Evaluation the Success of ERP Implementation in Indonesia: Delonde and Mclean Model Approach

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Received: August, 2024; Accepted: August, 2024; Published: November, 2024
Permalink/DOI:

Abstract

Enterprise Resource Planning (ERP) is implemented in various sectors, especially MSMEs, which are increasingly brilliant in increasing global competitiveness. In 2023, Indonesia's MSME contribution to GDP is the highest compared to other countries. ERP evaluation is important, because not all businesses achieve success. This qualitative research aims to provide an overview of the factors in evaluating the success of ERP implementation in Indonesia based on the Delone & Mclean model. These results provide an illustration, evaluation of the success of ERP implementation based on the refined Delone & McLean model can be done through the initial stage, process stage and results stage. The benefits of implementing ERP include improving individual and work group performance, market expansion, sales growth, cost and time savings.

Keywords: *ERP, D&M models*

INTRODUCTION

The brilliant results of Indonesian MSMEs tend to increase over the decades, their growth not only contributes to the national scope, but in 2023 the contribution of MSMEs to GDP will be the highest compared to other countries. The contribution of MSMEs to GDP from the top three countries after Indonesia is Germany and Japan. Sustainability of MSME performance is a big challenge that must be pursued. Not only the management aspect, government intervention is also very necessary.

Figure 1. The role of MSMEs in GDP in various countries
Source: www.cnbcindonesia.com

Sustainable business performance will always take advantage of opportunities and aggressively monitor dynamic changes. Business processes using conventional methods will hinder growth, therefore an information system is needed that will help businesses have a competitive advantage thereby providing benefits to operational performance. Information in Sutabri's (2017:46) view has urgency for every business, so a quality information system will determine the effectiveness of managers in decision making.

Enterprise Resource Planning (ERP), a useful information system that helps manage existing functions in the company, information needs for sales, HR, accounting, production, marketing, and even customer service will be integrated with this software (Asimina, 2020).

ERP implementation in various sectors has opened new insights in improving information system performance, especially in the MSME sector. Previously, obstacles to aspects of technology and information access were still inherent in MSMEs, but so far many MSMEs have opened themselves up to abandoning conventional management systems through implementing ERP in their business processes.

In ERP implementation, not all businesses are able to achieve success, this phenomenon often results in the view that system implementation is unable to provide benefits to business performance. Previous research reports that the success of system implementation can be evaluated from user satisfaction, although other supports: the quality of software, procedures and information technology infrastructure are also determining (Ermati et al., 2021). Thus, user

satisfaction is an indicator that the information system implemented can achieve success.

The DeLone & McLean model has attracted researchers as an approach to evaluating the success of information systems. This model involves several factors as antecedents determining whether the implemented system can achieve success. The causal relationship of this model explains that there are six dimensions that are linked to each other so that it is a process that can produce a decision on whether system adoption is successful (Adrian & Nilo, 2023).

Success or failure in ERP implementation is interesting to evaluate. The focus of this article's descriptive study aims to provide an overview of the factors in evaluating the success of ERP implementation in Indonesia based on the DeLone & Mclean Model.

METHOD

Evaluation of ERP implementation in Indonesia with the DeLone & Mclean model as the theme studied. The qualitative descriptive method is used for writing through a literature approach. Without discussing statistics and narration, the discussion will determine the decision to conclude the study being discussed so that the focus is not on hypothesis proof but in more detail on understanding and describing the observed symptoms.

The problem context requires information from various literature sources from relevant text books, policies, research reports, articles resulting from conceptual frameworks and empirical findings. The triangulation method is very important to ensure the validity of the information collected, so that in-depth observations of the themes studied are obtained.

To produce conclusions according to the theme, a coding stage is required, reducing information from irrelevant literature, classifying, interpreting and finally making a decision to obtain a meaningful conclusion.

RESULTS AND DISCUSSION

D&M Information System Success Model

This model is called the D & M Information System Success Model, developed by DeLone & Mclean 1992, widely used to capture the meaning of how an adopted system can achieve success. The D&M model involves six components (system quality, information quality, consumer, user satisfaction, individual impact and organizational impact) which causally explains that organizational impact occurs because of individual impact that arises due to user use and satisfaction. User use and satisfaction are determined by the quality factors of the system and the quality of the information. DeLone & Mclean 's explanation focuses on measuring all of these components comprehensively because each part influences each other.

