

## DELONE AND MCLEAN MODELS IN THE IMPLEMENTATION OF ASSET MANAGEMENT INFORMATION SYSTEM ANALYSIS

Dinna Charisma

Faculty of Economics and Business, Universitas Langlangbuana

E-mail: dinnacharisma@gmail.com

**ABSTRACT.** The study is testing the determinants of physical asset management performance with the approaching Model DeLone and Mclean in the application of The Asset Management Information System (SIMA). The determinant factors studied are the system of quality, top management support, user experience, perceived usefulness, and user satisfaction. This test uses the PLS-SEM (Partial Least Square - Structural Equation Modeling ). Results of the study indicate that the construct of system quality affects positively and significantly to user satisfaction, while top management support and user experience impact positively and significantly to the perceived usefulness, and perceived usefulness and user satisfaction impact positively and significantly to the physical asset management performance. The final result found that the impact of the implementation of SIMA on the physical asset management performance in BNI has amounted to 69.4%.

**Keywords:** Delone and Mclean Models; Asset Management Information System; Physical Asset Management Performance.

### MODEL DELONE DAN MCLEAN DALAM IMPLEMENTASI ANALISIS SISTEM INFORMASI MANAJEMEN ASET

**ABSTRAK.** Penelitian ini menguji tentang determinan *physical asset management performance* dengan pendekatan Model Delone dan Mclean dalam penerapan Sistem Informasi Manajemen Aset (SIMA). Faktor determinan yang diteliti adalah *system quality*, *top management support*, *user experience*, *perceived usefulness* dan *user satisfaction*. Pengujian ini menggunakan model PLS-SEM (*Partial Least Square – Structural Equation Modeling*). Hasil penelitian mengindikasikan bahwa konstruk *system quality* berpengaruh positif dan signifikan terhadap *user satisfaction*, sementara *top management support* dan *user experience* berpengaruh positif dan signifikan terhadap *perceived usefulness*, serta *perceived usefulness* dan *user satisfaction* berpengaruh positif dan signifikan terhadap *physical asset management performance*. Hasil akhir didapati bahwa dampak implementasi SIMA terhadap *physical asset management performance* di BNI adalah sebesar 69,4%.

**Kata kunci:** Model Delone dan Mclean; Sistem Informasi Manajemen Aset; Kinerja Manajemen Aset Tetap.

### INTRODUCTION

To guarantee the management of State Property within the Ministry of State-Owned Enterprises (SOE) carried out in an accountable, transparent, administrative, systematic and coordinated manner, a Minister of Finance Regulation No. 07/MBU/2012 concerning Standard Operating Procedures for Management of State Property in the Environment The Ministry of State-Owned Enterprises as a standard operational procedure for managing State Property.

Referring to the regulations above, all activities related to assets must be measurable. Especially fixed assets. This is because fixed assets have the most significant value and their existence greatly influences the smooth running of the company's business wheels. Measuring the performance of the management of fixed assets as a company facility needs to be done to assess the success or failure of the implementation of the activities of these assets, whether by the goals and objectives set effectively and efficiently.

Appropriate fixed asset management is expected to be able to improve the performance of SOE agencies while providing support to support government development. Professional and modern fixed asset management by

promoting good corporate governance is also expected to be able to increase the trust in the management of state finances from the public.

At present, local and central government and SOE must care and pay attention to the fixed assets they have, not only to obtain a Fair without Exception (WTP) assessment but also to improve accountability and transparency in financial management.

One of the state-owned banking institutions that have been managing fixed assets since 2011 is PT. Bank Negara Indonesia (Persero) Tbk or commonly called BNI. To create a more competitive and productive investment climate and adjust business dynamics, it is necessary to support the management of fixed assets to support the successful achievement of company goals.

BNI's total fixed assets, especially in the three Main Branch Offices (KCU) throughout Bandung, namely KCU JPK (Main Branch Office of Perintis Kemerdekaan Bandung), KCU BDG (Bandung Main Branch Office), and KCU PTB (Main Branch Office of Perguruan Tinggi Bandung) as stated in the Balance Sheet as of August 31, 2018, is Rp. 236,089,801,670. The high value of fixed assets owned by BNI's Main Branch Offices throughout the city must be followed by the responsibility to manage them well. But in practice, the management of fixed assets

still needs attention. This can be seen from the results of the CO (Compliance Officer) unit which states that the company still has to improve the performance of its fixed asset management. This is evidenced by the findings of the CO unit related to ownership of fixed assets in BNI including 1) Measurement of the fixed assets cannot be trusted worth Rp. 2.93 billion; 2) Not supported with details worth Rp. 2.4 billion; and 3) 4326 assets that have not been written off.

To manage the company's fixed assets, especially those owned by BNI in an orderly physical and administrative manner, it is possible to apply the key stages of asset management, especially asset inventory, legal audit, and asset valuation (Sangadji, 2018). Asset management that is planned, integrated, and able to provide the necessary data and information in a short time, will only be achieved if supported by an accurate decision support system information (Batara et al., 2015). Errors in valuing assets/goods can result in material errors because the value invested is relatively significant (Suparman & Sangadji, 2018).

According to (Mashli Aina et al., 2016) research, MIS has a major contribution to increasing the competitiveness and effectiveness of managers in the decision making process and solving various problems that arise in managing organizations. Meanwhile, (J.L. Jooste & P.J. Vlok, 2015) in their research stated that the use of Information Systems (SI) in the realm of asset management is a challenge that, if managed properly, will help an organization manage its assets more effectively. Based on some of the literature it can be concluded that the application of MIS will improve the performance of fixed asset management.

