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ASSESSING THE SUCCESS OF KOMINFO MAIL HANDLING SYSTEM BASED ON EMPLOYEE PERSPECTIVE

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ABSTRACT

The Ministry of Communication and Informatics (KOMINFO) is an institution that plays an important role in assisting the Indonesian government in carrying out government affairs in the field of communication and informatics. SiMAYA is a cloud-based e-government system that is used as a daily operational system to support the mail handling process in order to facilitate the process of sending, receiving and disposition of letters. In practice, the SiMAYA system is expected to improve the correspondence process to be more effective and efficient. At present, the SiMAYA system is experiencing several problems, such as an error system and unable to carry out a disposition, which it's hinders the operational activities. For this reason, it is necessary to evaluate the SiMAYA system, so that employees do not experience difficulties in its use. The main objective of this research is to analyze how successful the implementation of the SiMAYA system in the Ministry of Communication and Informatics from the perspective of employees. Structural equation modeling-Partial Least Squares (SEM-PLS) technique are applied. Data were collected using a questionnaire from 140 employees. The questionnaires were distributed via google form and paper. Empirically, this study evaluates a model to measure the success of the SiMAYA system which refers to the updated Delone and Mclean IS Success Model theory with an extended variable performance expectancy from UTAUT. Seven out of ten were hypothesized to be successful and significantly supported and the other three variables were found to be rejected. These results can provide new insights for government agencies in making improvements to information systems used in the future.

Keywords: *Delone and Mclean, E-government, Information Systems*

1. INTRODUCTION

The Ministry of Communication and Informatics (KOMINFO) is an institution that plays an important role in assisting the Indonesian government in carrying out government affairs in the field of communication and information technology and also assisting the President in carry out state governance, especially in the field of information and public communication. The development of e-government is a step in digitizing conventional office activities that utilize information and communication technology within government institutions, both central and regional governments in order to improve the quality of services to be effective, efficient and transparent. IT has several operational benefits obtained in implementing e-government for the government itself and also the employees such as reduction in response time, paper work, and reduction in error rate [3] [10]. E-government system play a role as a key strategy that can lead government to create a new public value [1]. E-government system provide a service that allow organization to manage their internal information effectively and also improving their efficiency and performance [2].

One example of e-government development in context of government to employee (G2E) category carried out by KOMINFO is the development of Virtual Office Administration System (SiMAYA). SiMAYA is a cloud-based office administration that supports correspondence management to facilitate the process of searching and archiving letters [13]. At present, there are 92

support requests were successfully recorded. Several complaints were filed such as the system was inaccessible (error) and user was unable to make a disposition. Based on these problems, an evaluation of is very important to do. Currently, no research has been done to determine the factors affect the successful implementation of SiMAYA system. Based on this evaluation, it can be seen which parts of the SiMAYA system need to be improved, repaired and maintained.

According to Floropoulus et al., (2010) evaluation can help governments to ascertain whether they can do their job in providing services as expected [10]. At present, research related to the assessment of the success of e-government systems with the IS Success Model approach which is carried out based on the perspective of the government employees as the main users has not been widely carried out [3].

In several previous studies, the most research that investigate an e-government system is more focused on the citizen perspective as the main user in context to improve the relation between government to citizen (G2C) or the interaction between government and citizens [3]. Based on this, the author will conduct research on evaluating the successful implementation of the SiMAYA KOMINFO mail handling system based on employee's perspective as the main users with Delone and Mclean Information success approach. In evaluation, the Delone and Mclean Model is the model most commonly used in measuring the success of implementing a simple and fairly valid information system [2]. E-government is part of IS, so the Delone and Mcelan IS Success Model can be used to measure the success rate of an e-government system [3]. The measurement refers to 6 (six) variables measuring success by Delone and Mclean such as information quality, system quality, service quality, intention to use/use, user satisfaction, and net benefits [10]. In addition, one extends variable from UTAUT is used, namely performance expectancy. In several studies, the variable performance expectancy has been shown to be the strongest predictor for measuring the intention to use of e-government system [6] [15]. The purpose of this study is to analyze and identify the factors that influence the successful implementation of SiMAYA system from employee prespective based on the Delone and McLean is success model [13].

