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PROTOTYPE OF DEVELOPMENT OF INVENTORY ASSET INFORMATION SYSTEM FOR PROJECT MANAGEMENT COMPANY USING THE SUCCESS DELONE AND MCLEAN MODEL APPROACH: CASE STUDY PT. INDOSAT OOREDOO TBK

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Abstract:

Asset Inventory company which is a basic facility for employees to carry out their daily work. Very large number of devices more than 1000 devices. At this time, the process of distributing device devices used by employees is still not good, because there are still frequent delays in device delivery and control of usage, maintenance of these devices. In every year there is always a system of changing devices (device updates). This has caused the asset and IT admin difficulties in carrying out their work, and makes manual recording an alternative. To improve the Asset Inventory Management system process that has been running all this time, it is necessary to develop a new inventory asset system, which is expected to be able to assist the management activities of the company's inventory assets up to its implementation. The development of the new information system Asset Inventory Management will be made with a prototype and measurement model or testing the success model of Delone and McLean (2003).

Keywords **— Asset Inventory, Information System, Delone and McLean, Prototype Model.**

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I. INTRODUCTION

Asset management is the science and art of guiding wealth management which includes the process of planning asset needs, obtaining, inventorying, carrying out legal audits, assessing, operating, maintaining, explaining or eliminating to transfer assets effectively and efficiently [11].

In the Asset Inventory management process is certainly not easy because of the large number of devices or assets in Indosat Ooredoo, more than 1000 devices. Current asset inventory management, what is used is still not good, every year there is always a system of changes (device updates). For Indosat employees, they must replace their old device with a new device in accordance with company policy. This has caused IT administration and admin difficulties in managing assets, so it is often hampered in the delivery process and asset maintenance controls.

In this problem, manual recording is still an alternative. In this case manual data collection is often lost or stored and not recorded in the system. Based on previous research, about Asset Management Inventory in Centralized Networks using OCS (Open Computer and Software) application method. The basis used by the OCS Inventory application uses Client / server (standard HTTP / HTTPS protocol and XML data format). With this system, it can at least help provide a report on inventory to IT Asset Management centrally. This can occur because the OCS NG Inventory application is a client server, so the admin only accesses information from the OCS NG Inventory Server [15].

Research on Information Systems PT. Pos Indonesia Persero VI regional division Semarang

uses the successful information system model Delone and McLean. By analyzing the relationship between variables including: system quality, information quality, usage, user satisfaction, individual impact, and organizational impact. The structural model or also called the inner model is evaluated by looking at the relationship between the latent construct in the model and seeing the R-square value. Assessing the inner model can be done by looking at the motivated relationship between the latent construct in the research model. By using bootstrap estimations on visual PLS, standard errors can be obtained, path coefficients, and Statistics-T values. With the Bootstrap method, researchers can assess the statistical significance of the research model by testing hypotheses for each relationship pathway. The results showed that the entire information system application of PT. Pos Indonesia (Persero) semarang regional division of Semarang can have a positive influence on the impact of the organization, this can be explained by the indicators of organizational productivity with a loading value of 0.927, an increase in organizational income with a loading value of 0.910 and an increase in organizational performance with a loading value of 0.974 so that the information system Pos can be said to be successful or successful in its application [16].

Research on the Analysis of Successful Implementation of Hospitality Systems with Delone and McLean Model Approaches. The purpose of this study was to determine the level of success of the application of hospitality systems and which variables most influence user satisfaction. This study uses 4 variables from the Delone and McLean method: system quality, information quality, service quality, and user satisfaction. The number of respondents currently in use is 35 people. The results of this study indicate that the application success rate is 31.1%, so it can be concluded that the system needs to be improved. Users assess the system is less reliable and does not have good access speed. Some data and information on the system are inaccurate and inaccurate. Variables that affect user satisfaction are service quality variables [1].

Research on the validation of the 1992 and 2003 models from Delone and Mclean in the Indian state education system Maharashtra (A Validation of the Delone and McLean Models on the Maharashtra State Indian Education Information System). Where the problem faced is a short time hampering the performance of individuals with a manual work system so that there is less service satisfaction to customers. To facilitate the implementation of the project, the researchers modeled the success of the information system using Delone and McLean which focused on reviewing system evaluations and validation. The result of this study is that the Delone and McLean models feel satisfying because the quality of the UDISE information system (Unified District Information System) is useful and easy to understand, the quality of services supports well and systems that can meet needs [12].