Management Information Systems are types of information systems that take internal data from the system and summarize them into meaningful and useful forms such as management reports for use in managerial decision making (Al-Mamary et al., 2013). Various research models have been widely used by researchers in the field of the study of the application of MIS. One of them is the D&M IS Success Model. According to Delone and McLean (2003), the D&M IS Success Model is a taxonomic and interactive model that can be used as a framework for conceptualizing and operating successfully implementing SI. The D&M IS Success Model also emphasizes technical elements in measuring the success of SIM measurement. The D&M IS Success Model also emphasizes technical elements in measuring the success of SIM measurement.

The D&M IS Success Model was first introduced by William H. Delone and Ephraim R. McLean in 1992. Delone and McLean produced a taxonomy that introduced six main dimensions or categories of successful MIS implementation, namely systems quality, information quality, use, user satisfaction, individual impact, and organizational impact.

Since its publication, the D&M Information Success Model has received many responses from researchers. Seddon's criticism by DeLone and McLean was answered by updating the model to the updated DeLone and McLean Information System Success Model (2003), including by including service quality variables as one of the determinants of information system success and combining individual and individual impacts (organizational impact) into net benefits. The choice of where the impact should be measured will depend on the characteristics of the system, how the system is measured, and the purpose of the developed system (MCLEAN & WILLIAM, 2015). Interorganizational impact, industry impact, consumer impact, and societal impact are impact measurements of SI that have been extensively studied. However, in this study, the impact of the implementation of the proposed SIM is on physical asset management performance.

Furthermore, research on the factors that influence the successful implementation of SI continues to be developed. (Hasan Al-Mamary et al., 2014) state that the D&M IS Success Model is influenced by three factors namely Technological Factors, Organizational Factors, and People Factors as can be seen in Figure 1. which is the Proposed Theoretical Framework of the D&M IS Success Model.

The author does not find research with the same title with the title of the research that has been done before, but from another perspective, there is someone who has researched it. Previous research that measured the impact of the successful implementation of MIS using the D&M IS Success Model has been carried out, as has been done by (Wahyuni, 2011) using research variables System quality, Information quality, Services quality, User satisfaction, and Perceived Usefulness and the impact studied is the organizational impact. Meanwhile, (Pratama et al., 2017) use the same research variable but with a different research impact on the performance of fixed asset management.

In this study the variables studied were representative of each D&M IS Success Model construct, namely the Technological Characteristics factor represented by the System quality construct, the Organizational Characteristics factor represented by the Top Management Support construct, and the People Characteristics construct represented by the User Experience construct. The existence of construct representatives from each of the characteristics of the D&M IS Success Model is expected to be able to answer current problems. So the novelty in this research is not only looking at the system quality side but from a combination of 3 aspects namely the technological aspects, organizational aspects, and aspects of Human Resources (HR).

Meanwhile, the impact examined in this study is to the physical asset management performance or also called the performance of fixed asset management; relates to how well management manages assets related to technical, financial, and management practices that are based on the principles

of efficiency and effectiveness in efforts to achieve desired goals through fixed assets (Hastings, 2010). Obtaining optimal utilization and return on fixed asset investment is the main goal of all public and private organizations. (Ngwira, 2010) in their research, used indicators generating capital receipts to describe the efficiency dimension. Other indicators include: rationalizing fixed asset holdings, reducing the level of maintenance required (reducing the level of required maintenance), reducing annual operating costs (reducing annual operating costs), and increasing the sustainability of asset ownership (enhancing the sustainability of property holdings) to get results in the form of improvements in service delivery.

Increasing the useful life of assets (increasing space utilization) is used as an indicator to describe the effectiveness dimension. Computer-based on Management Information System is proven to be able to support the efficiency and effectiveness of an activity (Tores & Devi, 2018). Other indicators used to describe effectiveness, such as: introducing new work practices (introducing new

working practices), improving facilities to deliver services (improving facilities for service delivery), increasing service cross-work (increasing cross-service working), increasing working partnership (increasing co-location and/or partnership working), increasing the use of assets by the law (increasing compliance with statutes), increasing service accessibility (improving the accessibility of services), and increasing the use of services (increasing the usage of services).

There are 6 (six) constructs that are examined the relationship and influence as well as to prove the theory and previous research through 9 (nine) hypotheses in this study can be seen in Figure 2. In the influence of construct quality systems on perceived usefulness and user satisfaction, the influence of top constructs management support for perceived usefulness and user satisfaction, the effect of the construct of user experience on perceived usefulness and user satisfaction, the effect of perceived usefulness on user satisfaction and physical asset management and the effect of user satisfaction on physical asset management.

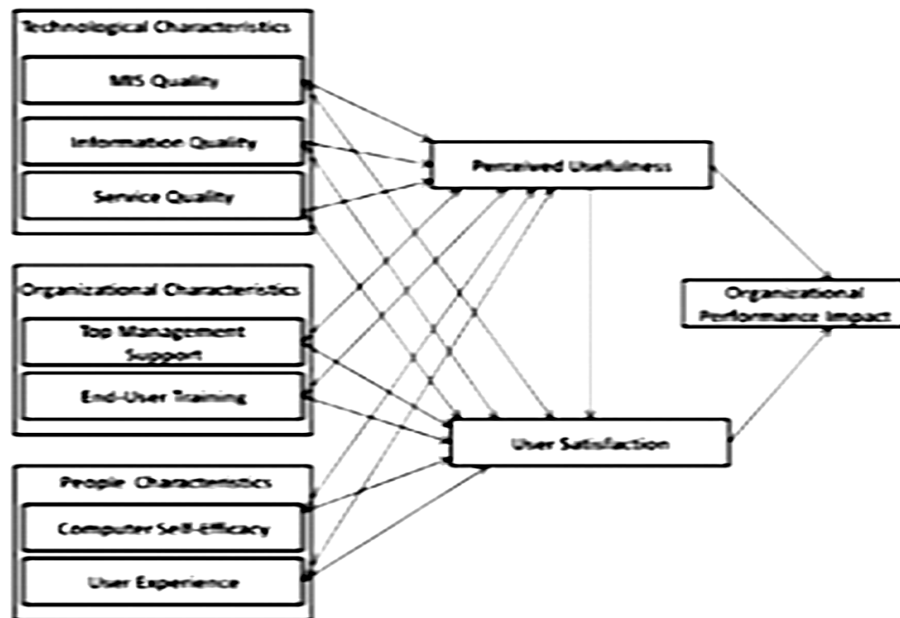


Figure 1. Proposed Theoretical Framework D&M IS Success Model (Al-Mamary, 2014)