2. LITERATURE REVIEW

2.1 Delone and Mclean IS Success Model

Delone and Mclean IS Success Model is one of the most widely model that used to measure the level of success of an information system in an organization [2][4]. The Updated D&M models have been proven to be used in several contexts such as e-commerce, e-learning, e-health, and also e-government [1][2][5][8][9][14]. One of them is related to this research in the field of government context. E-government system has proven to be a part of IS and its success can be measured using the updated Delone and Mclean success model [2][10][14]. The original model of D&M was first introduced in 1992 [4][10][14]. This model consists of six constructs such as information quality, system suality, use, user satisfaction, individual impact and organizational impact [2][4]. In 2003, after ten years D&M released a new revised model to respond the identification of other researchers regarding the weaknesses of D&M model 1992. The updated Delone and Mclean model consists of six constructs such as information quality, system suality, service quality as three quality factors that will positively affect user usage and satisfaction [4]. Use and user satisfaction are related and will causally affected one another, and the last one is net benefit [4]. Net benefit is dependent variable from the combination of individual impact and organizational impact [1][2][10][14].
There are three differences between revised D&M model and the original model [4].

1. The additional of service quality. This variable reflects the importance of the services given by IT staff or IT department to users in supporting the success of an information system.
2. The addition of intention to use as an alternative of use. It's measures the user's attitude in utilizing an information system. Intention to use is usually used in several contexts and is more suitable for mandatory systems.
3. The last one is, the combination of the individual impact and organizational impact constructs into the dependent net benefit variable.

2.2 Information Quality

This variable measure quality of the output of an information system [2][4]. In several studies it has been proven that information quality is one of any factors that affect intention to use/use and user

satisfaction [14]. The high quality of information will directly increase the user's intention to use/use and user satisfaction [2][14]. Information quality has four measurement indicators such as completeness, reliability, security, and accuracy [14].

2.3 System Quality

This variable measures the technical quality of the system [2][4]. In several previous studies it has been proven that system quality affects intention to use/use and user satisfaction [14]. System quality is measured based on several indicators such as ease of use, user friendly, ease of access, and reliability [2][10][14]

2.4 Service Quality

This construct measures the level of service quality provided by IT staff to users [4][10][14]. It's measured by several measurement indicators such as assurance, responsiveness, tangible, and service reliability [14].

2.5 Intention to Use/Use

This construct measures the user's attitude and behavior in utilizing an information system [14]. These are several measurement indicators of intention to use/use such as dependency, frequency of system use, tendency to use, duration of future use [14]. In this study, intention to use/use refers to Delone and Mclean 2003 which states that the use variable is an alternative variable in their model and used in several contexts [4]. Based on this statement, the researcher assumed that the intention to use and use were the same construct in this study [14].

2.6 User Satisfaction

This construct evaluates the overall user experience in using the information system [10]. This construct is measured based on several measurement indicators such as effectiveness, enjoyment, information satisfaction, system satisfaction, and overall satisfaction. In a study conducted by [14] it was found that user satisfaction directly affects intention to use [10].

2.7 Net Benefit

This construct measures the impact produced by an information system both individually and organizational [2][10][14]. This construct is proven to be influenced by intention to use/use and user satisfaction [2][14]. High usage and user satisfaction will directly impact the net benefits [4]. These are several measurement indicators that's measure net benefit such as makes job easier, job performance, time saving, speed of accomplishing task, and useful [14].

2.8 Extend variable performance expectancy

Performance Expectancy is one of UTAUT variables that used to measure the level of user confidence that the information system they use can help them improve their job performance [8].

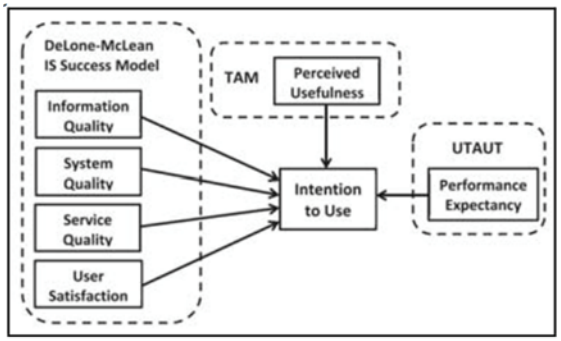

Figure 4: Relationship between Delone and Mclean and UTAUT

Sources: Delone and Mclean, UTAUT, TAM [12]

Based on several literature reviews, it is found that the integration of the Delone and Mclean IS success model with UTAUT is needed to provide the appropriate antecedents to predict behavioral intention (BI/intention to use) [12]. In this study, performance expectancy is used to measure their level of confidence that using the SiMAYA system can improve their job performance [8][20]. In several study this construct has proven to be the one of most influence variables that affect intention to use e-Syariah portal [20]. Performance expectancy is measured by three indicators such as increase performance, inhance motivation, and improve result of work [8].

