

THE CITIZENS ACCEPTANCE FACTORS OF TRANSPORTATION APPLICATION ONLINE IN BATAM: AN ADAPTATION OF THE UTAUT2 MODEL AND INFORMATION SYSTEM SUCCESS MODEL

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ABSTRACT

The growth of the internet and the advance of information technology, made very significant changes to transportation in Indonesia especially in Batam City. The emergence of applications for online transportations services such as Gojek / Grab has made some people switch to using conventional transportation to online transportation. But with the development of online transportation, there are still people in Batam City taking action against online transportation. For this reason, researchers conducted research to look for factors that influence the acceptance of the people of Batam City on online transportation. The researcher used the UTAUT2 research model (Unified Theory of Acceptance and Use of Technology 2) and the IS Success Model DeLone & McLean. The construct of this research model uses constructs of performance expectancy, effort expectancy, facilitating conditions, price value, information quality, system quality, service quality, behavioral intention, user satisfaction, use behavior. The number of respondents in this study amounted to 400 respondents using SPSS Amos version 22. The results of the analysis showed that the factors that significantly influenced the acceptance of the people of Batam City on the application of online transportation services were seen from constructs of behavioral intention (user intention) 91.2%, performance expectancy is 51.7%, price value is 42.6%, while construct of user satisfaction is influenced by system quality by 68%, information quality is 28.2%, service quality is 12.6%.

Keywords: *Transportation application online, UTAUT2, Information System Success Model Five*

1 INTRODUCTION

The growth of the internet and advances in information technology, making significant changes to online application-based transportation in the city of Batam - Indonesia, where people can order transportation online through the application. With the existence of application-based online transportation, the shift in the power of people's interest in using conventional transportation to application-based online transportation. The online transportation that develops in Batam City are: Gojek, WakJek, Grab and Uber with 4000 Gojek drivers, Grab as many as 3,000 drivers and 1,000 drivers with a percentage of Gojek drivers of 50%, Grab 37% and Wakjek 12.5%

One of the factors that made the switch of Batam City people to switch to using online transportation was the price factor. Prices issued by users are cheaper than using conventional transportation. In addition to prices, a sense of comfort for consumers and facilitating getting online transportation is a factor in the shift of the people of Batam City to online transportation.

Cheaper price factors, better service and ease of obtaining drivers are some of the factors that make the switch from Batam City people to use transportation from conventional transportation to application-based online transportation. With these factors, there are still some people in Batam City

who reject the presence of online transportation in Batam City. As summarized from several media, people in the regions and in big cities reject the presence of online transportation service applications, which take action to reject the official operation of the application of online transportation services and have an impact on the safety of drivers and passengers using application-based online transportation.

Safety, design, and content factors are important factors in gaining customer trust in mobile commerce, while customer satisfaction is a post-purchase, consumer evaluation and effective response to the overall product and service [18]. The quality of information systems and service quality has a positive effect on users of information systems [13]. System quality and information quality are positively related to system usage [6]. Factors in the UTAUT2 research model such as performance expectancy, effort expectancy, social influence and facilitating condition influence the use of the information system [16].

With the rejection of the acceptance of online transportation services applications, the researchers want to conduct research to explore that what factors influence the acceptance of the people of Batam City on the application of online transportation services. In this research, researchers used an integrated research model between the UTAUT2 research model and the Information System Success model. The variables used in the UTAUT2 research model are performance expectancy, effort expectancy, facilitating conditions, price value, and behavioral intention and use behavior variables. While the IS Success Model research model variable uses information quality, system quality, service quality and user satisfaction variables.

1.1 Research Problem

Based on the description above, it is felt necessary to examine and explore what factors influence the acceptance of online transportation service applications in Batam City, with the research problem are:

1. Does performance expectancy have a significant influence on the behavioral intention in influencing the acceptance of online transportation services applications?
2. Does effort expectancy have a significant effect on behavioral intention in influencing the acceptance of online transportation services

applications?