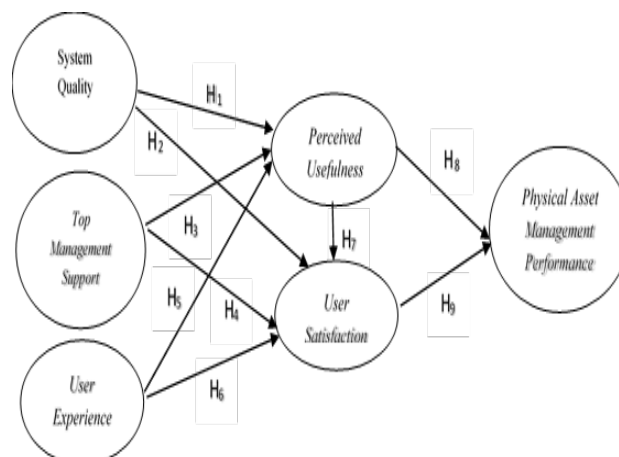


Figure 2. Framework

Source: Primary Data Processed 2019

Delone and Mclean Models in the Implementation of Asset Management Information System Analysis  
(Dinna Charisma)

## Hypothesis

Based on the theoretical basis and framework of thought described earlier, the hypotheses in this study are:

- H1: System quality in implementing SIMA has a positive and significant effect on perceived usefulness in improving physical asset management performance;
- H2: System quality in implementing SIMA has a positive and significant effect on user satisfaction;
- H3: Top management support in implementing SIMA has a positive and significant effect on perceived usefulness in improving physical asset management performance;
- H4: Top management support in implementing SIMA has a positive and significant impact on user satisfaction;
- H5: User experience in implementing SIMA has a positive and significant effect on perceived usefulness in improving physical asset management performance;
- H6: User experience in implementing SIMA has a positive and significant effect on user satisfaction;
- H7: Perceived usefulness in the application of SIMA has a positive and significant effect on user satisfaction;
- H8: Perceived usefulness in implementing SIMA has a positive and significant effect on physical asset management performance;
- H9: User satisfaction in implementing SIMA has a positive and significant effect on physical asset management performance.

BNI has implemented SIM in managing its fixed assets using the Asset Management Information System (SIMA) Application since 2011. This SIMA application is a program used to carry out a computerized fixed asset management process that aims to harmonize the implementation of fixed asset management policies by the provisions applicable and assist companies in managing integrated fixed assets starting from planning, procurement, administration to reporting. The period of development and implementation of SIMA which has lasted 7 (seven) years is felt to be sufficient to evaluate and assess whether the information system can be said to be successful in supporting the achievement of corporate accountability in terms of managing its fixed assets. Although BNI has implemented SIMA in managing its fixed assets, based on the data revealed earlier above, there are still many problems in managing fixed assets at BNI.

The purpose of this study is to identify the factors that influence the successful implementation of SIMA in the management of fixed assets in BNI through the approach of each of the D&M IS Success Model characteristics and identify the main obstacles and problems faced in the context of achieving optimal physical asset management performance, and assess Potential information that can be used as an opportunity to develop asset management through the application of SIMA.

## METHOD

The method used in this study is a quantitative method with a survey method. (Sugiyono, 2017) states the quantitative method is referred to as the scientific method because it has fulfilled scientific principles, namely: concrete / empirical, objective, measurable, rational, and systematic. This method is also called the verification method because this method is suitable for verification which is verification in nature.

The sample used in the study is saturated. (Sugiyono, 2017) calls saturation sampling a sampling technique when all members of the population are used as samples. The sample in this study was the overall population of 46 goods management units along with the leadership management who were authorized to take managerial decisions from the three main branch offices of BNI in Bandung, Jalan Perintis Kemerdekaan, Bandung, Perguruan Tinggi Bandung, and Bandung Regional Offices.

Endogenous variables are variables that are affected or are caused due to changes in independent variables (exogenous). The endogenous variables in this study are physical asset management performance. Meanwhile, exogenous variables are variables that affect or cause changes to the dependent variable (endogenous). Exogenous variables in this study are the factors that influence the successful implementation of SIMA which consists of systems quality, top management support, user experience, perceived usefulness, and user satisfaction.

In this study, the research instrument used was a questionnaire which was a translation of questions about endogenous variables and exogenous variables concerning the theory and previous research and aimed to study the attitudes, beliefs, behavior, and characteristics of respondents to a fact or phenomenon using a scale Likert from score 1 to 5. The questionnaire in this study was given to each of the 7 logistic officer employees at BNI KCU Jalan Perintis Kemerdekaan, KCU Bandung, KCU Bandung Higher Education, and Bandung Regional Office. Apart from that, the questionnaire was also given to 5 people in management from each of the above KCU and 3 main leaders of the Bandung Regional Office. While the characteristics of respondents include gender, age, years of service, and the number of training and education related to the management of fixed assets that have been followed.

