



SUCCESS PREDICTOR OF DELONE AND MCLEAN ACCOUNTING INFORMATION SYSTEMS MODEL IN VILLAGE CREDIT INSTITUTIONS IN DENPASAR CITY, INDONESIA

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Abstract

This study aims to provide empirical evidence regarding the Delone and Mclean Model in the analysis of successful implementation of Accounting Information Systems (AIS) in Village Credit Institutions or known as LPD in Denpasar City. The study was conducted on 27 LPDs in Denpasar City who has applied Accounting Information Systems. The sampling technique used is purposive sampling method and as much as 81 samples were obtained through questionnaire. The data analysis techniques used is PLS-SEM. The results found that the each of the system quality, information quality, and service quality has a positive effect on system usage and user satisfaction. Both of the system usage and the user satisfaction has a positive effect on net benefits.

Keywords: Delone and Mclean Success Model, Accounting Information Systems, Net Benefit

INTRODUCTION

The modernization era brings a significant change in several aspects of human life. One of the effects is the computerization in all human activities in order to increase effectiveness and efficiency in terms of manpower, costs, procedures and others. Along with the use of increasingly sophisticated computers, the development of information technology is also increased (Setiawan, 2009:2). The development of information technology is very influential on accounting information systems (AIS) in a company.

The significant impact that has been felt in the use of AIS is the manual data processed now become computerized. In addition to changes in data processing, the application of AIS can improve internal control and the quality of information generated in financial report. AIS has been applied to all economic sectors, including non-bank financial institution sector that is the Village Credit Institution (LPD).

LPD is one of the Microfinance Institutions (MFIs) that carry out their business activities in the custom village environment in Bali. LPD is managed by the result of 'paruman' of the custom village. This also impact on the LPD management style that carried out with a family system and based on mutual trust principle (Kurniasari, 2007). LPD management style that adopts the family system is susceptible to have low internal control. A good management is needed in order to create a transparent and accountable LPD. LPD management will be maximized if supported by an adequate accounting information system. As the role of LPD is very central in supporting the economy of rural communities, the application of AIS in LPD operations becomes important.

One model to measure the success of information systems was introduced by DeLone and McLean in 1992, which was then updated again in 2003. This model is considered simple and valid enough to measure whether an information technology system is applied successfully in an organization. An information system is said to be successful if it is able to provide benefits to its users. The benefits received by individuals and organizations as users of information systems are called net benefits (Delone and Mclean, 2003). One of the net benefits received from the use of Information Systems is an increase in individual performance which then also has an impact on improving organizational performance (Davis, 1989). Delone and Mclean's model (2003) consists of 3 (three) independent variables, namely system quality, information quality, service quality, and 3 (three) dependent variables, namely usage, user satisfaction and net benefits.

This research was conducted in all LPDs in the city of Denpasar. Researchers chose the location of research in LPDs in the City of Denpasar because all LPDs in Denpasar have used AIS in their operational activities. In addition the amount of public funds managed by the LPD in

Denpasar has increased in the last 6 years. An increase in the number of LPD assets in Denpasar City is presented in Table 1 below.

Table 1. Number of LPD assets in Denpasar on 2014-2019 period

Year	Number of Assets (in thousand Rupiah)
2014	1.179.967.305
2015	1.383.896.375
2016	1.625.610.986
2017	1.922.469.836
2018	2.267.278.195
2019	2.496.802.837

Source: LPLPD Bali Province, 2020

The development of LPD assets (as shown in the Table 1) indicates that there was an increase in public participation and an transaction volume. The increase in LPD assets is expected to be accompanied by success in the application of Accounting Information Systems so that effectiveness and efficiency will occur which in turn will produce a sustainable LPD.

This study aims to determine the successful implementation of AIS in LPD in Denpasar since there are benefits received by LPD for the use of AIS such as faster processing and searching customer information, minimizing the risk of arithmetic errors that usually occurred on manual bookkeeping, shorter time in arrange LPD financial reports because there's no delay in submitting the LPD reports to the LPD-Empowerment Institution.

This research was conducted specifically on LPDs that have implemented the AIS developed by PT. USSI as a LPD system developer through its collaboration with the Bali Province BKS LPD. The application of this AIS began in 2017 and is being implemented in stages every year on LPDs in all regencies/cities of Bali Province. Considering that LPD has been a traditionally based institution, it is common if the transaction process carried out manually so as to produce a report output with a variety of forms between one LPD and another. Through the AIS developed by PT. USSI is expected to create an LPD standard in one system so that it will be easier to monitor and evaluate LPD developments.