II. THEORETICAL FOUNDATION

A. Definition of Project Management

Project management is the application of knowledge (knowledge), skills (skills), tools (tools) and techniques (techniques) in project activities to meet project needs [10].

B. Understanding of Asset Management

Asset management is the science and art of engineering that allows processes, assets, obtaining, inventorying, and carrying out legal audits, assessing, operating and then maintaining, explaining or eliminating to be efficient and efficient [13].

C. Basic Success of Information Technology Systems

A good model is a complete but simple model. This type of model is called the parsimony model. Based on the theory and results of previous studies that have been reviewed, Delone and McLean (1992) then developed parsiomy models which they called the Delone and McLean Information System Success Model (D & M IS Success Model) as follows: [5]

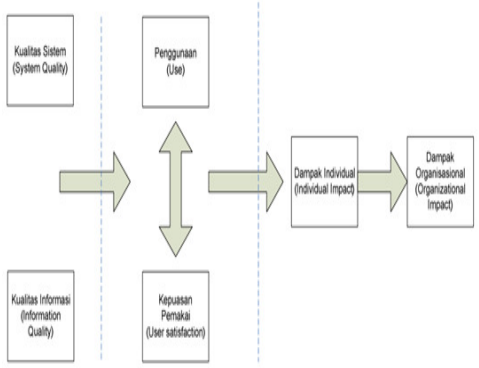

Figure 1 Delone and McLean Information System Success Model (1992).

Delone and McLean (2003) updated the model and called it the D & M excellence information system model (updating the successful D & M IS model). The things that provide this are as follows:

1. Adding dimensions of service quality (service quality) in addition to existing dimensions, namely system quality (system quality) and quality - information quality (information quality).
2. Combining individual impact (individual impact) and organizational impact (organizational impact) into one variable, namely net benefits (net benefits). This purpose is to keep the model simple (parsimony). These new variables raise three new issues that need to be considered, namely:
3. serving the dimensions of interest (intention to use) as an alternative to the dimensions of the user (usage). Delone and McLean (2003) proposed alternative measurements, namely interest in using (intention to use). Using attitude (attitude), while using (use) is behavior (behavior).
4. Usage (usage) and user satisfaction (user satisfaction) are very closely related. Usage (usage) must precede user satisfaction (user satisfaction) according to the process, but a positive experience of using (using) will achieve a higher value. Equally, increasing satisfaction will use the use interest (intention to use) and then will use (use).
5. If the net benefits (net benefits) will attract positive interest, and also use the level of user satisfaction. This feedback is still valid even for negative net benefits.
6. A model that has the direction of an arrow to demonstrate the proposed relationship between dimensions in the form of a process, but does not show a positive or negative direction in a causal form.

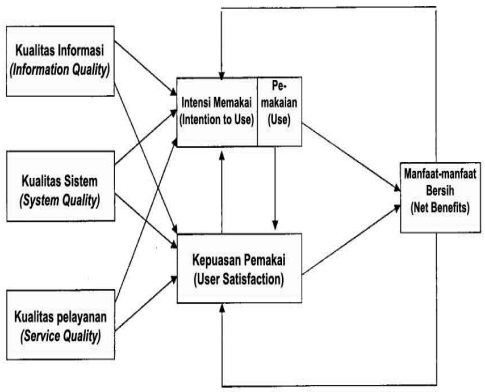

Figure 2 Information system success model (D & M 2003).

III. RESEARCH METHOD

In this research, the Company Asset Inventory Management Information System Development used quantitative descriptive research methods. This study also uses a method for system development which is a prototype model and testing system functions that use the Delone and McLean 2003 company model. The reason used is the prototype method used for the goods inventory management information system that changes the needs of the system according to needs users, and the system's payment method is the success model of Delone and McLean 2003 and is very suitable as a system success model created by paying attention to each variable calculated based on the functioning of the system.

Qualitative research is the process of finding knowledge that uses numerical data as a means of analyzing what information is known. [6] in the book Qualitative and Quantitative Research Methodology.