This questionnaire consists of system quality variables (6 question items), top management support variables (5 question items), user experience variables (5 question items), perceived usefulness variable (6 question items), user satisfaction variables (4 question items), and physical asset management performance variables (11 question items). So that the total questions used in the research questionnaire were 38 questions. Test the validity of the questionnaire is needed to measure whether the instrument can measure what is to be measured. This



test was carried out using the Pearson Product Moment Correlation technique. Researchers conducted a survey of 46 respondents, then the value of df (degree of freedom) used was  $df = 46-2$  or  $df = 44$ . Based on the product-moment  $r$  table, the  $r$ -table value of 44 with a significance of 0.05 (5%) amounted to 0.297. From the test results that the value of the correlation coefficient (correlation) for 38 items questionnaire questions all that exists in this study is greater than the critical correlation coefficient ( $r$ -table). This shows that each of the questions contained in the questionnaire was declared valid and fit to be used as a measurement in this study.

### Evaluation of Research Models

In conducting data analysis, the writer uses Partial Least Square - Structural Equation Modeling (PLS-SEM) analysis. This approach is part of the SEM analysis model that is widely used to test the relationship of theory and describe the concept of the model with latent variables (cannot be measured directly) but through its indicators. The minimum number of samples that can be measured using PLS-SEM is 30 (Ghozali et al., 2015). Still, according to the same source, there are two sub-models in the PLS-SEM analysis namely the measurement model, or often called the outer model and the structural model, or often called the inner model. The measurement model shows how the manifest or observed variable represents the latent variable to be measured while the structural model shows the estimated power between the latent or construct variable.

Ghozali et al. (2015) state that the evaluation of measurement models to assess the validity and reliability is done with the outer model. The accuracy of the use of instruments affects the quality of research data, where the quality of research data is related to the validity and reliability of the data to be obtained (Sugiyono, 2017). Still, according to the same source, a valid instrument has the meaning that the instrument can be used to measure what should be measured, while a reliable instrument has meaning if the instrument is used several times to measure the same object, then the results will be the same. Convergent validity test is known by looking at the loading factor value and the value of Average Variance Extracted (AVE), with the provisions of the loading factor value for confirmatory research  $> 0.7$  and Average Variance Extracted (AVE) value of at least 0.5 for both confirmatory and exploratory research. Measurement of reliability in the construct of the reflective outer model uses Cronbach's Alpha or composite reliability (Sarwono et al., 2015). The composite reliability value is interpreted the same as the Cronbach's Alpha value. And the minimum value of Cronbach's Alpha or composite reliability is  $> 0.7$ .

Furthermore, the inner model is carried out to ensure that the structural model that is built is robust and accurate. The inner model is evaluated by looking at the percentage of variance explained, namely by looking at the R-Squares

value for endogenous latent constructs and the Stone-Geisser test to test predictive relevance. Changes in the value of R-Squares can be used to explain the effect of certain exogenous latent variables on endogenous latent variables whether or not they have a substantive effect. R-Squares value 0.75, 0.50, 0.25 can be concluded that the model is strong, moderate, and weak.

Besides looking at the value of R-Squares, evaluation of PLS models can also be done with Q<sup>2</sup> predictive variance or often called predictive sample reuse (Ghozali et al., 2015). This technique can represent the synthesis of cross-validation and fitting functions with predictions of observed variables and estimates of construct parameters. Q<sup>2</sup> value  $> 0$  indicates that the model has predictive relevance and vice versa if Q<sup>2</sup>  $< 0$  then the model lacks predictive relevance.

Hypothesis testing is done by looking at the path coefficient or inner model to determine the relationship between variables through the bootstrapping procedure. The bootstrap approach represents nonparametric for the precision of PLS estimation. The parameter coefficient and significance value indicate the direction of influence between constructs (whether positive or negative) and the level of significance in hypothesis testing (Ghozali et al., 2015). The hypothesis in this study is accepted if the parameter coefficient has a positive value (+) and has a significance value of more than 1.64 (one-tailed, significance level = 5%).

Analysis of the inner model is carried out on the coefficients of structural equations by specifying a certain level of significance. The structural model equation form in PLS-SEM is as follows:

$$\eta_j = \sum_i \beta_{ji} \eta_i + \sum_i \gamma_{jb} \xi_b + \zeta_j$$

Where  $\gamma_{jb}$  (in matrix form is denoted by  $\Gamma$ ) is the path coefficient that connects the endogenous latent variable ( $\eta$ ) with exogenous ( $\xi$ ). Whereas  $\beta_{ji}$  (in the form of a matrix denoted by  $\beta$ ) is a path coefficient that connects endogenous latent variables ( $\eta$ ) with endogenous ( $\eta$ ); for index ranges  $i$  and  $b$ . The parameter  $\zeta_j$  is the inner residual variable.

## RESULTS AND DISCUSSION

### Respondent Characteristics

Information on the characteristics of respondents presented in this study includes gender, age, years of service, and the number of training and education related to the management of fixed assets that have been followed can be seen in Figure 1. Distribution of respondents found more male respondents (93.48%), aged over 30 to 50 years (34.78%) with the majority having a Bachelor's degree (63.04%). In terms of the tenure of the asset management, it was found that more respondents had a working period of 1-2 years (36.96%) and attended the training of assets at most once (36.96%).

### Measurement Results Questionnaire Validity

The results of the questionnaire validity test which amounted to 38 questions stated that the overall value of the correlation coefficient (r-correlation) of all variables (system quality, top management support, user experience, perceived usefulness, user satisfaction, and physical asset management performance) in this study greater than the critical correlation coefficient (r-table) so that it is declared valid and is suitable for use as a measurement in this study.

The results of descriptive system quality variables, perceived usefulness, user satisfaction, and physical asset management performance included in the category of “sufficient” with an average score of each variable are 156.1, 136.8, 140.8, and 128.6.

