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User Satisfaction Analysis of M-Tix Application in Batam City Using the DeLone and McLean Model

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Abstract

M-Tix is an application that provides online movie ticket services, launched in 2015 and has been widely used. This study' objectives are to determine the satisfaction level of M-Tix users in Batam City. This research used DeLone and McLean model, collecting data with quantitative method with 418 respondents and qualitative method with 30 informants as well as using SPSS and AMOS for data testing. This study's findings indicate that all hypotheses have a positive impact between the variables and can be concluded that M-Tix users in Batam City are satisfied during the application usage.

Keywords: M-Tix, User Satisfaction, Analysis, E-ticket, DeLone and McLean

Introduction

The rapid development of technology has significantly bring a major impact on today's society, especially in the field of information and communication technology. At present, technology is a tool used for living, working, teaching and learning, pushing almost all agencies into computer-based technology systems (Mohsa et al., 2023). Some of the benefits of technology are that it encourages us to increase one's creativity, increase the productivity of a job, allow a person to have access to learning previously unknown sciences so as to broaden their knowledge, therefore people must be able to adapt to technological advances. It is undeniable that in this modern era everyone has used technology, where one of the developments in information and communication technology that we most often use is e-ticket or online ticketing.

E-ticket or electronic ticket is a digitized ticket that documents online ticket sales (Huda & Fernando, 2021), where the advantage of purchasing tickets online is that it can be done anywhere and anytime, making it more practical in the purchase process, no need to queue at the ticket purchase location. Online ticket purchases can prevent the loss of physical tickets and with the many ticket purchasing media that have been supported by banks, payments can

also be made by m-banking which is also included in the development of digital technology (Hojski et al., 2022).

Following the times, M-Tix application is under PT Nusantara Sejahtera Raya which is an application that offers a convenience for consumers by providing a medium for booking Cinema XXI movie tickets online based on Android or IOS. The M-Tix application was first launched in 2015, based on data on the Google Play Store, the M-Tix application has been downloaded as many as 10 million downloads by users until November 2023, this shows that user enthusiasm in watching movies in theaters with M-Tix is quite high. With the M-Tix application, it has provided convenience and efficiency to consumer users who want to watch movies in theaters (Rahman et al., 2023), in addition to easily making transactions to purchase movie tickets, users can also view information about existing films where this convenience can be done anywhere and anytime.

During its operation, there were still complaints submitted by its users about the M-Tix application. Based on user feedback review data on the Google Play Store until November 2023, the problems conveyed are not getting an e-ticket after the transaction is made, an unattractive User Interface display and an error during the ordering process. These complaints will certainly reduce user satisfaction in using the M-Tix application, therefore it is necessary to analyze the success of its application to find out what factors need to be improved in order to provide satisfaction for its users.

From the existing problems, this research was conducted with the title "User Satisfaction Analysis of M-Tix Application in Batam City Using the DeLone and McLean Model", which aims to analyze the M-Tix application success in bringing satisfaction to its users in Batam City, with hope that it can help M-Tix developers and Cinema XXI cinemas to improve their services in providing satisfaction for their users.

Literature Review

This research was conducted based on research (A. B. Wijaya et al., 2021), their research focuses on analyzing the success factors of e-Commerce (B2C) on M-Tix users. The study's objective was to determine the various success factors of M-Tix application in influencing changes in the purchase of XXI Cinema tickets in Surabaya. The research was conducted using a quantitative method in the form of a questionnaire with the DeLone and McLean model approach (ISSM) which will be analyzed based on the path (path analysis). The study's findings indicate that that the success factor of M-Tix in Surabaya is influenced by Service Quality so that users feel satisfied in their use experience.

Other research is based on research (Safitry et al., 2022), their research focuses on analyzing the elements that affect how people use the TIX.ID application in Samarinda City. The study's objective was to determine the factors of use and the correlation between other factors. The research was conducted with a quantitative method in the form of a questionnaire with the DeLone and McLean (2003) model approach and will use SmartPLS. The study's findings indicate that that System Quality and Service Quality have a positively significant effect on User Satisfaction and affect Initial Use and Benefit.

Other research is based on (Fadhilah & Quranisari, 2022), their research focuses on analyzing M-Tix and TIX ID applications when purchasing movie tickets for students. The study's objective was to measure its effectiveness. The research was conducted with a qualitative descriptive method in the form of a survey with a sample of 50 students. The study's

findings indicate that M-Tix and TIX ID applications are effective for use in purchasing cinema tickets.