THEORETICAL REVIEW AND RESEARCH HYPOTHESIS

Theory of Reasoned Action

Theory of Reasoned Action was first introduced by Ajzen and Fishbein (1980). This theory was developed to examine the relationship between attitude and behavior. The theory of reasoned action becomes the basic theory that can explain that someone will use or use computers if there are positive benefits received when using those computers. The application of reasonable action theory in this study explains how one's acceptance of an accounting information system is related to the perceived usefulness of the information system itself. The perception that the accounting information system will benefit users will be the reason for someone's behavior to use it.

Research Hypothesis

Good system quality is indicate by the benefits of system output which can affect the level of system usage. The more information system is easy to operate and has more benefits for the user, it will increase its actual use. Thus, the higher the quality of the system will increase system usage. This is in line with research conducted by Krisdantoro, et al. (2018), Wahyuni (2011), Listiyana and Rusdi (2015) and Adebowale (2017) which state that the system quality has a positive effect on system usage. Based on the description, the following hypothesis can be formulated.

H1: The system quality has a positive effect on the use of accounting information systems

The system is said to have good quality if it provides beneficial to users as indicated by the effectiveness and efficiency of work which will ultimately create a sense of satisfaction in users of information systems. User of the information systems who think that the system is good will lead to user satisfaction. Thus the higher the quality of the information system will increase user satisfaction. This is in line with the results of research by Emawati and Suprasto (2019), Prasojo and Pratomo (2015), Wahyuni (2011), and Purwaningsih (2011) which show that the quality of the system has a positive effect on user satisfaction. Based on the description, the following hypothesis can be formulated.

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

The better the information quality the more informed decisions will be taken. In this case also makes the information quality a factor that influences the rejection or usage of an information system. Liu and Arnett (2000) states that the highest quality information will increase the user perceptions of usefulness and the use of information systems. Thus the higher the quality of

information will increase the use of information systems. This is in line with the research results of Wahyuni (2011), Listiyana and Rusdi (2015), and Adebowale (2017) which state that the quality of information has a positive effect on system usage. Based on the description, the following hypothesis can be formulated.

H3: Information quality has a positive effect on the use of accounting information systems

A high quality Information are characterized by its accuracy, clearliness, detailed, relevant, easily obtained, timely, up to date and in accordance with user needs. An information system with other information systems can produce different information characteristics. The information system if it is able to produce information that reflects a measure of the quality of good information will affect the satisfaction of the user. Thus, the higher the quality of information will increase user satisfaction. This is in line with the results of research by Emawati and Suprasto (2019), Prasojo and Pratomo (2015), Wahyuni (2011), and Purwaningsih (2010) which state that the quality of information has a positive effect on user satisfaction. Based on the description, the following hypothesis can be formulated.

H4: The information quality has a positive effect on accounting information system user satisfaction.

Service quality is a service obtained by users both from the manager and from the information system itself. System users naturally expect an efficient and effective system that is assessed from the information that can be obtained through the system. The more effective an information system is, the more able it is to provide quality services for its users. The high quality of service will be able to meet the user's perceived usefulness because users feel the benefits of using the system which will ultimately increase the intention to use the information system. Thus the higher the quality of service will increase the use of information systems. This is in line with the results of research by Wicaksono, et al (2012), Adebowale (2017), HanaeRoky and Meriouh (2015) which states that service quality has a positive effect on system usage. Based on the description, the following hypothesis can be formulated.

H5: Service quality has a positive effect on the use of accounting information system.

Quality of service is the difference between expectations and the service that users actually receive. Conrath and Mignen (1990) in their research explain that an important component of user satisfaction is the fit between user expectations and actual information system services. This concludes that the higher the quality of service described by meeting the expectations of users of information systems, it will increase the satisfaction of users of information systems.

This is in line with the results of research by Prasojo and Pratomo (2015), Wicaksono et al (2012), Purwaningsih (2010), and Subiyakto, et al. (2015) which states that service quality has a positive effect on system user satisfaction. Based on the description, the following hypothesis can be formulated.

H6: Service quality has a positive effect on accounting information system user satisfaction.

The use of information systems will increase along with the net benefits received and felt by users. The more frequently the user uses the information system, then it is followed by the increasing level of learning (degree of learning) obtained by the user (McGill et al., 2003). This will ultimately have an impact on improving individual performance which then also has an impact on improving organizational performance. Then the individual and organizational impacts are discussed in one measure, the net benefits of the updated DeLone and Mclean (2003) model. Thus the higher the use of the system will increase the net benefit. This is in line with the results of Arfian's research (2017) which states that the use of the system has a positive effect on net benefits. Based on the description, the following hypothesis can be formulated.

