THE SUCCESS ANALYSIS OF IMPLEMENTATION OF THE ELECTRONIC SYSTEM INTEGRATED FINAL PROJECT OF JAMBI UNIVERSITY STUDENTS WITH DELONE AND MCLEAN MODEL APPROACH

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Abstract

The purpose of this research was able to prove empirically about the Delone and Mclean Models for the evaluation of ELISTA information systems at Jambi University. In addition, this research was also expected to provide feedback to improve the efficiency and effectiveness of the implementation of information systems and can be known the factors that cause the success or failure of the implementation of an information system so that the results of this study can be used as a strategic guideline model for information system development in the university and other institutions. The type of data used in this study was primary data obtained directly from respondents using a list of statements in the form of a questionnaire. Final year students who write the thesis are targeted in this study. To calculate the determination of the number of samples, the sampling method used the Hair method. The total sample of this study was 220 people. Methodology Data analysis was carried out using SEM techniques using SmartPLS tools. The findings in this study found that the system quality does not affect the user satisfaction, while other hypotheses such as information quality, service quality, system use affect user satisfaction, for system quality, information quality, and service quality affect the system use. Likewise the system use affects user satisfaction and system use, user satisfaction has an influence on net benefits.

Keywords: Delone and Mclean Model, Information System, Model Evaluation

INTRODUCTION

Information technology has experienced very rapid development in this decade, followed by advancements in the field. Nowadays, use of Information Technology (IT), and Information Systems (SI) functions to support the success of every company, business, organizational development and educational institutions. According to Miles & Snow (1996), organizations develop from functional types to divisional types, then to matrix types, and eventually to *dynamic networking*. In the form of *dynamic networking Organization* the role of information technology and information systems is very important to achieve success and competition in the future. But in reality, the field shows that not all organizations successfully implement Information Systems well (Indrajit, 2000).

This phenomenon also often occurs in the development of Information Systems in institutions world. Many institutions have implemented information systems in institutions, but the result is there are still many functions and the benefits are not satisfactory for its users. With the growing role of information technology in education world, it demands the management of information systems and information technology to produce information systems that are suitable and support academic activities in institutions.

For this reason, a change in the management of information systems and information technology is demanded. The changes that have occurred are the implementation of the Information System Strategic Design to meet the demands of producing information systems that support the academic activities of institution. Along with the times, especially information technology in education world, Strategic Information System Planning is a serious challenge for the organizers of Higher Education (Prihadi, *et. al.,* 2011).

Jambi University has used an information system in the organization's governance and services to students. One form of information system that has been applied at Jambi University is ELISTA, and covers areas of activity such as the thesis title submission system/final project, Approval from the Study Program, the determination of the guidance team and examiners of the guidance process and other activities.

The application of information systems in institutions is expected to be successful in its implementation. However, it is unclear what the parameters for evaluating the application of an existing information system and how to find out the factors that make the information system owned can be successful. Much research has been done to identify the factors that cause the success of information systems. One of the most well-known studies in this area is research by DeLone & Mclean (2003).

The information system success model developed by DeLone and Mclean (2003) quickly received a response. One reason is the model used is a simple model but it is considered to be quite valid. Another reason is a model can be used as a reference for making information systems can be applied successfully to an organization is being needed.

THEORETICAL BASIS

Information System

Information system is an integrated system that is able to provide useful information for its users or an integrated system or human-machine system, to provide information to support operations, management in an organization. According to Leitch, "Information system is a system within an organization that meets the needs of daily transaction processing, supports operations, is managerial and strategic activities of an organization and provides certain outsiders with the necessary

reports" (Jogiyanto, 2008).