The only variable according to respondents included in the category of “good” is top management support with an average score of variables is 157.8. While the only variable that is categorized as “bad” according to respondents is the user experience with an average score of variables is 119.6.

### Outer Model Evaluation

Each outer loading value of the output correlation between the indicator and its construct as can be seen in Figure 2. below all have values above 0.7. The AVE value, Cronbach’s alpha value, and composite reliability are presented in Table 1 where the results show that all indicators meet the validity and reliability requirements.

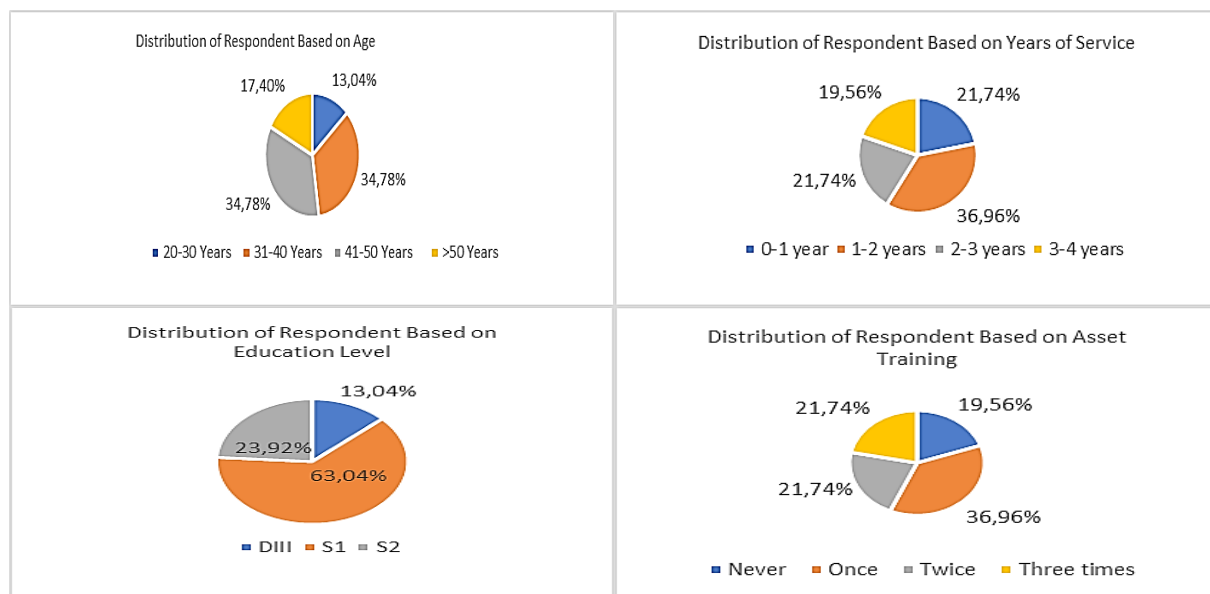


Figure 1. Distribution of Respondent

Source: Primary Data Processed 2019

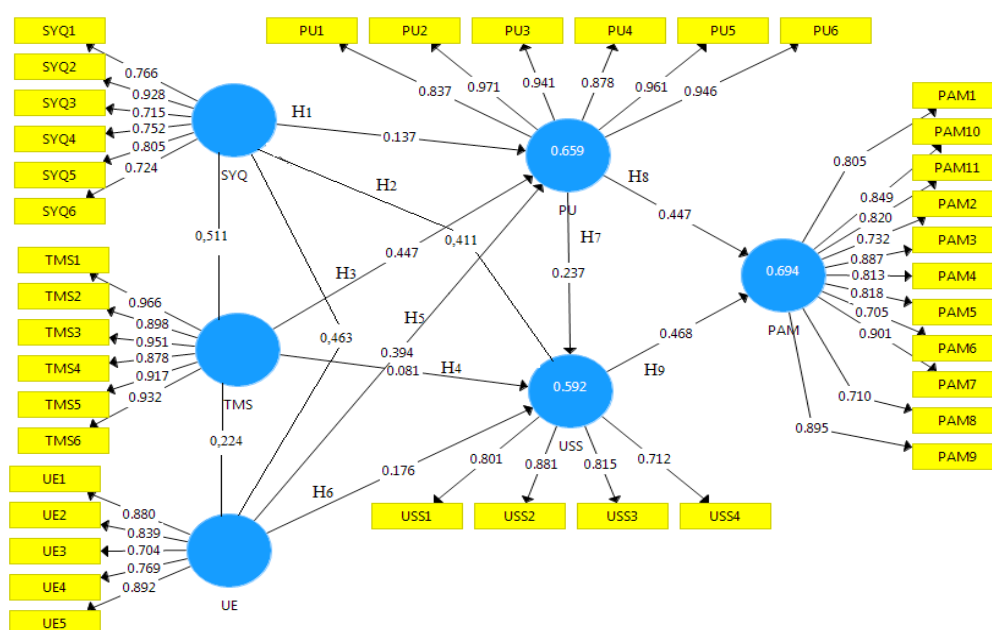


Figure 2. The Result of Algorithm PLS

Source: Primary Data Processed 2019

**Table 1. The value of AVE, Cronbach's Alpha and Composite Reliability**

Construct	AVE	Cronbach's Alpha	Composite Reliability
PAM	0,664	0,949	0,956
PU	0,853	0,965	0,972
SYQ	0,616	0,874	0,905
TMS	0,854	0,966	0,972
UE	0,672	0,876	0,911
USS	0,647	0,823	0,879

Source: Primary Data Processed 2019

**Inner Model Evaluation**

The inner model is carried out to ensure that the structural model that is built is robust and accurate. The inner model describes the relationship between latent variables based on substantive theory. Designing a structural model (Inner model) that is designing relationships between latent variables in PLS based on the formulation of a problem or hypothesis. The inner model is evaluated by looking at the percentage of variance explained, namely by looking at the R-Squares value for endogenous latent constructs and the Stone-Geisser test to test predictive relevance.