Table 1: Indicator Variables and Sources

Information Quality	
Information quality refers to the output of information produced by the information system [2].	
Information Quality	[2].
Information Quality	[10]
Information Quality	[14]
System Quality	

The quality of the features available on the system [2].	
System Quality	[2]
Service Quality	
Service quality defines the user's judgment that the service they receive is the service they expect [2].	
Service Quality	[2].
Service Quality	[14]
Use/Intention to Use	
Utilization of information systems by users [14].	
Intention to Use/Use	[14].
Intention to Use (INT)	[10].
User Satisfaction	
User satisfaction level in using information systems [14].	
User Satisfaction	[10].
Citizen Satisfaction	[5].
Satisfaction	[14]
Net Benefit	
The overall impact generated by the information system on system users [10].	
Net Benefit	[10][2][14].
Performance Expectancy	
A person's level of confidence that using information technology can help solve problems [10].	
Performance Expectancy	[8].
Performance Expectancy	[20].

3. RESEARCH METHODOLOGY

This study used quantitative method. Simple random sampling used as the sampling technique. The data collection methods in this study using online and offline questionnaires. The respondents were all the internal staff of KOMINFO's that spread over seven work units. The population of this study were 200 users. There were 140 respondents successfully collected and 10 hypotheses are formulated. SEM-PLS used as the data analysis technique with several basic reasons [12][10]:

1. Can be used to measure the relationship between variables that have more than one independent and dependent variable in the research model.
2. Can measure the relationship between variables that have multiple relationships.
3. SEM-PLS can solve data distribution problems and data normality by eliminating OLS (Ordinary Least Squares) assumptions.
4. Can test data with weak theory and a small sample.

SmartPLS 3.0 software are used as tools of data analysis. There are two stages in conducting the evaluation Outer model (measurement model) and the Inner Model (structural model) [10][12].

3.1 Research Model and Hypotheses

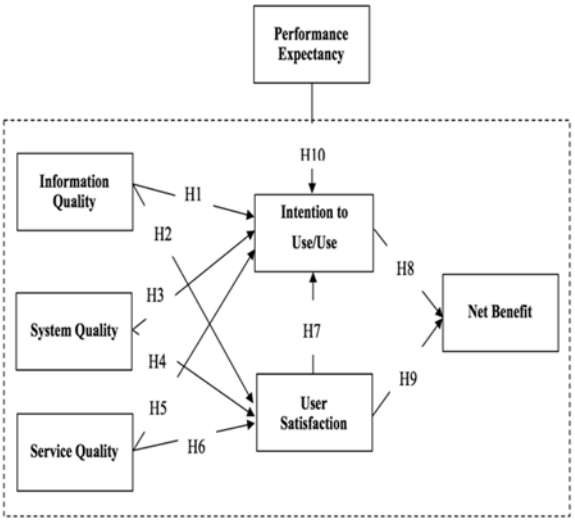

Figure 5: Research Model and Hypotheses

This study consists of 10 hypotheses. These are the formulation of the hypothesis that will be used in this study:

H1: Does the information quality have an influence on intention to use/use?

H2: Does the information quality have an influence on user satisfaction?

H3: Does the system quality have an influence on the intention to use/use?

H4: Does system quality have an influence on user satisfaction?

H5: Does the service quality have an influence on the intention to use/use?

H6: Does service quality have an influence on user satisfaction?

H7: Does user satisfaction have an influence on intention to use/use?

H8: Does intention to use/use have an effect on net benefits?

H9: Does user satisfaction have an effect on (net benefits)?

H10: Does performance expectancy have an influence on intention to use/use?