The Success Model of DeLone and McLean

A good model is complete but simple model. This kind of model is called the parsimony model. Based on the theories and the results of previous studies that have been studied, DeLone and Mclean (1992) then developed a parsimony model which they called the success model of the DeLone and Mclean information system (D & M Success Model). In 2003, based on criticisms received and developments in information technology and its user environment, DeLone and McLean (2003) updated the *D&M Success Model* by adding a service quality variable and combining individual and organizational impact variables into a net benefit variable and adding a dimension of user interest (intention to use) as an alternative to the use dimension (Jogiyanto, 2007).
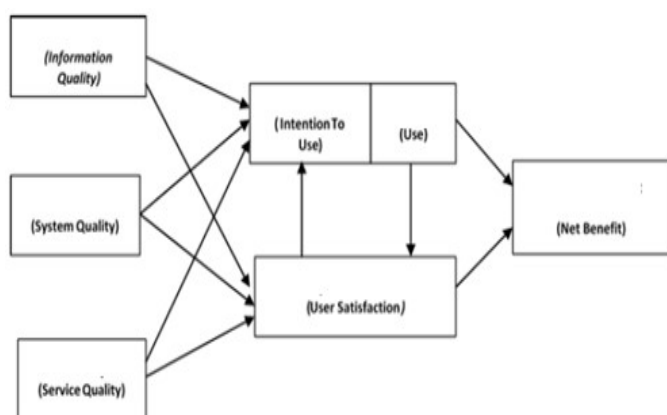
Figure 1. D & M Information System Success Model

D & M model 2003 reflects the dependence of six measures of information system success. The six elements or factors or components or

measurements of this model are:

1. System Quality,
2. Information Quality,
3. Service Quality,
4. Use/User Interest (Intention to Use),
5. User Satisfaction, and
6. Net Benefits

Until now, there have been many empirical studies conducted in various fields and research objects to test the success model of information systems developed by DeLone and McLean (2003). Rai, Lang, and Welker conducted research to test the DeLone and McLean models in the context of system use voluntary information. Data was collected from 274 students who use the integrated student information system at the Midwestern University. Data were analyzed with Structural Equation Model (SEM). Empirical test results support the DeLone and McLean model namely, Information Quality has a significant effect on Useand User Satisfaction, User Satisfaction has a significant effect on Use but not vice versa. The study did not test the model to organizational impact (Rai, *et. al.,* 2002).

Wang and Liao (2007) tested the DeLone and McLean models on Taiwan's E-Gov system. The results of the study aimed that the information quality affects the use and users satisfaction, the service quality does not affect the use and users satisfaction, the system quality influences user satisfaction but does not affect the use,

use influences user satisfaction, while the use and users satisfaction influence the net benefit.

Other research conducted by Livari (2005), but using the *D&M IS Success Model* (1992). This study aimed to look at the successful model of implementing financial information systems and accounting in Oulu city, Finland, as a result of national reforms in the municipal financial and accounting systems. This research was conducted only to the extent of the individual impact elements. Livari's research results provide evidence that the system quality and the information quality do not significantly influence the intensity of its use, and have a significant effect on the satisfaction of its users. Continued user satisfaction affects the individual impact.

Mulyono (2012) tested the *D&M IS Success Model* for SIKD users at both the SKPD and SKPKD levels in Malang Raya (Malang Regency Government and Batu Regency Government) in East Java Province. In contrast to research conducted by Livari (2005) which does not use all the elements in the DeLone and Mclean models, in this study Mulyono (2012) used all elements contained in the Delone and Mclean models. The results of his research provide evidence that the success model of the DeLone and McLean information system has proven to be significant in the successful implementation of SIKD in the Malang Raya Regional Government. The results of the research conducted by Mulyono (2012) are

different from the findings of Livari (2005), Wang and Liao (2007).

In addition to Mulyono's (2012) research that used all elements in the DeLone and McLean (2003) models, research conducted by Dorobat (2014) conducts research to measure the success of *E-Learning* system at University and Lee and Yu (2012) conduct research to evaluate success information systems management projects where the results of both studies provide evidence that the DeLone and Mclean (2003) models prove to be significant in the successful implementation of information systems.

Oktavia *et. al.,* (2016) conducted a study by combining the two models of DeLone and McLean (2003) and the Seddon Model to measure the success of the SIMDA information system of the Palangkaraya City local government. To measure this success, for the DeLone and Mclean (2003) models the elements of system quality, information quality, usage, user satisfaction and net benefits of the model are used while for the Seddon and Kiew models only the importance elements of the system are used. The results of his research provide empirical evidence that the construct of information quality has no effect on user usage and satisfaction, so this finding does not support the success model developed by Delone and Mclean (2003). Furthermore, the construct of use has no effect on net benefits; this finding does not support the success model

developed by Delone and Mclean (2003). Further findings show that the construct of the importance of the system has no effect on usage. These results indicate that the addition of the construct of the importance of the system taken from the information system success model Seddon and Kiew (1994) does not provide evidence as a benchmark for information system success.