H7: The use of the system has a positive effect on net benefits

Net benefits related to the quality of the performance of individuals and organizations where information systems are applied. DeLone and McLean's (2003) study states that a significant predictor of net benefits is user satisfaction. Users who are satisfied with the information system will feel increased productivity, increased knowledge, and shorten the search time for information which is an indicator of net benefits. Thus the higher the system user satisfaction will increase the net benefit. This is in line with the results of research Jumardi, et al. (2015), and Arfian (2017) which state that system user satisfaction has a positive effect on net benefits. Based on the description, the following hypothesis can be formulated.

H8: System user satisfaction has a positive effect on net benefits.

RESEACH METHODOLOGY

The sample of this study was 81 respondents consisting of 3 employees using AIS (Head, Treasurer, Administration Staf) in each LPD in Denpasar, which amounted to 27 LPD. The sampling technique used is nonprobability sampling with purposive sampling method. Questionnaire is adapted from several sources. System Quality (X_1) and Net Benefit (Y_3) statement were adapted from Saputro et al. (2015), while statement about Information Quality (X_2), Service Quality (X_3), Usage (Y_1), and User Satisfaction (Y_2) were adapted from Trihandayani et al. (2018). As many as 81 questionnaires were distributed with a 100

percent return rate and are eligible to be used as research data. The research instrument was first subjected to validity and reliability tests. Data analysis techniques used is PLS-SEM.

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics provide a general description of each variable showing the minimum value, maximum value, average value and standard deviation. Descriptive statistic results are presented in Table 2 below:

Table 2. Descriptive Statistic

Variables	N	Min.	Max.	Avrg.	Dev. Std.
X ₁	81	2,6	4,0	3,3383	1,95986
X ₂	81	2,4	4,0	3,3309	1,91808
X ₃	81	2,3	4,0	3,3374	1,20927
Y ₁	81	2,3	4,0	3,2963	1,24499
Y ₂	81	1,0	4,0	3,2675	1,39122
Y ₃	81	2,8	4,0	3,3259	1,73526

System Quality Variable (X1) has a value between 2.6-4.0 with an average value of 3.3383 and a standard deviation value of 1.95986. The Information Quality Variable (X2) has a value between 2.4-4.0 with an average value of 3.3309 and a standard deviation value of 1.91808. Service Quality Variable (X3) has a value between 2.3-4.0 with an average value of 3.3374 and a standard deviation value of 1.20927. System Use Variable (Y1) has a value between 2.3-4.0 with an average value of 3.2963 and a standard deviation value of 1.24499. The User Satisfaction Variable (Y2) has a value between 1.0-4.0 with an average value of 3.2675 and a standard deviation value of 1.39122. The Net Benefit variable (Y3) has a value between 2.8-4.0 with an average value of 3.3259 and a standard deviation value of 1.73526. Each standard deviation indicates a value smaller than the mean which means the distribution of small data variables or the absence of a large enough gap between the lowest and smallest data. Table 2 shows the distribution of answers from each respondent giving agreed answers to the questionnaire statement because the average value is closer to the maximum value.

Research Instrument Test

Validity test

Research instruments consisting of items of System Quality (X1), Information Quality (X2), Service Quality (X3), System Usage (Y1), User Satisfaction (Y2), and Net Benefit (Y3) requirements are valid. An instrument is said to be valid if it has a correlation coefficient between the items with a total score in the instrument greater than 0.30 with an alpha error rate of 0.05 so that each instrument in this study can be further analyzed.

Reliability Test

The reliability test of this research instrument uses the Cronbach's Alpha value. Cronbach's Alpha test results in Table 3 show all research instruments have values above 0.60 so it can be said that all research variables are reliable.

Table 3. Reliability Test Result

No	Variables	<i>Cronbach's Alpha</i>	Information
1	System Quality (X ₁)	0,834	Reliable
2	Information Quality (X ₂)	0,856	Reliable
3	Service Quality (X ₃)	0,829	Reliable
4	Usage (Y ₁)	0,881	Reliable
5	User Satisfaction (Y ₂)	0,872	Reliable
6	Net Benefit (Y ₃)	0,834	Reliable

Convergent Validity

Convergent validity with reflexive indicators can be seen from the correlation or loading factor between the indicator score and the variable score. Individual indicators are considered reliable if they have a correlation value above 0.50. The convergent validity test results show that the entire value of the variable outer loading indicator has a value greater than 0.50. Thus, it can be concluded that all indicators meet the convergent validity requirements.