4. RESULT AND DISCUSSION

4.1 Respondent Demography

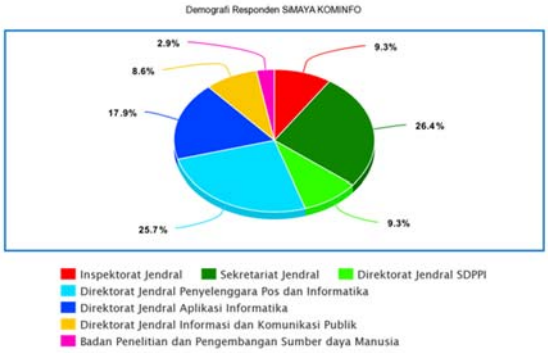

Figure 6: Respondents Demographyc

According to respondent demographics that refers to 7 work units such as Sekretariat Jendral with 37 respondents (26.4%), Direktorat Jendral Penyelenggara Pos Informatika with 36 respondents (25.7%), Dirjen APTIKA with 25 respondents (17.9%), Dirjen SDPPI with 13 respondents (9.3%), Inspektorat Jendral with 13 respondents (9.3%), Dirjen IKP with 12 respondents (8.6%), and the last one is BALITBANG with 4 respondents (2.9%).

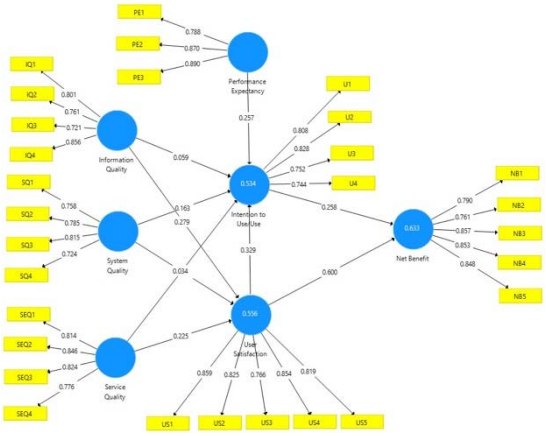

Figure 7: PLS Algorithm

4.2 Outer Model

The first step is to test the outer model. It defines the relationship between latent variables and the indicators. The measurement model is done by testing the convergent validity and reliability. Convergent validity is assessed by loading factors value of each indicators. The indicators are said to be "valid" if the value of loading factor is greater or equal to 0.7 [10][12]. These table below shows the result of the convergent validity test of this study:

Table 2: Loading Factors

Variabel	Indicator	Loading Factor	Description
Information Quality	IQ1	0.801	Valid
	IQ2	0.761	Valid
	IQ3	0.721	Valid
	IQ4	0.856	Valid
System Quality	SQ1	0.758	Valid
	SQ2	0.785	Valid
	SQ3	0.815	Valid
	SQ4	0.724	Valid
Service Quality	SEQ1	0.814	Valid
	SEQ2	0.846	Valid
	SEQ3	0.824	Valid
	SEQ4	0.776	Valid
Intention to Use/Use	U1	0.808	Valid
	U2	0.828	Valid
	U3	0.752	Valid
	U4	0.744	Valid
User Satisfaction	US1	0.859	Valid
	US2	0.825	Valid
	US3	0.766	Valid
	US4	0.854	Valid

	US5	0.819	Valid
Net Benefit	NB1	0.790	Valid
	NB2	0.761	Valid
	NB3	0.857	Valid
	NB4	0.853	Valid
	NB5	0.848	Valid
Performance Expectancy	PE1	0.788	Valid
	PE2	0.870	Valid
	PE3	0.890	Valid

Based on the result of table 2, it shown that all the indicators used in this study are declared to be valid.

The convergent validity is said to be good if the AVE value is greater than 0.5 [10]. Based on the result on table 3, it shown that all the Average Variance Extract (AVE) value has been fulfilled the criteria.

Table 3: Average Variance Extract

Variabel	Average Variance Extracted (AVE)
Information Quality	0.618
System Quality	0.595
Service Quality	0.665
Intention to Use/Use	0.615
User Satisfaction	0.681
Performance Expectancy	0.723
Net Benefit	0.677

The reliability testing is done to see the internal consistency of each latent variable. The construct is declared reliable if the value of composite reliability and cronbach's alpha is greater than 0.7.