3. Does facilitating conditions have a significant influence on the behavioral intention in influencing the acceptance of online transportation services applications?
4. Does price value have a significant effect on behavioral intention in influencing the acceptance of online transportation services applications?
5. Does information quality have a significant influence on the behavioral intention in influencing the acceptance of online transportation services applications?
6. Does system quality have a significant influence on the behavioral intention in influencing the acceptance of online transportation services applications?
7. Does Service quality have a significant influence on the behavioral intention in influencing the acceptance of online transportation services applications?
8. Does user satisfaction have a significant influence on the behavioral intention in influencing the acceptance of online transportation services applications?
9. Does information quality have a significant influence on user satisfaction in influencing the acceptance of online transportation services applications?
10. Does system quality have a significant influence on user satisfaction in influencing the acceptance of online transportation services applications?
11. Does service quality have a significant effect on user satisfaction in influencing the acceptance of online transportation services applications?
12. Does behavioral intention have a significant influence on use behavior in influencing the acceptance of online transportation services applications?

1.2 Scope Of Research

The scope of research was conducted in Batam city with analyzing the factors that influence the acceptance of the people of Batam city on the application of online transportation services.

1.3 Research Objective

Based on the description above, the researcher described several of the research objectives. The search objectives are:

1. Analyzing the influence of performance expectancy on the behavioral intention in influencing the acceptance of online transportation services applications.
2. Analyzing the influence of effort expectancy on the behavioral intention in influencing the acceptance of online transportation services applications.
3. Analyzing the effect of facilitating conditions on the behavioral intention in influencing the acceptance of online transportation services applications.
4. Analyzing the effect of price value on the behavioral intention in influencing the acceptance of online transportation services applications.
5. Analyzing the effect of information quality on the behavioral intention in influencing the acceptance of online transportation services applications.
6. Analyzing the influence of system quality on the behavioral intention in influencing the acceptance of online transportation services applications.
7. Analyzing the effect of service quality on the behavioral intention in influencing the acceptance of online transportation services applications.
8. Analyzing the effect of user satisfaction on the behavioral intention in influencing the acceptance of online transportation services applications.
9. Analyzing the effect of information quality on user satisfaction in influencing the receipt of applications for online transportation services.
10. Analyzing the effect of system quality on user satisfaction in influencing the acceptance of online transportation services applications.
11. Analyzing the effect of service quality on user satisfaction in influencing the acceptance of online transportation services applications.
12. Analyzing the influence of behavioral intention on use behavior in influencing the acceptance of online transportation services applications

that the system can strengthen individual work performance.

This model explains how the user's intention towards acceptance of a technology is influenced by several factors such as Performance Expectancy, Effort Expectancy, Social Expectancy, Facilitating Condition, Hedonic Motivation, Price Value, and Habit [25].

13. Performance Expectancy (PE) explains how far users benefit from using a system or technology (Venkatesh et al., 2012).
14. Effort Expectancy (EE) describes a system or technology that is easy to use.
15. Social Influence (SC) describes someone using a technology because there is encouragement from people around.
16. Facilitating Condition (FC) explains the availability of technical infrastructure and organizations to support the use of such technology.
17. Hedonic Motivation (HM) describes the motivation that users receive when using a system or technology.
18. Price Value (PV) describes the costs paid with benefits obtained from technology users.
19. Habit (H) explains how users use systems or technology in their daily activities.

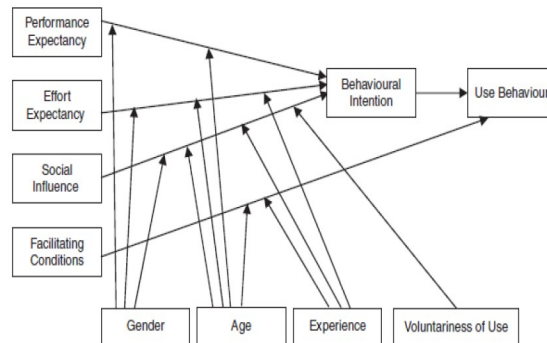


Figure 1: UTAUT2 Model (Venkatesh et al., 2003)

2 LITERATURE REVIEW

2.1 Unified Theory Of Acceptance And Use Of Technology 2 (UTAUT2)

Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) is a model that aims to explain the acceptance of technology based on the level of user trust in technology in improving performance or the Technology Accept Model (TAM) theory, based on the user's confidence level

2.2 Information System Success Model (DELONE AND MCLEAN)

Information System Success Model is a model in measuring and understanding the success of information systems [6]. In measuring the success of information systems with this model using several variables such as: system quality, information quality, service quality, intention use, user satisfaction [6].

1. System Quality is a desired feature of a system

- such as system flexibility, quick response and user convenience.
2. Information Quality describes the quality of information produced by the system, which is measured by timeliness, completeness and consistency.
 3. Service Quality describes the quality of services obtained for users of the system or technology.
 4. Intention Use explains how many users feel useful by using the system. This variable is measured by the level of use, number of uses, and frequency of use.
 5. User Satisfaction explains the level of effectiveness and level of user satisfaction using the system or technology.