RESEARCH METHOD
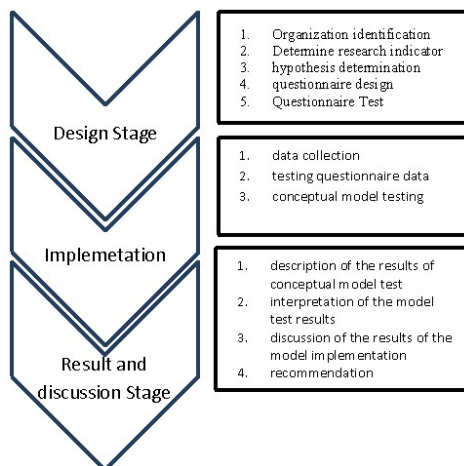
Figure 2. Research Flow

This study used all constructs in Delone and Mclean (2003). Based on the theoretical framework, the research framework model used in this study is as follows:
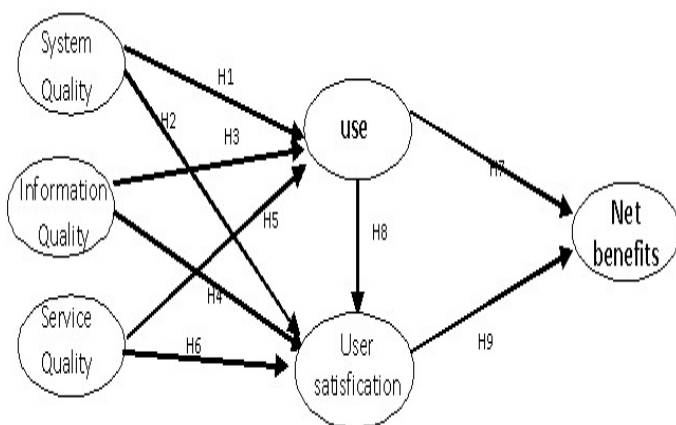
Figure 3. Research Model Framework

Based on the research framework, the research hypotheses are formulated as follows:

H1: The system quality has a positive effect on use

H2: The system quality has a positive effect on user satisfaction

H3: Information quality has a positive effect on use

H4: Information quality has a positive effect on user satisfaction

H5: Service Quality has a positive effect on use

H6: Service Quality has a positive effect on user satisfaction

H7: Use has a positive effect on net benefits

H8: Use has a positive effect on user satisfaction

H9: User satisfaction has a positive effect on net benefits

This research was conducted at Jambi University. The population of this study was all final year students who write thesis at Jambi University. The sampling technique in this study was the Probability Sampling technique, which is a sampling technique that provides equal opportunities for each member of the population. This sample technique used the type of *Proportionate Stratified Random Sampling*, which is a sampling technique when the population has members/ elements that are not homogeneous and proportionally distributed. Determination of the minimum sample size in this study refers to the statement of

Hair *et. al.,* (2010) that the number of samples as respondents must be adjusted to the number of question indicators used in the questionnaire, assuming nx 5 observed variables (indicators) up to nx 10 observed variables (indicator). In this study the number of items is 22 question items used to measure 6 variables, so the number of respondents used is 22 statement items multiplied by 10 times equals 220 respondents.

The type of data used in this study was primary data obtained directly from respondents using a list of statements in the form of a questionnaire. Data collection was carried out by distributing questionnaires using liker scale 1-5. The questionnaire is a data collection tool through questions related to the variables studied. Data collection was done by distributing questionnaires to respondents. This questionnaire contains a list of structured statements addressed to respondents to obtain written information related to the variables studied.

Data analysis was performed using SEM techniques. Because the first aim of the research is to test the theory, the analysis technique used was *Covariance-based* SEM, which is a SEM approach using SmartPLS tool. Primary data obtained from the collection of data carried out entered into an excel file first before further analysis. After all primary data has been entered in an excel file, the data was analyzed using the SmartPLS tool which is user-friendly tool that

is widely used to apply SEM techniques. Therefore, this study chose SmartPLS as a tool for data analysis.