Table 4: Composite Reliability and Cronbach's Alpha

	Composite Reliability	Cronbach's Alpha	Description
IQ	0.866	0.793	Reliable
SQ	0.854	0.773	Reliable
SEQ	0.888	0.832	Reliable
U	0.864	0.790	Reliable
US	0.914	0.882	Reliable
PE	0.886	0.807	Reliable
NB	0.913	0.880	Reliable

Based on the result above, all the value of latent variable in PLS can be said reliable because all the composite reliability and Cronbach's alpha value are greater than 0.7.

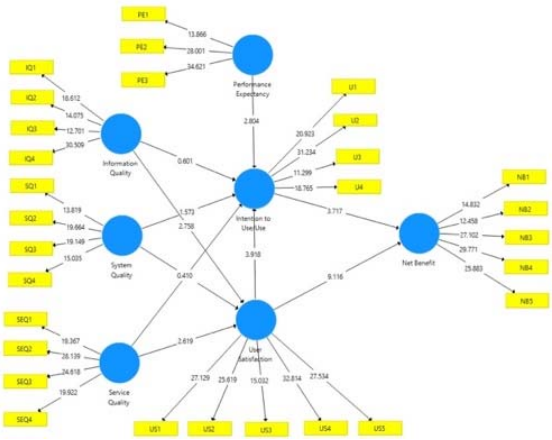

Figure 8: Bootstrapping

4.3 Inner Model

The evaluation of structural models is done by calculating t-statistics of path coefficient and R-square values. p-value must be below 0.05 are declared to be significant and if t-statistics are greater than t-table (t-statistics > t-table) it means that the latent variable have significant effect on other latent variables.

T-statistics result shows that IQ to US, SQ to US, SEQ to US, US to U, PE to U, U to NB and US to NB are said to be related because it has p-value below 0.05 and t-statistics are greater than t-table. IQ to U, SQ to U, and SEQ to U is said to be unrelated because it has it has p-value above 0.05 and t-statistics are lower than t-table.

Table 5: R-Square Value

Variable	R Square
NB	0.633
U	0.534
US	0.556

This study has three endogenous variables such as net benefit (NB), intention to use/use (U), and user satisfaction (US). The r-square result on table 5 show the value for NB is 0.633, which means that the influence of the intention to use/use and user satisfaction on the net benefit is 63.3% and also influenced by 36.7% by other variables that need further investigation. The influence of information

quality, system quality, service quality, user satisfaction and performance expectancy variables on intention to use/use (U) is 0.534 or 53.4% and also influenced by 46.6% by other variables that need further investigation. The influence of information quality, system quality, service quality on user satisfaction is 0.556 or 55.6% and also influenced by 44.4% by other variables that need further investigation.

4.4 Result of Hipothesis testing

Hypothesis testing is conducted to determine whether or not there is a significant effect of exogenous variables on endogenous variables. There are two criteria that are determined in conducting hypothesis testing. Following are the levels of the significant influence of the relationship between variables:

1. If t-statistics > t-table then H0 is rejected or Ha is accepted;

2. If t-statistics < t-table then H0 is accepted or Ha is rejected.

The null hypothesis (H_0) is formulated if there is no significant influence between variables. (H_0) represents that the hypothesis is expected to be rejected. An alternative hypothesis (Ha), is formulated if it is found that there is a hypothesis that is expected to be accepted. Based on the test result of the structural model with significant level 0.05 using two tailed test 7 hypothesis were proposed to be accepted and 3 other hypotheses are declared to be rejected.

1. **(H1): Information quality affects intention to use/use**

Based on the results that can be seen in the table above, it is known that the information quality and use variables have a path coefficient of 0.059 with a t-statistics value of 0.601. The value of t-statistics (0.601) <t-table (1.96) then H1 is rejected. This shows that the quality of information from the SiMAYA system has no influence on the use of the SiMAYA system. The path coefficient of H1 is 0.059 and has a positive sign, this means that the quality of information increase, so the use of the system also increases. These results are in line with research conducted by [15]

2. **(H2): Information Quality affects User Satisfaction**

Based on the results that can be seen in the table above, it is known that the variable information quality and user satisfaction has a path coefficient of 0.279 with a t-statistics value of 2.758. The value of t-statistics (2.758)> t-table (1.96) then H2 is accepted. This shows that the quality of information from the SiMAYA system has an influence on user satisfaction of the SiMAYA system. The path coefficient of H2 is 0.279 and has positive sign, this means that the quality of information increases, so user satisfaction from the SiMAYA system also increases. These results are in line with research conducted by [2][11][14].