The process of the prototype system model at this time is as follows:

a. Gathering needs
   Interview with the user to determine the general purpose of the needs and the parts that will be needed next.
b. Designer
   The design is done to design prototypes that match the purpose and needs of the prototype according to needs by cutting down the system requirements needed in the old asset inventory management.
c. Evaluation prototype
   The user evaluates the prototype that is made and is, clarifies the system requirements. Prototypes are made to satisfy the needs of users and to understand it better, and also as a device data controller.

IV. DISCUSSION

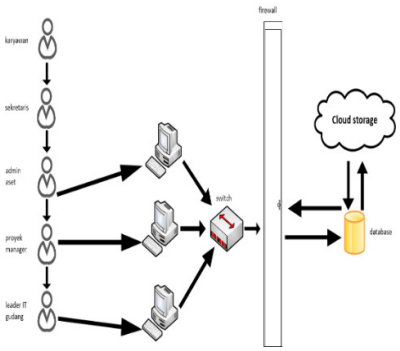

Figure 3 Architecture of the Asset Asset Management System Model Design

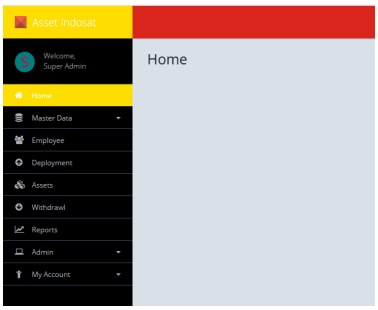

Figure 4 Prototype of the Asset Inventory Management System

A. System Testing

Table 1
Criteria for selecting answers to questionnaires using a Likert scale

Options	Criteria	Score
A	Very good: satisfying, good, appropriate, easy, clear	5
B	Good: satisfying, good, easy, clear	4
C	Enough : satisfying, good, easy, clear	3
D	Less : satisfying, good, easy, clear	2
E	Very Less : satisfying, good, easy, clear	1

B. Hypothesis Testing Results

1. Test Results Information quality (IQ) variablesInformation quality (IQ) consists of IQ1, IQ2, IQ3.
   The sample used is 5 respondents.Assessment of questionnaires with 5 respondents and 5 questions for aspects of information quality.
   a. The maximum value on the quality of information is 21 and the minimum value is 17
   b. The results of the analysis obtained mean (19, 6), median (19), mode (none), standard deviation (3.361547)

Table 2
Frequency of Information Quality (IQ)

NO	Score	Frecuency	Frecuency relative
1	16	1	20%
2	24	1	20%
3	17	1	20%
4	22	1	20%
5	19	1	20%
Total	98	5	100%

2. System quality variable test results (SYQ)

The maximum value on the quality of information is 21 and the minimum value is 17. The results of the analysis obtained the mean values (19, 5), median (19.5), mode (20), standard deviation (1,67332).

Table 3
System quality frequency table (SYQ)

NO	Score	Frecuency	Frecuency relative
1	23	1	20%
2	28	1	20%
3	19	1	20%
4	26	1	20%
5	18	1	20%
Total	114	5	100%

3. Service quality variable test results (SQ)
The maximum value on the quality of information is 23 and the minimum value is 18. The results of the analysis are the mean value (21), median (22), mode (none), standard deviation (2,645751).

Table 4
Service quality frequency table (SQ)

No	Score	Frecuency	Frecuency relative
1	15	1	20%
2	13	2	40%
3	11	2	40%
Total	39	5	100%

4. Test user variables (U)
The maximum value on the quality of information is 23 and the minimum value is 22. The results of the analysis are the mean (22.5), median (22.5), mode (none), standard deviation (0.707107).

Table 5
User Frequency Table (U)

No.	Score	Frecuency	Frecuency relative
1	10	3	60%
2	8	1	20%
3	7	1	20%
Total	25	5	100%

5. Test results of user satisfaction variables (US)
The maximum value on the quality of information is 22 and the minimum value is 22. The results of the analysis obtained mean (22), median (22), mode (22), standard deviation (0)

Table 6
Table Frequency of user satisfaction (SQ)

No	Score	Frecuency	Frecuency relative
1	9	4	80%
2	8	1	20%
Total	17	5	100%

6. Net profit variable test results (NB)
The maximum value on the quality of information is 24 and the minimum value is 22. The results of the analysis obtained the mean value (22.666667), median (22), mode (22), standard deviation (1.154701)