Outer Model Test

Discriminant validity

Discriminant validity test can be seen from the value of cross loading between research variables. Another discriminant validity test is by assessing the validity of the variable from the average variance extracted (AVE) value, the model is said to be good if the AVE of each

variable's value is greater than 0.50. The calculation results show that the AVE value of all variables is greater than 0.50 so the model can be said to be good.

Composite Reliability

In addition to the validity test, a variable reliability test is also measured by two criteria, namely composite reliability and Cronbach's alpha from the indicator block that measures variables. Variables are declared reliable if the composite reliability and Cronbach's alpha values are above 0.70, the results of composite reliability and Cronbach's alpha variable output System quality, information quality, service quality, system usage, user satisfaction and net benefits are all above 0.70. Thus, it can be explained that all variables have good reliability.

Inner Model Test

In this structural model, there are two dependent variables, namely: Usage (Y₁), user satisfaction (Y₂) and net benefits (Y₃). The coefficient of determination (R²) of each dependent variable can be presented in Table 4 below.

Table 4. Determination Coefficient

Variables	R-square	R-square Adjusted
Usage (Y ₁)	0,586	0,570
User Satisfaction (Y ₂)	0,551	0,534
Net Benefits (Y ₃)	0,491	0,477

To measure how well the observational values generated by the model and also the estimated parameters, it is necessary to calculate Q-square (Q²) as follows:

$$\begin{aligned}
 Q^2 &= 1 - (1 - R_1^2) (1 - R_2^2) (1 - R_3^2) \\
 &= 1 - (1 - 0,586) (1 - 0,551) (1 - 0,491) \\
 &= 1 - (0,414) (0,449) (0,509) \\
 &= 1 - 0,095 = 0,905
 \end{aligned}$$

Q² value has a value with a range of 0 < Q² < 1, where the closer to 1 means the model is getting better, the results obtained Q² value of 0.905, so the model has a very good predictive relevance, Thus, it can be explained that 90,5 percent of the variation in net benefits is influenced by system quality, information quality, service quality, usage and user satisfaction while the remaining 9.5 percent is influenced by other variables.

Hypothesis testing

This study uses a Partial Least Square (PLS) analysis approach to test the research hypotheses that have been stated previously. Based on the results of path coefficients, it can be determined the results of testing the hypothesis presented in the following description.

Hypothesis testing on the effect of system quality on system usage generate positive correlation coefficient of 0.330 with t Statistics Value obtained of 2.541 ($>$ t-critical 1.96), then the effect of system quality on system usage is significant and the hypothesis stating that the system quality positive effect on the use of accounting information systems received.

Hypothesis testing on the influence of information quality on system usage generate a positive correlation coefficient of 0.295 with t Statistics Value obtained at 2.333 ($>$ t-critical 1.96), then the influence of information quality on system usage is significant, thus the hypothesis stating that information quality positive effect on the use of accounting information systems received,

Hypothesis testing on the effect of service quality on usage produces a positive correlation coefficient value of 0.281 with t Statistics value obtained at 2.528 ($>$ t-critical 1.96), then the effect of service quality on usage is significant, thus the hypothesis stating that service quality positive effect on the use of accounting information systems received,

Hypothesis testing on the effect of system quality on user satisfaction produces a positive correlation coefficient of 0.333 with a t Statistics Value obtained at 2.337 ($>$ t-critical 1.96), then the effect of system quality on user satisfaction is significant, Thus the hypothesis stating that The quality of the system has a positive effect on the satisfaction of users of accounting information systems received.

Hypothesis testing on the effect of information quality on user satisfaction produces a positive correlation coefficient of 0.282 with t Statistics Value obtained at 2.047 ($>$ t-critical 1.96), then the effect of information quality on user satisfaction is significant, Thus the hypothesis stating that Information quality has a positive effect on the satisfaction of users of accounting information systems received.