3. **(H3): System Quality affects intention to use/use**

Based on the results that can be seen in the table above, it is known that the variable system quality and intention to use/use has a path coefficient of 0.163 with a t-statistics value of 1.573. The value of t-statistics (1.573) <t-table (1.96) then H3 is rejected. This shows that the quality of the system has no influence on the use of the SiMAYA system. The path coefficient of H3 is 0.163 and it is positive, this means that the quality of the system increases, so the use of the system also increases. These results are in line with research conducted by [15].

4. **(H4): System Quality affects User Satisfaction**

Based on the results that can be seen in the table above, it is known that the variable system quality and user satisfaction has a path coefficient of 0.339 with a t-statistics value of 3.639. The value of t-statistics (3.639)> t-table (1.96) then H4 is accepted. This shows that the quality of the system has an influence on user satisfaction of the SiMAYA system. The path coefficient of the H4 is valued at 0.339 and has a positive sign, this means that the quality of the system increases, the user satisfaction of the SiMAYA system also increases. These results are in line with research conducted by [2][14].

5. **(H5): Service Quality affects intention to use/use**

Based on the results that can be seen in the table above, it is known that the service quality and use

variables have a path coefficient of 0.034 with a t-statistics value of 0.410. The value of t-statistics (0.410) <t-table (1.96) then H5 is rejected. This shows that service quality has no influence on the use of the SiMAYA system. The path coefficient of the H5 is 0.034 and has appositive sign, this means that the quality of service increase, so the use of the SiMAYA system also increase. These results are in line with research conducted by [15].

6. **(H6): Service Quality affects User Satisfaction**

Based on the results that can be seen in the table above, it is known that the variable service quality and user satisfaction has a path coefficient of 0.225 with a t-statistics value of 2.619. The value of t-statistics (2.619)> t-table (1.96) then H6 is accepted. This shows that service quality has an influence on user satisfaction of the SiMAYA system. The path coefficient of H6 is valued at 0.225 and is positive, this means that the quality of service increases, so user satisfaction from the SiMAYA system also increases. These results are in line with research conducted by [2][10][14].

7. **(H7): User Satisfaction affects intention to use/use**

Based on the results that can be seen in the table above, it is known that the user satisfaction and use variables have a path coefficient of 0.329 with a t-statistics value of 3.918. The value of t-statistics (3.918) <t-table (1.96) then H7 is accepted. This shows that user satisfaction has influence on the use of the SiMAYA system. The path coefficient of H7 is worth 0.329 and is positive, this means that user satisfaction increases, so the use of the system also increases. These results are in line with research conducted by [10].

8. **(H8): Intention to use/use affects Net Benefit**

Based on the results that can be seen in the table above, it is known that the intention to use/use and net benefit have a path coefficient of 0.258 with a t-statistics value of 3.717. The value of t-statistics (3.717) > t-table (1.96) then H8 is accepted. This shows that the use has an influence on the net benefits of the SiMAYA system. The path coefficient of H8 is 0.258 and has a positive sign, this means that if usage increases, the net benefits of the SiMAYA system will also increase. These results are in line with research conducted by [2][10] [14].

9. **(H9): User Satisfaction affects Net Benefit**

Based on the results that can be seen in the table above, it is known that the user satisfaction and net benefit have a path coefficient of 0.600 with a t-statistics value of 9.116. The value of t-statistics (9.116)> t-table (1.96) then H9 is accepted. This shows that user satisfaction has an influence on the net benefits of the SiMAYA system. The path coefficient of H9 is valued at 0.600 and has a positive sign, this means that if user satisfaction increases, the net benefits from the SiMAYA system will also increase. These results are in line with research conducted by [2][10] [14].

10. **(H10): Performance Expectancy affects intention to use/use**

Based on the results that can be seen in the table above, it is known that the variable performance expectancy and use has a path coefficient of 0.257 with a t-statistics value of 2.804, the value of t-statistics (2.804) > t-table (1.96) then H10 is accepted. This shows that performance expectations have an influence on the use of the SiMAYA system. The path coefficient of H10 is valued at 0.257 and is positive, this means that if performance expectancy increase, the use of the system will also increase. These results are in line with research conducted by [8] [20].