Table 7
Table of Frequency of net profit (NB)

NO	Score	Frecuency	Frecuency relative
1	15	2	40%
2	14	1	20%
3	13	1	20%
4	11	1	20%
Total	53	5	100%

C. Percentage of score

Table 8
Interpretation of the percentage criteria for the results of the questionnaire

Category	Percentage (%)
Very Good	84,01% - 100%
Good	68,01% - 84,00%
Enough	52,01 – 68,00%
Less	36,01% - 52,00 %
Very Les	20,00% - 36,00%

1. In the table of results of information quality (IQ) test results using 5 respondents and 5 questions. Calculation of the results of the interview above is done with a Likert scale. Here's how to calculate the results of observations using Akala LIKERT:Jumlah skor untuk 3 orang yang menjawab Total score for 3 people who answered Very Good (SB)(5) : 3 x 5 = 15

Total score for 5 people who answered Good (B) (4) : 5 x 4 = 20

Total score for 3 people who answered Enough (C) (3) : 3 x 3 = 9

The number of scores for 0 people who answered less (K) (2) : 0 x 1 =

Total score for 0 people who answered less (SK) (1) : 0 x1 = 0
Amount: 15 + 20 + 9 + 0 + 0 = 44

The number of respondents who answered SB, B, C, K, SK: 3 + 5 + 3 + 0 + 0 = 11

Number of ideal scores for questions submitted to respondents:
a) Highest score: 5 x 11 = 55 (Very Good)
b) Lowest score: 1x 11 = 11 (Very Less)

Interpretation of score of observation results: (44/55) x 100%) = 80%

The quality of information goes well.

2. In the system quality variable results table (SYQ) using 5 respondents and 6 questions. Collecting the results of interviews is done on a Likert scale. Here's how to calculate results using Akala LIKERT:

Score for 2 people who answered Very Good (SB) (5) : 2 x 5 = 10
Results for 5 people who answered Good (B) (4) : 5 x 4 = 20
Achieve a score for 2 people who answered Enough (C) (3) : 2 x 3 = 6
Results for 2 people who answered less (K) (2) : 2 x 2 = 4
Achieve a score for 0 people who answered less (SK) (1) : 0 x1 = 0

Amount: 10 + 20 + 6 + 2 + 0 = 40

The number of respondents who answered SB, B, C, K, SK: 2 + 5 + 2 + 2 + 0 = 11

Ideal score for questions submitted to respondents:
a) Highest score: 5 x 11 = 55 (Very Good)
b. Lowest score: 1 x 11 = 11 (Very Less)

Interpretation of score of observations: (40/55) x 100% = 72,7272%

The quality of information goes well

3. In the table of results of quality service variable (SQ) test using 5 respondents and 3 questions. Collecting the results of interviews is done on a Likert scale. Here's how to calculate results using Akala LIKERT:

Score for 3 people who answered Very Good (SB) (5) : 3 x 5 = 15
Achieve a score for 3 people who answered Good (B) (4) : 3 x 4 = 12
Achieve a score for 3 people who answered Enough (C) (3) : 3 x 3 = 9
Achieve a score for 0 people who answered less (K) (2) : 0 x 2 = 0

Achieve a score for 0 people who answered less (SK) (1) : 0 x1 = 0

Amount: 15 + 12 + 9 + 0 + 0 = 36

The number of respondents who answered SB, B, C, K, SK: 3 + 3 + 3 + 0 + 0 = 9

Ideal score for questions submitted to respondents:
a) Highest score: 5 x 9 = 45 (Very Good)
b) Lowest score: 1 x 9 = 9 (Very Less)

Interpretation of results: (36/45) x 100% = 80%
Service quality goes well

4. In the user answer table (U) using 5 respondents and 2 questions. Collecting the results of interviews is done on a Likert scale. Here's how to calculate results using Akala LIKERT:

Score for 3 people who answered Very Good (SB) (5) : 3 x 5 = 15
Achieve a score for 2 people who answered Good (B) (4) : 2 x 4 = 8
Achieve a score for 1 person who answers Enough (C) (3) : 1 x 3 = 3
Achieve a score for 0 people who answered less (K) (2) : 0 x 2 = 0
Achieve a score for 0 people who answered less (SK) (1) : 0 x1 = 0