Other research is based on research (Putri & Indriyanti, 2023), their research focuses on analyzing the evaluation of usability user interface and user experience in the M-Tix application. The study's objective was to measure and evaluate the dependency aspects of UI and UX. The research was conducted using usability testing (UT) and system usability scale (SUS) methods with a sample of 25 participants. The study's findings indicate 91.67% evaluation in the first stage, 0.084 for the learnability aspect, 0.127 for the efficiency aspect and 54.4 for the satisfaction aspect.

Other research was conducted based on research (Ramadhayanti et al., 2023), their research focuses on analyzing the satisfaction of TIX ID application users. The study's objective was to determine the level of community satisfaction in Jambi City. The research was conducted using the End User Computing Satisfaction (EUCS) method with a sample of 385 respondents. The study's findings indicate that there are 3 hypotheses that have a significant effect between variables, so the TIX ID application is not good enough to meet user expectations.

Research Methods

Research Flow

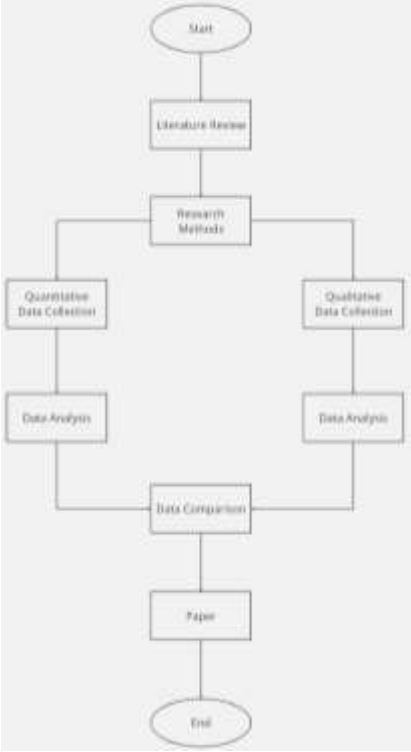

Figure 1. flowchart Analysis M-Tix

Based on figure 1, the initial phase starts with the author searching for references related from other journals, next will identify issues related to the topic as well as the solution for it. After that, collecting data using qualitative and quantitative method, then conducting data analysis where the two data generated will be compared to measure its accuracy. Finally author will draw conclusions by writing it in a form of report.

Data Collection

1. Qualitative

   Data collection is carried out using interview techniques in accordance with research conducted by (Nikan & Adnas, 2023), the author will ask questions to the people of Batam City who are selected to be the target of the interview, a total of 30 people is targeted.

2. Quantitative

   Data collection is carried out by distributing questionnaires in accordance with research conducted by (K. Wijaya, 2023), the target respondents are people who lives in Batam City and used M-Tix application, respondents will provide their answer responses in numbers 1-5, where 1 means disagree, and 5 means agree. Random sampling method is used and Slovin formula which is calculated with a confidence level of 95% and a margin of error of 5%, according to the Badan Pusat Statistik Kota Batam the population is 1,196,396. Which makes the total targeted respondents after using the Slovin formula are 400 people.

$$n = \frac{N}{1+N(e)^2} = \frac{1.196.000}{1+1.196.000\ (0.05)^2} = 399.8$$

Equation 1. Slovin Formula

Research Model

The research model used in this research is the DeLone and McLean model.

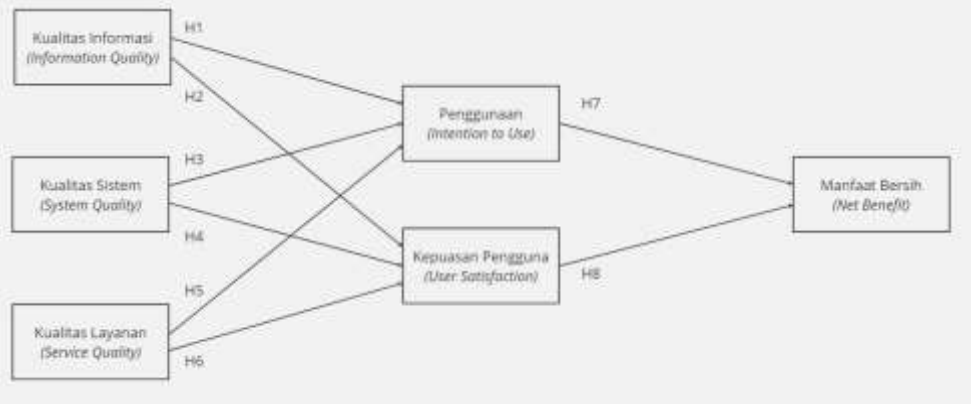

Figure 2. Research Model

Based on figure 2, the hypothesis that will be used is as follows.