Table 6: Hipotheses Testing Result

	Original Sample (O)	T Statistics (|O/STDEV|)	T-Table	P Values	Desc
H1	0.059	0.601	1.96	0.548	Rejected
H2	0.279	2.758	1.96	0.006	Accepted
H3	0.163	1.573	1.96	0.116	Rejected
H4	0.339	3.639	1.96	0.000	Accepted
H5	0.034	0.410	1.96	0.682	Rejected
H6	0.225	2.619	1.96	0.009	Accepted
H7	0.329	3.918	1.96	0.000	Accepted

H8	0.258	3.717	1.96	0.000	Accepted
H9	0.600	9.116	1.96	0.000	Accepted
H10	0.257	2.804	1.96	0.005	Accepted

4.6 Implication

The managerial implications that can be carried out by the Ministry of Communication and Informatics based on this research are expected to be used as a reference in evaluating and being taken into consideration in identifying the various constraints and problems faced by KOMINFO's internal parties at this time and are expected to be used as a reference in making improvements to make performance KOMINFO will be better in the future. Although these three variables do not affect intention to use/use, the three variables affect user satisfaction. User satisfaction is proven to affect intention to use /use. By improving the quality of information, system quality and user quality, it will indirectly increase the intention to use/use of the SiMAYA system. the more optimal the quality of information, the quality of the system, and the quality of users, the more it will increase the intention to use / use. It shows that the quality of information, quality of system, and quality of service provided to users of the SiMAYA system must be improved in order to increase employee intentions in using the SiMAYA system. The increased satisfaction of employees who use the SiMAYA system is due to the increase in the quality of information, quality of the systems and the quality of the service available on the SiMAYA system. In addition, the high level of user confidence in the SiMAYA system that SiMAYA can facilitate and improve their performance is a matter that greatly affects the level of use. The more users feel that the SiMAYA system can be relied on in helping their work, the more usage it will be.

5. CONCLUSION

Based on the results of the research conducted to analyze what factors influence the successful implementation of the SiMAYA system, it can be concluded that, there are 7 accepted hypotheses of the 10 hypotheses tested, namely user satisfaction is strongly influenced by three factors, namely information quality, system quality, and service quality. Performance expectancy and user satisfaction affect intention to use/use, use and user satisfaction to net benefits. 3 hypothesis that were rejected, information quality, system quality, service quality to intention to use/use. The limitation of this study is to build a research model based on the Is Success Model and UTAUT approaches. In the future, it is hoped that it can add research references in terms of developing a system success model so that it can be used as a reference in conducting further research.

REFERENCES:

[1] A. Alzahrani, I. Mahmud, and O. Alfarraj, "Modelling digital library success using the DeLone and McLean information system success model Variance Ranking for Multi Classed Imbalance: ACase Study of One versus All. View project Halal Cosmetics and Pharmaceutical View project", 2017. Accessed: Oct. 28, 2020. [Online].

[2] Al-Sulami, Zainab Amin, and Hayder Salah Hashim. 2018. "Measuring the Success of E-Government Systems: Applying the Success Model of the Delone and Mclean Information System." *Journal of Theoretical and Applied Information Technology* 96(22): 7654–70.

[3] Alruwaie, Mubarak, Ramzi El-Haddadeh, and Vishanth Weerakkody, 2020, "Citizens' Continuous Use of EGovernment Services: The Role of Self-Efficacy, Outcome Expectations and Satisfaction", *Government Information Quarterly* 37(3): 101485. https://doi.org/10.1016/j.giq.2020.101485.

[4] Delone, W., & McLean, E. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, *19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

[5] E. Pardiñan and R. Loremia, "Simulation-Based Learning in Electronics: Modified TAM and DeLone & McLean IS Success Model", *Journal of Science, Engineering and Technology*, vol. 7, pp. 84–100, 2019, Accessed: Oct. 28, 2020. [Online].

[6] J. Woei Lian, "Establishing a Cloud Computing Success Model for Hospitals in Taiwan", doi: pDs:O//dIo:i1.o0r.g1/107.711/0707/406094659850810616688558836.