The test results of the structural model used in this study can be seen in Table 2 where the results of the coefficient of determination (R<sup>2</sup>) have a value > 0.5, which means the model is moderate. Meanwhile, to assess the predictive relevance of the model, the following calculations must be made:

$$Q^2 = 1 - (1 - R12) (1 - R22) \dots (1 - Rp2)$$

$$Q^2 = 1 - (1 - 0.659) (1 - 0.592) (1 - 0.694)$$

$$Q^2 = 0.957$$

The above calculation shows that all constructs have a Q<sup>2</sup> value > 0. For this reason, it can be concluded that the model has predictive relevance.

**Table 2. Calculation of the Coefficient of Determination (R<sup>2</sup>)**

Construct	R <sup>2</sup>
PU	0,659
US	0,592
SYQ	0,694

Source: Primary Data Processed 2019

**Hypothesis Test**

Hypothesis testing can be seen through the influence coefficient (parameter) and t-statistic value. The hypothesis can be accepted (significant effect) if it meets the requirements of the t-statistic value greater than t-table 1.64 which can be seen in Table 3.

**The Effect of System Quality on Perceived Usefulness**

Based on the results of hypothesis testing it was found that system quality has a positive but not significant

effect on perceived usefulness. This is because, in terms of system quality, the SIMA application in BNI has limited features, has not fully accommodated managerial stages/cycles of managerial fixed asset management, and only accommodates physical administration activities. The menu limitation on the SIMA-BNI application causes the indicator value of flexibility and user expectation to only get the title "enough". These are the things that cause the low confidence of the goods management that the use of SIMA BNI with limited features, will be able to improve the performance of fixed asset management at BNI.

**The Effect of System Quality on User Satisfaction**

Based on the results of hypothesis testing found that system quality has a positive and significant effect on user satisfaction. Although the features in SIMA BNI are still limited, the SIMA application is considered easy to use, rarely occurs errors, and fast response times so that on the one hand, it gives a positive and significant impact on user satisfaction. The results of testing the above hypotheses are following with the theory put forward by Delone and Mclean itself which states that the quality of the system affects the use of the system, continuous use will have an impact on the satisfaction of users of information systems. The use of the system continuously reflects the recipient's satisfaction response to the usefulness of a system. This study also supports the results of the (Wahyuni, 2011) study which states that the quality of information systems has a positive effect on user satisfaction.

**The Effect of Top Management Support on Perceived Usefulness**

Hypothesis testing results found that top management support has a positive and significant effect on perceived usefulness. This is due to the support of management who are aware of the benefits of SIMA, encourage the use of SIMA, are interested in the ability to use SIMA, provide good hardware access to support SIMA, and provide good access to other software able to have a positive and significant influence the trustees of the keeper of the goods. The results of this study also support the results of research conducted by Chen & Hsiao and Shih & Huang in Al-Mamary et al. (2014) which states that top management support positively influences perceived usefulness.

**The Effect of Top Management Support on User Satisfaction**

Based on the results of hypothesis testing it was found that top management support had a positive but not significant effect on user satisfaction. This is because even though encouragement and support from management are given to the caretaker of the goods to actively use SIMA, but due to the lack of resources in quantity and quality to manage assets, the change of position of the caretaker of the goods is quite fast, a separate obstacle that so far has been deemed insufficient to provide a solution and inversely proportional to the expected ideal conditions.

### **The Effect of User Experience on Perceived Usefulness**

Based on the results of hypothesis testing found that user experience has a positive and significant effect on perceived usefulness. The number of caretakers of goods that do not yet have the skills and experience in operating SIMA applications, then this will greatly affect the confidence of the caretakers of goods in using the SIMA application. Even so, the fact is that the company has provided tools to help the caretaker in understanding and operating the SIMA application by releasing e-training and Found My SOP. So even though in terms of skills and experience the management of goods is still minimal, but with this tool that increases user confidence that the use of the SIMA-BNI application will be able to improve physical asset management performance. The results of this study are consistent with the results of the study of Rumayah & Aafaqi in Al-Mamary et al. (2014) which states that user experience positively and significantly influences perceived usefulness.

### **The Effect of User Experience on User Satisfaction**

The results of hypothesis testing found that user experience has a positive but not significant effect on user satisfaction. From the results of interviews and questionnaires obtained the fact that the user experience got the title 'bad' because of the skill of the caretaker of goods that have not been qualified, experience in operating SIMA applications that are still limited, lack of asset training, and regeneration that is not going well and lack of understanding of Standard Operating Procedure (SOP) SIMA application. These things are the reasons for the low user satisfaction of the SIMA BNI application.

### **The Effect of Perceived Usefulness on User Satisfaction**

Based on the results of hypothesis testing found that perceived usefulness has a positive but not significant effect on user satisfaction. Based on observations and interviews, it is found that the SIMA-BNI application is sufficient to assist the management of goods in carrying out the inventory of fixed assets, but because the SIMA-BNI application has not fully accommodated the stages in the management of fixed assets and managerial features in this application have not been fully used optimal, the impact on the tasks of the management of goods is not fully following the targets, targets, criteria and plans that have been predetermined. In fact, it is not uncommon for the caretaker of the goods to require time overtime to complete their work, for example on the one hand inputting inventory data through SIMA has been completed but on the other hand, accounting bookkeeping has not been done. This resulted in work being ineffective. So that the expectations of the goods caretaker that the SIMA application will be able to complete the task faster cannot be fulfilled. The performance of the goods management is no better than the implementation of SIMA-BNI, which indeed does not reflect all the stages of application of asset management.