Table. 1. Research Variables and Indicators

No.	Variable	Indicator
1.	Information Quality (Livari 2005)	X1=Accuracy X2=Complete X3=Available X4=Punctuality X5=Suitability
2.	System Quality (Wang dan Wu 2006)	X6=Ease Of Learning X7=Ease Of Us X8=Response Time X9=Security
3.	Service Quality (Ramayah dan Lee, 2012)	X10=Responsiveness X11=Empathy X12=Follow up Service X13=Empathy
4.	Use (Yusof 2007)	Y1= Usage Level Y2= Motivation of use Y3= Knowledge
5.	User Satisfaction (Yusof, 2007)	Y5= User-Feeling Y6= Use satisfaction
6.	Net Benefits (DeLone dan McLean 2003)	Y7= Effectiveness Y8= Efficiency Y9= Accurate Y10=Time

RESULT AND DISCUSSION
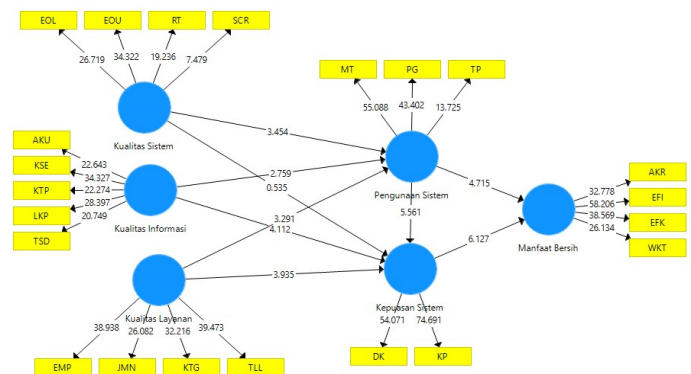
Figure 4. Final Results of Processed Research Data

Testing the proposed hypothesis was done by testing the structural model (inner model) by looking at the R-square value which is a goodness-fit model test. In addition, by looking at the path coefficients which show the parameter coefficient and the statistical significance value t. Significance Estimated parameters can provide

information about the relationships between research variables. The limit for rejecting and accepting the hypothesis proposed above is 1.659 for p < 0.05. The table below presents the estimated output for testing the structural model.

Table 2. Inner Model T-Statistic Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
System Satisfaction ->Net Benefits	0.477	0.478	0.078	6.127	**0.000**
Information Quality ->System Satisfaction	0.272	0.272	0.066	4.112	**0.000**
Information Quality ->System Use	0.249	0.250	0.090	2.759	**0.006**
Service Quality ->System Satisfaction	0.316	0.317	0.080	3.935	**0.000**
Service Quality ->System Use	0.315	0.316	0.096	3.291	**0.001**
System Quality ->System Satisfaction	0.034	0.033	0.063	0.535	**0.593**
System Quality ->System Use	0.256	0.253	0.074	3.454	**0.001**
System Use ->System Satisfaction	0.309	0.309	0.056	5.561	**0.000**
System Use ->Net Benefits	0.373	0.368	0.079	4.715	**0.000**

Based on the results of the inner T-Statistic model, it can be concluded that the results of this research hypothesis are as follows:

Table 3. Research Hypothesis Results

Hypothesis	Statement	Result
H1	The system quality has a positive effect on use	Hypothesis Accepted
H2	The system quality has a positive effect on user satisfaction	Hypothesis Rejected
H3	Information quality has a positive effect on use	Hypothesis Accepted
H4	Information quality has a positive effect on user satisfaction	Hypothesis Accepted
H5	Service Quality has a positive effect on use	Hypothesis Accepted
H6	Service quality has a positive effect on user satisfaction	Hypothesis Accepted
H7	Use has a positive effect on net benefits	Hypothesis Accepted
H8	use has a positive effect on user satisfaction	Hypothesis Accepted
H9	User satisfaction has a positive effect on net benefits	Hypothesis Accepted

CONCLUSION

From 9 (nine) hypotheses, 8 (eight) hypotheses were accepted and 1 (one) hypothesis was rejected, that is H2. The basis for rejecting the H2 hypothesis is the ELISTA system operating at Jambi University is obligatory, so that the system quality is not concern in determining user satisfaction. The system must still be used to achieve certain goals. Besides the system applied is obligatory. The results of this study are in lines with research (Hanadia, *et. al.,* 2017) and (Tulodo and Solichin, 2019) which proved that the system quality does not affect user satisfaction.