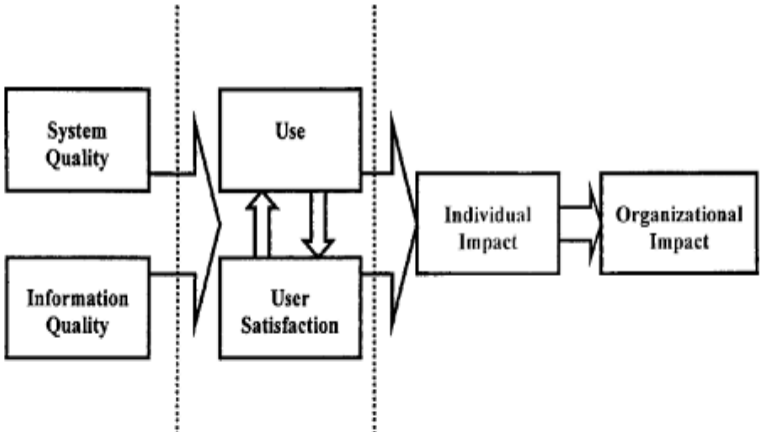

Figure 2. Initial model developed by DeLone & McLean
Source: DeLone & Mclean (1992)

Over the next ten years, this model received criticism. Seddon, in his criticism, disagrees because the model has two views different so that it has ambiguity if the two concepts are combined. Seddon's criticism received approval from D & M, so that finally this model was refined by adding a service quality component which previously only consisted of two components. Another novelty, combining the individual impact and organizational impact components into one construct, namely net benefits. Apart from that, there is also an additional intention to use component, where previously this component was more focused aspect of use (use). D & M in its argument, intention to use can be used as an approach to the dimensions of use.

In several previous literatures, the D&M model was used as an approach to evaluate the success of system implementation in various sectors such as industry, health, education, the public sector and MSMEs. The updated model looks like the following image.

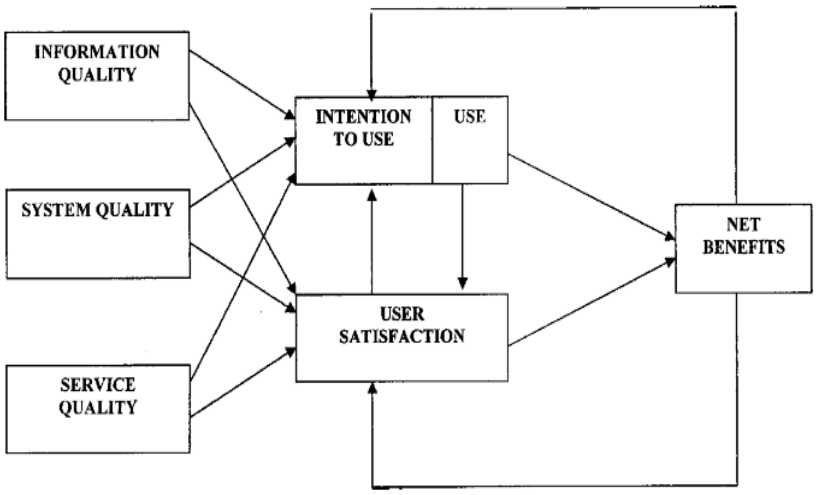

Figure 3. Updated DeLone & Mclean model
Source: DeLone & Mclean (2003)

Evaluation of the Success of ERP Implementation in Indonesia Using the DeLone & Mclean Model Approach

The rapid progress of information technology has become a strategic business focus, besides encouraging growth, it also has the opportunity to increase competitiveness (Samrat, 2022). Indonesian businesspeople's awareness of implementing ERP provides benefits to the efficiency of operational functions, increases customer value and helps managerial decisions become more effective (Khaled et al., 2021). Apart from that, businesses that have implemented ERP have received support from the government, such as tax reductions and partnership programs with various technology companies including system developers (Diah & Qori, 2021).