### **The Effect of Perceived Usefulness and User Satisfaction on Physical Asset Management Performance**

Based on the results of hypothesis testing found that perceived usefulness and user satisfaction have a positive and significant effect on physical asset management performance. This is consistent with previous research put forward by Park, Zo, Su, and Fulcher in Al-Mamary et al. (2013) which states that perceived usefulness and user satisfaction have a positive relationship with organizational performance in general. Based on descriptive statistics it is known that in terms of perceived usefulness and user satisfaction, the use of SIMA-BNI helps the management of goods to do their jobs easier and faster, especially for those related to routine activities of inventory of fixed assets both physical and juridical, which in turn have an impact on increasing the quality of work results to improve physical asset management performance.

This is in line with the theory put forward by (Petter et al., 2008) which states that users of information systems who benefit from the use of information systems will be more satisfied using information systems than information system users who do not benefit from using information systems. However, due to the limited features of SIMA-BNI, especially those related to managerial features, it causes user dissatisfaction in the implementation of SIMA-BNI as a whole. This in turn has an impact on the non-optimal contribution of the application in improving physical asset management performance both in terms of efficiency and effectiveness.

The results of this study are also by research conducted by (Pratama et al., 2017) which states that the use of the SIMA application must be able to meet the needs of the user's task as the manager of the goods not only related to the routine tasks of the caretaker of goods such as inputting contract data for budget disbursement, but also must be able to accommodate other functions such as data completeness and asset status as well as monitoring the condition of fixed assets. This will have an impact on the level of efficiency and effectiveness of the roles and tasks of the user as the caretaker of goods to be optimal.

From the results of testing the above hypothesis, the structural model equation obtained in this study is as follows.

$$PU = 0,137 SYQ + 0,447 TMS + 0,394 UE + \zeta_1.$$

$$USS = 0,411 SYQ + 0.081 TMS + 0,176 UE + 0,237 PU + \zeta_2.$$

$$PAM = 0,447 PU + 0,4.68 USS + \zeta_3.$$

Implementation of the stages in good asset management from beginning to end will support increased efficiency and effectiveness in managing fixed assets in the company. Focus on fixing the SIMA application, giving equal attention to all stages of asset management, and increasing the quantity and quality of human resources are important things to do. The company does not only focus on supervising the implementation of the initial stages



(strategy, plan, evaluate/design, create/procure), but also must oversee and discipline the implementation in the final stages of implementation (operate, maintain, modify and dispose of). Even though the company has implemented the SIMA application in managing its fixed assets, if it is not supported by adequate quality systems and reliable human resources, it can become an obstacle in achieving optimal physical asset management performance. This is consistent with research conducted by (Pekei et al., 2014), which was developed by quantitative methods, concluded that the implementation of asset management on the effectiveness of asset management is positively related. Meanwhile (Tjoen Hok et al., 2014) revealed in their research that training and motivation simultaneously affect performance. This means that the application of SIMA must be supported also by adequate training and motivation from its users.

**Table 3. The Result of Hypothesis Test**

Hypothesis	Original Sample	t-stat	Interpretation
H1 SYQ → PU	0,137	1,173	Insignificant positive influence
H2 SYQ → USS	0,411	3,955	Positive and significant influence
H3 TMS → PU	0,447	5,385	Positive and significant influence
H4 TMS → USS	0,081	0,527	Insignificant positive influence
H5 UE → PU	0,394	3,794	Positive and significant influence
H6 UE → USS	0,176	1,349	Insignificant positive influence
H7 PU → USS	0,237	1,449	Insignificant positive influence
H8 PU → PAM	0,447	4,229	Insignificant positive influence
H9 USS → PAM	0,468	4,968	Positive and significant influence

Source: Primary Data Processed 2019

Asset management information systems act as guarantors of work transparency in asset management. The results of this study as well as providing solutions to concerns about the weakness of supervision and control of the management of the company's fixed assets. (Hastings, 2010) stated in his research that in supporting successful asset management, in terms of realizing good asset management performance, the asset management information system plays a role in providing detailed information related to a list of key assets in an organization. The information includes important specifications of assets, location, estimated life of remaining assets, replacement costs, asset history, recent remodeling, date of repairs, knowing asset problems, and knowing plans related to assets. Meanwhile (Pudjarti et al., 2019) in their research revealed that system satisfaction was also shown to have a significant effect on user satisfaction.

## CONCLUSION

Based on testing and discussion that has been carried out, it produces the following conclusions. Through the D&M IS Success Model it is known that the User Satisfaction construct has the most influence on the achievement of the performance of fixed asset management. User satisfaction both system and company policies that will encourage and motivate users to optimize the use of SIMA applications.

The construct of Top Management Support should receive more attention in the application of SIMA applications, this is because the management policies and support, especially related to human resources in quantity and quality to manage assets and the provision of training assets that have not been maximized, is one of the triggers for the ineffectiveness of SIMA BNI in support the achievement of optimal physical asset management performance in the company. The impact of the application of the SIMA application to the performance of fixed asset management in BNI using the D&M IS Success Model is 69.4%.

Managerial Implications. A good SIMA implementation that can accommodate all stages of asset management will have an impact on improving physical asset management performance at BNI. Implementation of the stages in good asset management from beginning to end will support increased efficiency and effectiveness in managing fixed assets in the company. Focus on improving the quality of SIMA applications, giving equal attention to all stages of asset management, and increasing the quantity and quality of human resources are important things to do. The company does not only focus on supervising the implementation of the initial stages (strategy, plan, evaluate/design, create/procure) but also must oversee and discipline the implementation in the final stages of implementation (operate, maintain, modify and dispose of).