Davis (1989), stated that user perceptions of user quality which is a belief can form subjective attitudes, that is user satisfaction. There is a positive relationship between user involvement and user satisfaction. This can be

interpreted when users psychologically feel that they interact with the system and feel that their interests are accommodated by the system, the user will feel satisfied with the system. The results of this study can be used as consideration for decision making at Jambi University and other public universities that also use the ELISTA application system. The system quality, the information quality and the service quality of the system can be further improved by the university by saw the needs that come from system users in accordance with applicable policies as well as providing training to system users at each university to increase desired results.

REFERENCES

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information System Success: A Ten-Year Update. *Journal of Management Information Systems*, 9-30.

DeLone, W. H., & McLean, E. R. (1992). Information Systems Success: The Quest for the Dependent Variable. *Information Systems Research*, 60-95.

Hanadia, N., Rahayu, S., & Zultilisna, D. (2017). Pengaruh Kualitas Sistem, Perceived Usefulness dan Kualitas Informasi terhadap Kepuasan Pengguna (Studi Kasus terhadap Sistem Dashboard PDAM Tirta Raharja 2017). In *e-Proceeding of Management*, 4, 2707–2714.

Hair, J. F., Babin, W. C., Black, Anderson, & Tathan, R. L. (2016). *Multivariate Data Analysis.* New Jersey: Prentice-Hall, Inc.

Indrajit, R. E. (2000). *Pengantar Konsep Dasar Manajemen Sistem Informasi dan Teknologi Informasi.* Jakarta: PT Elex Media Komputindo.

Jogiyanto. (2008). *Analisis dan Desain Sistem Informasi: Pendekatan Terstruktur Teori dan Praktek Aplikasi Bisnis.* Yogyakarta: Andi.

Jogiyanto. (2007). *Model Kesuksesan Sistem Teknologi Informasi.* Yogyakarta: Penerbit Andi.

Lee., and J. H. Yu. (2012). Success Model of Project Management Information System. *Automation in Construction, 25,* 82-93.

Livari, J. (2005). An Empirical Test of the DeLone and McLean Model of Information System Success. Data Base for Advances in Information Systems. *ABI/INFORM global*, 8-27.

Mulyono, I. (2012). Uji Empiris Model Kesuksesan Sistem Informasi Keuangan Daerah (SIKD) dalam Rangka Peningkatan Transparansi dan Akuntabilitas Keuangan Daerah. *SNA XII*, Palembang.

Miles, R. E., & Snow, C. C. (1996). *The Network Firm: A Spherical Structure Built on a Human Investment Philosophy*. New York: AMA Management Briefing.

Oktavia, D. D., Saraswati, E., & Baridwan, Z. (2016). Kesuksesan Implementasi SIMDA untuk Meningkatkan Akuntabilitas Pengelolaan Keuangan Pemerintah. *Jurnal Riset dan Aplikasi: Akuntansi dan Manajemen*, 2(1), 1-16.

Prihadi. D., Abdul, S., Arief, S. (2011). Perencanaan Strategis Pengembangan Sistem Informasi Akademik di Universitas PancaSakti Tegal. *Jurnal Teknologi Informasi*, 7(2).

Rai, A., Lang, S. S., dan Welker, R. B. (2002). Assesing the Validity of IS Success Models: An Empirical Test and Theoretical Analysis. *Information Systems Research. ABI/INFORM Global*, 50-113

Tulodo, B. A. R., & Solichin, A. (2019). Analisis Pengaruh Kualitas Sistem, Kualitas Informasi dan Perceived Usefulness terhadap Kepuasan Pengguna Aplikasi Care dalam Upaya Peningkatan Kinerja Karyawan. *JRMSI-Jurnal Riset Manajemen Sains Indonesia*, *10*(1), 25-43.