The success of ERP implementation in Indonesia needs to be evaluated, by taking insights from the refined DeLone & Mclean Model, this article aims to gain understanding and describe the stages of evaluating the success of ERP system implementation in Indonesia. The evaluation carried out involves three stages, namely:

Early stage

At this initial stage, there are three components that need to be evaluated, namely information quality, system quality and service quality. The success of the ERP implemented by the company can refer to the indicators of these three components, which will be explained as follows.

Table 1. Evaluation at the initial stage

	Component	Indicator
1	*System quality*	• *Reliability* • *Userfriendliness* • *Understandbility*
2	*Information quality*	• *Timeliness* • *relevance* • *Athenticity* • *Comprehensibility*
3	*Service quality*	• *Responsiveness* • *Technical competence* • *Empathy*

Source: DeLone & Mclean (2003)

a. System quality

This component can be evaluated by knowing how the user perceives the quality of the ERP system being implemented. The main focus is to assess the composition of hardware, software and information

systems to produce good system performance. The quality of the system is good if users find it easy to use, access is also easy, users can run it more quickly, the software is durable and equipped with security features (Safitri & Nilwan, 2022).

b. Information quality

This component can be evaluated by knowing how users perceive the quality of information from the ERP being implemented. The main focus is to assess whether the information produced is appropriate for the time required at that time, the information produced is in accordance with the wishes of the user, has accuracy, is credible, is able to present information in detail, and the user understands the information produced (Kartika, 2018).

c. Service quality

This component can be evaluated by knowing how the quality of system support from the information technology department is able to meet user needs. Ernawatiningsih & Arizona (2022) report that service quality in ERP implementation must be supported by quality service from management by paying attention to four aspects, namely responsiveness, technical competence and always showing *empathy* for users. Good service if system problems can be handled quickly, hardware problems can be handled as quickly as possible, ERP department staff have skills in their field, staff are also open to user problems, and have good self-control when helping with user problems.

Process Stage

The process stage is the user's experience while using ERP software which can be evaluated through two components, namely intention to use and user satisfaction. Intention to use can be used to evaluate the extent to which users' intentions to use ERP software apply to their company. Intention to use is important to evaluate because it influences their behavior and performance. According to DeLone & Mclean, intention to use leads to attitude and use inclined towards behavior. However, one of the two components can be used as an alternative use. To evaluate user intentions, it can be measured from the user's perception of whether the implemented ERP can improve their performance (Rahmi, 2019). Users with a high level of usage intention feel that because the ERP system can help complete their tasks quickly, tasks are easier to complete, providing many benefits so that they feel they produce the same performance. Using the system improves the resulting performance which is better and more productive.

Evaluation of the user satisfaction component is related to assessing the extent to which users are satisfied with the use of ERP. There are six indicators to measure user satisfaction namely content, accuracy, format, ease of use, informativeness and timelines (Kartika, 2018). Users who are satisfied feel that the information content produced by the system is in accordance with what they need, the system is considered accurate, users feel that the information produced is in accordance with the format they need, apart from that, it is easy to use, the

system is able to provide information exactly what users need, and the timeliness of the information can meet their expectations.

In the D&M model as proposed, the components of intention of use and user satisfaction have a reciprocal relationship. This has the implication that the higher the intention to use ERP, the more positive the user's attitude will be, so they tend to feel satisfaction. Conversely, users who are satisfied with using ERP will have a tendency to intend to use the system as long as the ERP system is still implemented in their organization. These two components are an important concern for companies, especially information technology divisions or departments, to always evaluate the extent to which their attitudes and behavior are consistent with the use of the systems implemented. Obstacles that hinder their attitudes and behavior need to be handled seriously. Socialization, training and monitoring need to be carried out to ensure the smooth implementation of the ERP system.