H1: The variable of Information Quality positively impacts the variable of Intention to Use.
H2: The variable of Information Quality positively impacts the variable of User Satisfaction.
H1: The variable of System Quality positively impacts the variable of Intention to Use.
H2: The variable of System Quality positively impacts the variable of User Satisfaction.
H1: The variable of Service Quality positively impacts the variable of Intention to Use.
H2: The variable of Service Quality positively impacts the variable of User Satisfaction.
H1: The variable of Intention to Use positively impacts the variable of Net Benefit.
H2: The variable of User Satisfaction positively impacts the variable of Net Benefit.

Variable Determination

Table 1. Operational Definition of Variables

No	Variable	Indicator
1	Information Quality	X1.1: Easy to understand. X1.2: As needed. X1.3: Presented structured. X1.4: Presented appropriately. X1.5: Presented completely.
2	System Quality	X2.1: Accessed anywhere. X2.2: Easy to use. X2.3: Can be used repeatedly. X2.4: Fast respond. X2.5: An useful app.
3	Service Quality	X3.1: security guarantee. X3.2: no racial elements. X3.3: Has fast service.
4	Intention to Use	X4.1: Useful to me. X4.2: Used frequently.
5	User Satisfaction	X5.1: used repeatedly. X5.2: visited repeatedly. X5.3: Given satisfaction.
6	Net Benefit	X6.1: Saves money. X6.2: Saves time. X6.3: More productive. X6.4: Efficient application.

Data Analyisis

1. Qualitative
   a. Data Reduction
      The author will simplify, classify, and discard data from interviews that have been conducted, produced data will have meaningful information and make it easier for the author to draw conclusions.
   b. Data Review
      The author will collect data and arrange it systematically in the form of a narrative according to the characteristics of the informant so that the data will be more organized and easier to understand.
   c. Conclusion and Verification
      The author will draw conclusions from the data that has been collected by looking for relationships, similarities, or differences.
2. Quantitative
   a. Outlier test
      The outlier test is the first stage where the author uses the Microsoft excel application and uses Boxplot on SPSS in removing data that has characteristics and has a value that is far away compared to the others.
   b. Validity Test
      Validity test is conducted to measure the accuracy of the data collected from each of the variable. The validity test is carried out with SPSS application and must prove that the data is valid before the start of reliability test, the data will be considered valid if the Pearson Correlation significant value is below 0.05 and vice versa if the Pearson Correlation significant value is above 0.05 then the data is considered invalid.

c. Reliability Test
   The reliability test is conducted to know if the questionnaire used is reliable or not. The reliability test is carried out with SPSS application and the data is considered reliable if the Cronbach's Alpha value is above 0.6 and vice versa if the Cronbach's Alpha value is below 0.6 then the data is considered unreliable.
d. Structural Equation Modeling Test
   The SEM test is a set of statistical techniques used to assist the process of testing a series of relationships. The SEM test will be carried out in AMOS application, hypothesis testing is proven by the probability of the value obtained, if the value of the probability is less than 0.05 or has the *** symbol then variable has a significant effect which will be accepted and vice versa if the probability value is greater than 0.05, the variable is rejected.
e. Descriptive Statistical Test
   Descriptive statistical tests are carried out in the SPSS application, the test conducted to measure which indicators have the highest average value.
f. Test Coefficient of Determination (R Square)
   The coefficient of determination tests is carried out in the SPSS application, to determine the independent variable effect on the dependent variable, with the independent variables are Information Quality, System Quality and Service Quality, the dependent variable are Intention to Use, User Satisfaction and Net Benefit.

Data Comparison

Comparative comparison of the analysis results carried out in this study is a comparison made between the results of quantitative data tests obtained from M-Tix user questionnaires and the results of qualitative data tests obtained from M-Tix user informant interviews. Where the comparison is carried out to get relationships, similarities, or differences from the two methods that have been carried out. All data generated will be summarized as the conclusion of this research.

Results and Discussion

Table 2. Respondent Demographics Quantitative

Description		Value
Gender	Male	238
	Female	180
Age	≤20	53
	21-30	297
	31-40	54
	41-50	9
	≥ 50	5
Education	Middle School	52
	High School	102
	Diploma	77
	Undergraduate	182
	Master	5

Table 3. Informant Demographics Qualitative

Description		Value
Gender	Male	20
	Female	10
Age	≤20	4
	21-30	22
	31-40	2
	41-50	2
	≥ 50	0
Education	Middle School	0
	High School	4
	Diploma	3
	Undergraduate	23
	Master	0

Table 2 and 3 shows the demographic of the respondent and informant that author collected.