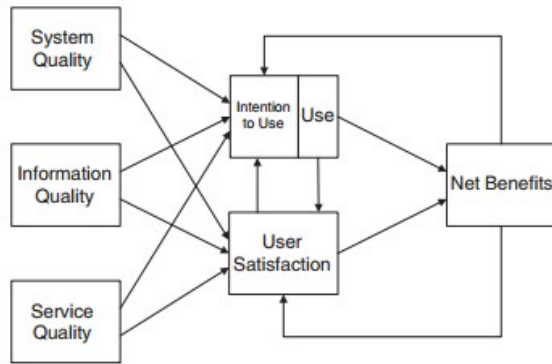


Figure 2: Information System Success Model (DeLone & McLean, 2003)

2.3 Information Quality, System Quality, Service Quality Dan Behavioral Intention

Customer decisions in purchasing company products or services can be determined from the quality of information available [14]. The quality of information from company offerings is believed to be very important to create a positive image of the company and build sustainable relationships with customers, thus the quality of information from a Web or application affects the customer's intention to access the Web or application and potentially to prospective buyers [14].

There is a relationship between service quality and behavioral intention [18]. Service quality affects behavioral intention, whereas according to [20], there is no relationship between service quality and behavioral intention.

2.4 User Satisfaction And Behavioral Intention

There are elements that influence user satisfaction with behavioral intention [11]. Develop a behavioral intention prediction model based on customer satisfaction. In addition, service quality and customer satisfaction have a relationship [9].

The more loyal services provided to customers, the more satisfied the services that will be obtained [8]. This will increase purchase intention (behavioral intention) and will help the company where positive information is disseminated by satisfied customers [12]. Negative information can be made by dissatisfied customers. An example is a case where a customer becomes unhappy or dissatisfied from the company for undesirable and / or negative reasons, which will result in customers complaining about the situation [10] and reducing behavioral intention. This is what shows the link between service quality, customer satisfaction, and behavior.

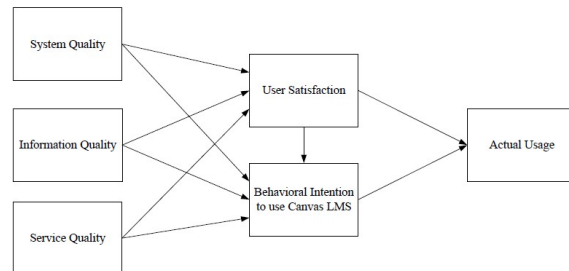


Figure 3: User Satisfaction and Behavioral Intention (Yakubu et al., 2018)

3 RESEARCH MODEL

This research uses the integration of the research model The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) with performance expectancy, effort expectancy, facilitating conditions, price value, behavioral intention and use behavior, and the Information System Success Model research model with variables information quality, system quality, service quality, user satisfaction. The research model of this research is explained in Figure 4 as below

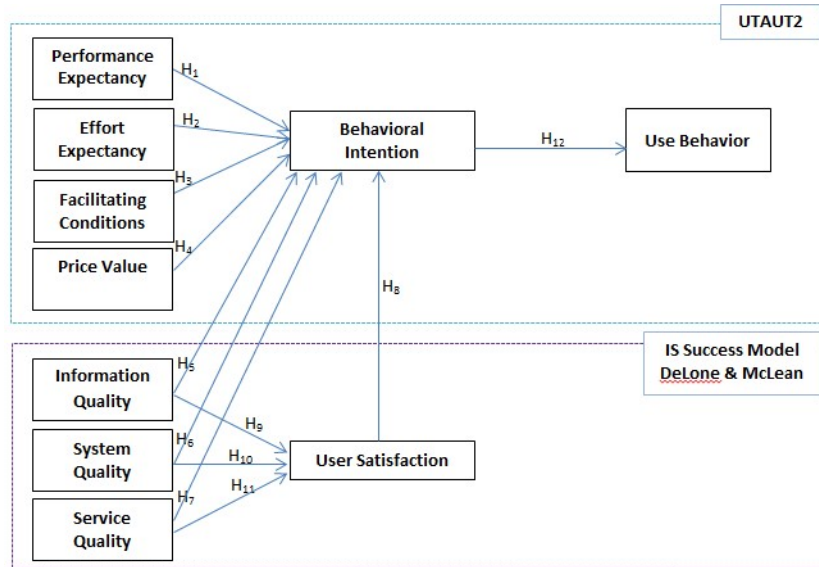


Figure 4: Research Model

Based on the research model image above, it produces 12 hypotheses, with the following hypothesis:

