERP fit.

Desire

a) **Effort**: Involve end users in the ERP configuration process.
b) **Objective**: Increase the desire to support the implementation.

Knowledge

a) **Effort**: Provide technical training to the IT team to perform system customization.

b) **Objective**: Providing technical knowledge related to ERP customization is very important (Wijayanto, 2020). Furthermore, because efficient information management is key to ensuring that all departments have access to the data needed to support operations effectively (Santana et al. 2023).

Ability

a) **Effort:** Switch from traditional methods (such as spreadsheets) to a web-based integrated system.
b) **Objective:** Improve data accessibility, real-time updates, and collaborative functions to support effective ERP (Guntara et al., 2023)

Reinforcement

a) **Effort**: Conduct periodic evaluations to ensure the ERP remains relevant to the needs.
b) **Objective**: Ensure the sustainability of ERP suitability.

By prioritizing Employee Readiness and backing it up with Top Management Support, the Holding can ensure this change is well received by all employees, which in turn will support a smoother implementation. Business Process Re-engineering must be carefully implemented to ensure that the new processes are compatible with the ERP system to be implemented. Finally, although ERP Fit with Organization is a lower-priority factor, continuously monitoring and adapting ERP to operational needs will ensure that the system is not only accepted but also remains relevant in the long run.

With an emphasis on these four factors, prioritized according to their level of urgency, and by involving all elements of the organization in every stage of implementation, Holding will be able to minimize resistance, optimize resources, and achieve success in the implementation of one single ERP.

CONCLUSION

Based on the analysis, the four key factors of One Single ERP implementation-Employee Readiness, Top Management Support, Business Process Re-engineering (BPR), and ERP Fit with Organization different influences. Employee Readiness is the highest priority, requiring a large allocation of effort to improve employee readiness through training, mentoring, and reinforcement. Top Management Support is also important to ensure strategic

support and policies are aligned with transformation goals. Not all factors have an equal influence on successful implementation. With limited resources, Holding needs to prioritize the most influential factors, such as Employee Readiness and Top Management Support, so that efforts can be focused effectively and increase the chances of success. This approach accelerates the ERP implementation process while minimizing risks so that digital transformation goals can be achieved more quickly and efficiently.

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