Quantitative Analysis

Before conducting the outlier test, the authors conducted initial testing with 30 respondents to determine the validity and reliability, one it is valid and reliable then an outliner test was carried out where the authors used SPSS Boxplot to determine whether the data was valid for use, the results found that there were 11 invalid data out of 418 data, totalling 407 data.

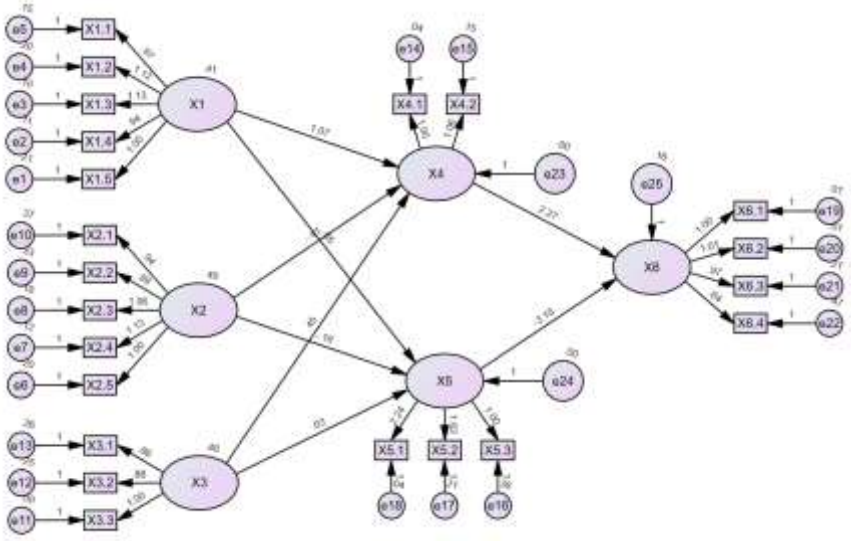

Figure 3. SEM Model Unstandardized Estimates

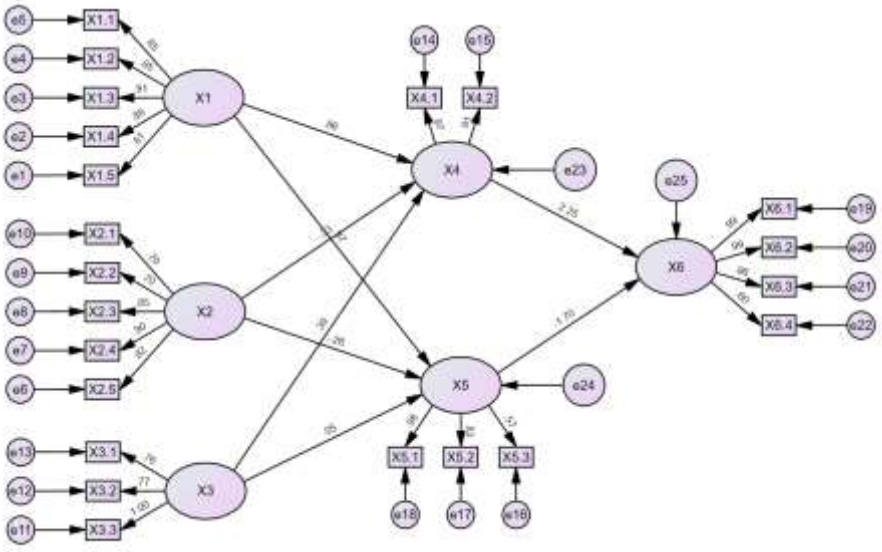

Figure 4. SEM Model Standardized Estimates

The result from the SEM test indicates all variables to be valid and reliable.

Table 4. Regression Weight Test Results

Variable	Estimate	S.E.	C.R.	P
X4 < --- X3	0.448	0.019	23.531	***
X5 < --- X3	0.033	0.010	3.461	***
X4 < --- X2	-0.412	0.023	-17.600	***
X5 < --- X2	-0.177	0.017	-10.199	***
X5 < --- X1	0.645	0..52	12.409	***
X4 < --- X1	1.066	0.042	25.634	***
X6 < --- X4	2.267	0.115	19.773	***
X6 < --- X5	-3.184	0.310	-10.259	***

Based on table 4, the results obtained in the Regression Weight test have a P value of ***, so it can be concluded that all hypotheses have been accepted.