Hypothesis testing on the effect of service quality on user satisfaction produces a positive correlation coefficient of 0.263 with t Statistics Value obtained at 2.005 ($>$ t-critical 1.96), then the effect of service quality on user satisfaction is significant, Thus the hypothesis stating that Service quality has a positive effect on the satisfaction of users of accounting information systems received,

Hypothesis testing on the effect of Use on Net Benefits yields a positive correlation coefficient of 0.505 with a t Statistics Value obtained at 5.030 ($>$ t-critical 1.96), then the effect of

Use on Net Benefits is significant, Thus the hypothesis stating that Use has an effect positive on Net benefits received,

Hypothesis testing on the effect of user satisfaction on net benefits produces a positive correlation coefficient of 0.265 with t Statistics Value obtained at 2.441 ($>$ t-critical 1.96), then the effect of user satisfaction on net benefits is significant, Thus the hypothesis stating that User satisfaction has a positive effect on the net benefits received

CONCLUSION

Based on the results of the analysis and discussion that has been carried out, it can be concluded the results of this study are as follows:

The quality of the system has a positive effect on system usage. The results of this study indicate that the better quality of the system from the AIS that is applied to the LPD in Denpasar City will increase the intensity of the use of the system itself.

The quality of the system has a positive effect on user satisfaction. The results of this study indicate that the better the quality of the system from the AIS that is applied to the LPD in the city of Denpasar will increase the satisfaction of system users namely LPD employees.

Information quality has a positive effect on system usage. The results of this study indicate that the better the quality of information obtained through the AIS that is applied to the LPD in Denpasar will increase the intensity of the use of the system itself.

Information quality has a positive effect on user satisfaction. The results of this study indicate that the better the quality of information obtained through AIS which is applied to the LPD in Denpasar City will increase the satisfaction of the system users namely LPD employees.

Service quality has a positive effect on system usage. The results of this study indicate that the better the quality of service at AIS that is applied in the LPD in Denpasar City will increase the intensity of the use of the system itself

Quality of service has a positive effect on user satisfaction. The results of this study indicate that the better the quality of service at AIS that is applied in the LPD in Denpasar City, it will increase the satisfaction of the system users namely LPD employees.

The use of the system has a positive effect on Net Benefits. The results of this study indicate that the higher the intensity of the use of the system by employees, it will increase the net benefits received by the LPD.

User satisfaction has a positive effect on Net Benefits. The results of this study indicate that the higher the user satisfaction of the AIS used, the higher the net benefits received by the LPD.

RECOMMENDATIONS

Based on the results of the study, there are some suggestions that can be given for development:

Based on the average value of the System Quality variable (X1) questionnaire statement, respondents tend to give the lowest value on the error recovery indicator. This shows that the ability of the system to carry out error recovery is not functioning optimally. In the future it can be added so that the ability of the system in error recovery is improved so that it can improve the performance of the accounting information system.

Based on the average value of the Information Quality variable (X2) questionnaire statement, respondents tend to give the lowest value on the relevant indicators, accuracy, timeliness, shape. This shows that respondents assess the item quality of information generated by the Accounting Information system is not optimal so it needs to be improved again. In the future it can be input so that the accounting information system is able to produce information that has a high level of accuracy and timeliness, as well as forms that are appropriate to the needs of the user.

Based on the average value of the Service Quality variable (X3) questionnaire statement, respondents tend to give the lowest value on the empathy indicator. This shows that the existing accounting information system has a level of empathy that is lacking so it is considered to lack understanding of user needs. In the future can be input so that information system services are improved, especially in understanding what user need.

Based on the average value of the System Use variable (Y1) questionnaire statement, respondents tend to give the lowest value on the duration of use indicator. This shows that the duration of the use of accounting information systems is still short. In the future it can be input so that the duration of the use of information systems is increased in order to maximize the benefits that can be received by individuals and organizations.

Based on the average value of the user satisfaction variable (Y2) questionnaire statement, respondents tend to give the lowest value on the satisfaction indicator for providing information as needed. This shows that the information system in meeting user needs is less than optimal so that the satisfaction obtained is also still low. In the future can be input so that system developers pay attention to things that can increase user satisfaction, especially in providing the information needed.

Based on the average value of the net benefit variable questionnaire statement (Y3), respondents tend to give the lowest value on indicators of job performance and usefulness in work. This shows that the benefits received by users in order to improve performance and obtain ease in work due to using information systems are still low. In the future can be input so

that information systems can maximize the benefits generated so that it can be felt both by individuals and institutions.

This study has limitations in the study sample which is only taking 27 LPD samples from a total of 35 LPD in Denpasar. This is caused by 8 other LPDs that have not yet applied the Accounting Information System application developed by PT .USSI as AIS LPD's development partner. The application of LPD AIS from PT .USSI is carried out in stages in several LPDs in regencies / cities every year so that it is expected that in the future all LPDs in Denpasar will use the same AIS.

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