Research Limitations. The constructs used in this research are partially focused on the representation of each factor, namely technological factors, organizational factors, people factors, not using the overall construct that is owned from every factor in the D&M IS Success Model.

Suggestions for Next Research. The exogenous construct in this study only partially adopts the D&M IS Success Model, while there are still many constructs that can be used to measure the success of the application of SIM by subsequent researchers, especially those related to cognitive aspects such as information quality, service quality, computer self-efficacy, and end-user training so that it will be able to produce a comprehensive SIMA success assessment model. Apart from that, further research can also use a research method in the form of a mixed-method by combining quantitative and qualitative methods and by adding a list of questions that are open and written.

## REFERENCES

- Al-Mamary, Y., Shamsuddin, A. & Abdul Hamid, N. (2013). The impact of management information systems adoption in managerial decision making: a review. *Management Information Systems*, 8(4), 010–017.
- Batara, A.M., Sadik, M.N., & Ahmad, B. (2015). *Management Of Assets In New Public Management Perspective ( Case Study : Optimization Of Lands And Buildings Asset At Local Government Of Makassar City )*. 3, (8), 32–41.
- Ghozali, I & Latan, H. (2015). *Partial Least Squares: Konsep, Teknik dan Aplikasi menggunakan Program SmartPLS3.0 untuk Penelitian Empiris*. (Edisi 2). Universitas Diponegoro: Badan Penerbit.
- Hasan Al-Mamary, Y., Shamsuddin, A. & Aziati, N. (2014). Factors Affecting Successful Adoption of Management Information Systems in Organizations towards Enhancing Organizational Performance. *American Journal of Systems and Software*, 2, (5), 121–126. <https://doi.org/10.12691/ajss-2-5-2>
- Hastings, N. A. J. (2010). Physical asset management. In *Physical Asset Management*. <https://doi.org/10.1007/978-1-84882-751-6>
- J.L. Jooste & P.J. Vlok. (2015). A Decision Support Model to Determine The Critical Success Factors of Asset Management Services. *South African Journal of Industrial Engineering*, 26, (1), 27–43. [https://doi.org/10.11164/jjsps.2.1\\_162\\_3](https://doi.org/10.11164/jjsps.2.1_162_3)
- Mashli Aina, A.A., Hu, W., & Noofal Ahmed Mohsen Mohammed, A.-N. (2016). Use of Management Information Systems Impact on Decision Support Capabilities: A Conceptual Model. *Journal of International Business Research and Marketing*, 1, (4), 27–31. <https://doi.org/10.18775/jibrm.1849-8558.2015.14.3004>
- McLean, W.H.D.A.E.R. & William. (2015). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 2, (1), 1–11. <https://doi.org/10.1016/j.giq.2003.08.002>
- Ngwira, M.M. (2010). Effectiveness of property asset management in Scottish councils. *Journal of Corporate Real Estate*, 34, (1), 1–5.
- Pekci, B., Hadiwidjojo, D., & Djumahir, S. (2014). The Effectiveness of Local Asset Management (A Study on The Government of Jayapura ). *International Journal of Business and Management Invention*, 3,(3), 16–26.
- Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: Models, dimensions, measures, and interrelationships. *European Journal of Information Systems*, 17, (3), 236–263. <https://doi.org/10.1057/ejis.2008.15>
- Pratama, T., Sudarsono, R., & Komara, R. (2017). The impact of management information system success on physical asset management performance: A Case study in Bandung City, Indonesia. *International Journal of Economics, Commerce and Management*, 5, (12), 95–113.
- Pudjarti, S., Nurchayati, N., & Dwi Putranti, H. R. (2019). Penguatan Kepuasan Model Hubungan E-Service Quality Dan E-Loyalty Pada Konsumen Go-Jek Dan Grab. *Sosiohumaniora*, 21, (3), 237–246. <https://doi.org/10.24198/sosiohumaniora.v21i3.21491>
- Sangadji, S. M. (2018). *the Impact of Asset Inventory on Legal Audit and Asset Valuation ( Case Study At Bandung City Government ) Aset Terhadap Legal Audit Dan Penilaian Aset ( Studi Kasus Pada Pemerintah Kota Bandung )*. 33.
- Sarwono, J & Narimawati, U. (2015). *Membuat Skripsi, Tesis, dan Disertasi dengan Partial Least Square SEM (PLS-SEM)*. Yogyakarta: C.V Andi Offset.
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: PT Alfabet. 53, (9), 1689–1699. <https://doi.org/10.1017/CBO9781107415324.004>
- Suparman, N., & Sangadji, A. D. (2018). Pengelolaan Aset Daerah Dalam Mewujudkan Tertib Administrasi Pada DPPKAD Kabupaten Seram Bagian Barat Provinsi Maluku. *Jurnal Kelola : Jurnal Ilmu Sosial*, 1, (2), 74–97. <https://doi.org/10.15575/jk.v1i2.3777>
- The Republic of Indonesia. 2016. *Minister of Finance of the Republic of Indonesia No. 07 of 2012 on operational procedures for managing state property standards*.
- Tjoen Hok, T., Vitayala S Hubeis, A., & Kuswanto, S. (2014). Pengaruh Pelatihan Dan Motivasi Terhadap Kinerja Karyawan Kasus Perusahaan Distributor Alat Berat. *Sosiohumaniora*, 16, (2), 215. <https://doi.org/10.24198/sosiohumaniora.v16i2.5735>
- Tores, R., & Devi, C. (2018). Efektivitas Penyiaran Di Radio Dangdut Indonesia (Rdi) Sekayu. *Jurnal Ilmu Manajemen*, 1–14.
- Wahyuni, T. (2011). Uji Empiris Model Delone Dan Mclean Terhadap Kesuksesan Sistem Informasi Manajemen Daerah (SIMDA). *Jurnal BPPK*, 2, 4–24.