Table 5. Descriptive Statistic Test Results

Indicator	Mean	Standard Deviation
X1.1	4.1007	0.73423
X1.2	3.9705	0.84755
X1.3	3.9705	0.79041
X1.4	4.0983	0.68421
X1.5	4.2555	0.78694
X2.1	4.0197	0.85363
X2.2	3.9435	0.80897
X2.3	4.1057	0.80095
X2.4	4.1916	0.79879
X2.5	4.2359	0.78055
X3.1	4.0958	0.78040

X3.2	4.1966	0.78514
X3.3	4.1130	0.68911
X4.1	3.9165	0.77707
X4.2	3.9189	0.88268
X5.1	3.9877	0.79861
X5.2	4.1229	0.72577
X5.3	4.2727	0.70663
X6.1	4.2310	0.74326
X6.2	4.2236	0.75046
X6.3	4.0319	0.84891
X6.4	4.2310	0.83088

Based on table 5, the descriptive statistic test results show that the indicator that has the highest mean is X1.5 with 4.2555, X2.5 with 4.2359, X3.2 with 4.1966, X4.2 with 3.9189, X5.3 with 4.2727, X6.1 and X7.4 with 4.2310.

Table 6. Results of R Square X1, X2 and X3 on X4

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.911	0.829	0.828	0.33296

Table 7. Results of R Square X1, X2 and X3 on X5

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.945	0.894	0.893	0.21133

Table 8. Results of R Square X4 and X5 on X6

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.901	0.811	0.810	0.30309

Tables 6, 7 and 8 shows variables of Information Quality, System Quality and Service Quality positively impacts Intention to Use by 82.9% and User Satisfaction by 89.4% along with the variables of Intention to Use and User Satisfaction positively impacts Net Benefit by 81.1%. While the remaining 17.1%, 10.6% and 18.9% is influenced by other variables.

Based on the research that has been done, it can be concluded as follows.

1. Information Quality positively impacts Intention to Use and User Satisfaction. When using the application, it is desirable to have a display that is easy to see, with that display, users will be more satisfied during the use of the application, with clearly organized information, users are not confused in reading the information that has been provided (Pramudito et al., 2023).
2. System Quality positively impacts Intention to Use and User Satisfaction. With a system that works properly, users can use the application continuously, applications that are easy to use and there are no obstacles during the use period can increase user satisfaction (Beatrix, 2022).

3. Service Quality positively impacts Intention to Use and User Satisfaction. Applications that are safe and have no negative elements are suitable for use by the community, so that many users can also take advantage of using the application (Twuma et al., 2022).
4. Intention to Use and User Satisfaction positively impacts Net Benefit. Providing benefits when using an application is a positive value that can be given to its users, so that it has users who use the application in the long term (Kuo & Hsu, 2022).

Qualitative Analysis

Based on the results of the informant's answers collected, the conclusions that can be drawn are as follows.

1. Informants feel that the quality of information they have is an application that is easy to understand, in accordance with their needs, structured, precise, and complete.
2. Informants feel that the quality of the system is an application that can be accessed anywhere, is easy to use, can be used repeatedly, responds quickly to commands and is useful.
3. Informants feel that the quality of the service they have is an application that guarantees security, fast service and does not contain racial elements.
4. Informants feel that the use they have is a useful and frequently used application.
5. Informants feel that the user satisfaction they have is an application that will be used repeatedly, visited repeatedly, and provides satisfaction in its use.
6. Informants feel that the net benefits they have are applications that save costs, time, are productive and efficient.

Comparison of Result

The results obtained from quantitative and qualitative test results have many similarities, variables such as Information Quality with indicators in the form of information displays presented, System Quality with indicators in the form of ease of use of applications, Service Quality with indicators in the form of application services provided, Use with indicators in the form of interest in use, User Satisfaction with indicators in the form of successful use and Net Benefits with indicators in the form of advantages provided in its use.

Conclusions

The study's finding indicates that the variables of Information Quality, System Quality, Service Quality, Intention to Use, User Satisfaction and Net Benefit have an influence in satisfying M-Tix application users. The results of quantitative research show that all variables have an average value above 3.91 and relationship between variables has a significant effect on each other, with the highest value 89.4%. With the obtained results, it implies that M-Tix application users are satisfied with the application's use with a note that the M-Tix application should continue to innovate in the future as it continues to be used.

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