Amount: 15 + 8 + 3 + 0 + 0 = 26

The number of respondents who answered SB, B, C, K, SK: 3 + 2 + 1 + 0 + 0 = 6

Ideal score for questions submitted to respondents:
a) Highest score: 5 x 6 = 30 (Very Good)
b) Lowest score: 1 x 6 = 6 (Very Less)

Interpretation of score of observation results: (26/30) x 100% = 78%

5. Basic users will run well. By using 5 respondents and 2 questions. Collecting the results of interviews is done on a Likert scale. Here's how to calculate results using Akala LIKERT:

Figures for 4 people who answered Very Good (SB) (5) : 4 x 5 = 20
Results for 5 people who answered Good (B) (4) : 5 x 4 = 20
Achieve a score for 0 people who answered Enough (C) (3) : 0 x 3 = 0
Achieve a score for 0 people who answered less (K) (2) : 0 x 1 = 0
Achieve a score for 0 people who answered less (SK) (1) : 0 x1 = 0

Amount: 20 + 20 + 0 + 0 + 0 = 40
The number of respondents who answered SB, B, C, K, SK: 4 + 5 + 0 + 0 + 0 = 9

Ideal score for questions submitted to respondents:
a) Highest score: 5 x 9 = 45 (Very Good)
b) Lowest score: 1 x 9 = 9 (Very Less)

Interpretation of score of observation results: (40/45) x 100% = 88, 89%
In general, the user runs very well

6. In the table of net variable test results (NB) using 5 respondents and 3 questions. Collecting the results of interviews is done on a Likert scale. Here's how to calculate results using Akala LIKERT:

Figures for 4 people who answered Very Good (SB) (5) : 4 x 5 = 20
Achieve a score for 3 people who answered Good (B) (4) : 3 x 4 = 12
Achieve a score for 1 person who answers Enough (C) (3) : 1 x 3 = 3
Achieve a score for 0 people who answered less (K) (2) : 0 x 1 = 0
Achieve a score for 0 people who answered less (SK) (1) : 0 x1 = 0

Amount: 20 + 12 + 3 + 0 + 0 = 35

The number of respondents who answered SB, B, C, K, SK: 4 + 3 + 1 + 0 + 0 = 8

Ideal score for questions submitted to respondents:

a) Highest score: 5 x 8 = 40 (Very Good)
b) Lowest score: 1 x 8 = 8 (Very Less)

Interpretation of results: (35/40) x 100% = 87.5%

Net profit goes very well

V. CONCLUSION

1. From the conclusions in the previous chapters it can be concluded some of the forototipe sistem *asset inventory management*this can provide an effective user in the inventory data inventory process especially for the part of the device delivery process for employees because the system is needed as needed.
2. From the results of the asset inventory system Prototype test management steps taken to control the asset inventory project can be well organized because of the results of the prototype test that suits the needs of users, where the prototype outputs produce accurate data or reports according to user needs.
3. System testing results are accurate accordingly and errors in the system are minimal with measurement evidence of the Delone and McLean success model 2003 the results are as follows.

a. System testing results using the Delone and McLean 2003 success model approach with statistical calculations.
b. System testing results with the Delone and McLean 2003 success model approach with Likert scale calculation.

4. The results of the information quality variable (IQ) test with an interpretation of the 80% watch results score then, the quality of information goes well.
5. The results of the system quality variable experiment (SYQ) with the interpretation of the score of the observation results 72.7272% then, the quality of the information went well.
6. The results of the service quality variable test (SQ) with the interpretation of the 80% observation score in service quality went well.
7. The results of the user variable test (U) with the interpretation of the 78% watch results score are running well.
8. Test results of user satisfaction variables (AS) with interpretation of the results of observations: (40/45) x 100% = 88, 89% publicly the user runs very well.
9. The net variable (NB) test results with the interpretation of 87.5% observation scores efficiently run very well.

VI. SUGGESTIONS

Based on the above conclusions, there are still many mistakes in competition or the preparation of this thesis, it is expected to provide constructive criticism and suggestions. The author hopes, for further research can be developed a better system, in order to facilitate users in doing their work.

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