[7] M. Shim and H. S. Jo, "What quality factors matter in enhancing the perceived benefits of online health information sites? Application of the updated DeLone and McLean Information Systems Success Model", *International Journal of Medical Informatics*, vol. 137, p. 104093, May 2020, doi: 10.1016/j.ijmedinf.2020.104093.

[8] Naranjo-Zolotov, Mijail, Tiago Oliveira, and Sven Casteleyn, 2019, "Citizens' Intention to Use and Recommend e-Participation: Drawing upon UTAUT and Citizen Empowerment". *Information Technology and People* 32(2): 364–86.

[9] N. Yakubu and salihu dasuki, "Assessing eLearning Systems Success in Nigeria: An Application of the DeLone and McLean Information Systems Success Model", *Journal of Information Technology Education: Research*, vol. 17, pp. 183–203, 2018, doi: 10.28945/4077.

[10] Rosita, Nabilla, and Nilo Legowo, 2019, "THE USE OF DELONE AND MCLEAN IS SUCCESS MODEL AND UTAUT APPROACH IN REVIEWING ANY FACTORS WHICH INFLUENCE KOMINFO PORTAL SYSTEM", 97(24).

[11] Santa, Ricardo, Jason B. MacDonald, and Mario Ferrer, 2019, "The Role of Trust in E-Government Effectiveness, Operational Effectiveness and User Satisfaction: Lessons from Saudi Arabia in e-G2B", *Government Information Quarterly* 36(1): 39–50.

[12] Setiawan, Haditya, and Nilo Legowo, 2020, "Intention to Use Analysis on Twitter as a Bank Customer Care in Jabodetabek", *Journal of Theoretical and Applied Information Technology* 8(10): 3091–3103.

[13] *siMAYA V.5 | "Aplikasi perkantoran maya berbasis awan... (2018)"*, Simaya.Go.Id. https://simaya.go.id/v51/page/login.php

[14] Stefanovic, Darko et al. 2016, "Assessing the Success of E-Government Systems: An Employee Perspective" *Information and Management* 53(6): 717–26.

[15] Sugi et al. 2018. "Measurement of E-Learning Success with Adopting the Delone & Mclean Model (University Study Case in South Jakarta)." *Journal of Theoretical and Applied Information Technology* 96(19): 6278–90.

[16] Survei PBB 2018: Peringkat E-Government Indonesia, *BPPTIK*, Aug. 23, 2018. https://bpptik.kominfo.go.id/2018/08/23/5938/survei-pbb-2018-peringkat-e-government-indonesia/ (accessed Oct. 28, 2020).

[17] S. Z. Mustafa, A. K. Kar, and M. F. W. H. A. Janssen, "Understanding the impact of digital service failure on users: Integrating Tan's failure and DeLone and McLean's success model", *International Journal of Information Management*, vol. 53, p. 102119, Aug. 2020, doi: 10.1016/j.ijinfomgt.2020.102119.

[18] "Talukder, Md Shamim, Liang Shen, Md Farid Hossain Talukder, and Yukun Bao, 2019, Determinants of User Acceptance and Use of Open Government Data (OGD): An Empirical Investigation in Bangladesh", *Technology in Society* 56(July): 147–56. https://doi.org/10.1016/j.techsoc.2018.09.013.

[19] Veeramootoo, Narvadha, Robin Nunkoo, and Yogesh K. Dwivedi. 2018. "What Determines Success of an E-Government Service? Validation of an Integrative Model of e-Filing Continuance Usage". *Government Information Quarterly* 35(2): 161–74. https://doi.org/10.1016/j.giq.2018.03.004.

[20] Wang, Changlin, and Thompson S.H. Teo, 2020, "Online Service Quality and Perceived Value in Mobile Government Success: An Empirical Study of Mobile Police in China", *International Journal of Information Management* 52(January).

[21] Yahya, Mornizan, Feridah Nadzar, and Baharom Abdul Rahman, 2012, "Examining User Acceptance of E-Syariah Portal Among Syariah Users in Malaysia", *Procedia - Social and Behavioral Sciences* 67(November 2011): 349–59.

[22] Pringgandani, Sugi et al. 2018. "Measurement of E-Learning Success with Adopting the Delone & Mclean Model (University Study Case in South Jakarta)." *Journal of Theoretical and Applied Information Technology* 96(19): 6278–90.