Table 2. Evaluation at the process stage

	Component	Indicator
1	*Intention of use*	• *Impact of system use on task completion* • *The system can improve performance*
2	User satisfaction	• *Content* • *Accuracy* • *Format* • *Easy Of Use* • *Informativeness* • *Timelines*

Source: DeLone & Mclean (2003)

Results Stage (Net Benefit)

Evaluation at this final stage, assesses the extent to which the ERP implemented can provide various benefits, both the impact on individual employee performance, team groups, organizations, or even customers and the societal impact so that the overall benefits that will result from implementing ERP will be a net benefit.

Table 3. Evaluation at the results stage

Component	Indicator
Net Benefit	• *Individual performance* • *Group performance* • *Market expansion* • *Cost savings* • *Sales growth* • *Time savings* • *Reduction of search costs*

Source: DeLone & Mclean (2003)

The company evaluates the net benefit based on several indicators, namely whether there is market expansion, the company can save more on operational costs, whether there is significant sales growth, time savings, and can reduce search costs. The level of net benefit will still take into account the user's intention to use and satisfaction (DeLone & McLean, 2003).

The implication is that the ERP system that has been implemented needs to receive periodic evaluation and monitoring to identify obstacles that hinder implementation.

The stages of evaluating the success of ERP implementation based on the refined DeLone & Mclean Model can be presented as the following chart.

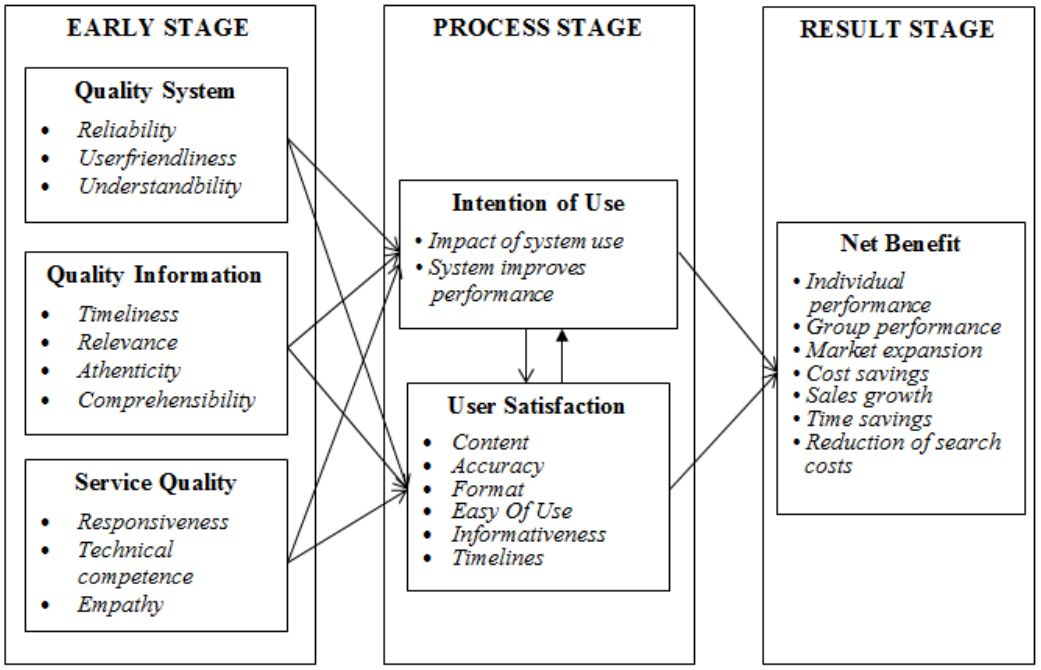

Figure 4. Stages of evaluating the success of ERP implementation based on the refined DeLone & McLean Model
Source: DeLone & Mclean (2003)

CONCLUSION

Implementation of ERP system in Indonesia doesn't always achieve success, therefore the ERP implementation that has been running needs to be evaluated. Evaluation of the success of ERP implementation in Indonesia can be measured using the Updated D&M Is Success Model approach. The model proposed by DeLone & Mclan is an improvement on the previous model.

Results of this descriptive study provide an illustration, evaluating the success of ERP implementation based on the refined DeLone & McLean Model can be carried out through the initial stage, process stage and results stage. The benefits of ERP implementation include improving individual and work group performance, market expansion, sales growth, saving costs and time.

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