- H₁** Performance expectancy will have a positive influence on behavioral intention
- H₂** Effort expectancy will have a positive influence on behavioral intention
- H₃** Facilitating conditions will have a positive influence on behavioral intention
- H₄** Price value will have a positive influence on behavioral intention
- H₅** Information quality will have a positive influence on behavioral intention
- H₆** System quality will have a positive influence on behavioral intention
- H₇** Service quality will have a positive influence on behavioral intention
- H₈** User satisfaction will have a positive influence on behavioral intention
- H₉** Information quality will have a positive influence on user satisfaction
- H₁₀** System quality will have a positive influence on user satisfaction
- H₁₁** Service quality will have a positive influence on user satisfaction
- H₁₂** Behavioral intention will have a positive influence on use behavior

3.1 Data Analysis

The equation of structural model developed Based on research model in Figure 4 are:

$$Y_1 = \beta_0 + \beta_{11}X_1 + \beta_{12}X_2 + \beta_{13}X_3 + \beta_{14}X_4 + \beta_{15}X_5 + \beta_{16}X_6 + \beta_{17}X_7 + \beta_{18}Y_2 + \varepsilon_1 \dots (1)$$

$$Y_2 = \beta_0 + \beta_{21}X_5 + \beta_{22}X_6 + \beta_{23}X_7 + \varepsilon_2 \dots (2)$$

$$Y_3 = \beta_0 + \beta_{31}Y_1 + \varepsilon_3 \dots (3)$$

4 RESULT AND DISCUSSION

4.1 Responden Characteristic

Total of respondents in this research amounted to 400 respondents with the characteristics of respondents categorized by sex, age and experience using online transportation service applications with the following data.

Table 1: Respondent Characteristic

Category	Type	Total	%
Gender	Male	84	53.5 %
	Female	73	46.5 %
Age (years)	18 – 29	95	60.5 %
	30 – 39	52	33.1 %
	40 – 45	8	5.1 %
	> 45	2	1.3 %
Experience used	< 1	60	38.2 %
	1 – 2	71	45.2 %
	> 2	26	16.6 %

4.2 Reliability Analysis

Reliability analysis is used to determine the consistency of the respondent's answers. The size used to determine an indicator can be stated reliably called *cronbach alpha*, where the Cronbach alpha criterion is divided into three parts, namely: it can be said that if the value is > 0.6, it can be said to be accepted

Table 2: Result Reliability Test

Variable	Cronbach's Alpha (> 0.6)
Performance Expectancy	0.793
Effort Expectancy	0.898
Facilitating Conditions	0.862
Price Value	0.818
Information Quality	0.875
System Quality	0.734
Service Quality	0.890
Behavioral Intention	0.777
User Satisfaction	0.840
Use Behavior	0.856

Based on the table data above with Cronbach's value without > 0.6, it can be concluded that all indicators are reliable. The data collected for now amounted to 400 respondents with the respondent's character as follows:

4.3 Validity Analysis

Validity analysis aims to test each indicator from the questionnaire, whether the indicators used in the research are valid or not. Calculation of validity test to find out the correlation between variables on the indicators used. The testing technique used to test validity using correlation Corrected Item-Total Correlation The value of each variable can be seen in the table below:

Table 3: Validity Test Corrected Item – Total Correlation

Construct	Indicator	Corrected Item-Total Correlation
Performance Expectancy	X1.1	0.675**
	X1.2	0.678**
	X1.3	0.559**
Effort Expectancy	X2.1	0.745**
	X2.2	0.861**
	X2.3	0.794**
Facilitating Conditions	X3.1	0.736**
	X3.2	0.808**
	X3.3	0.676**
Price Value	X4.1	0.588**
	X4.2	0.776**
	X4.3	0.678**
Information Quality	X5.1	0.690**
	X5.2	0.845**
	X5.3	0.748**
System Quality	X6.1	0.520**
	X6.2	0.630**
	X6.3	0.532**
Service Quality	X7.1	0.717**
	X7.2	0.853**
	X7.3	0.790**
Behavioral Intention	Y1.1	0.611**
	Y1.2	0.643**
	Y1.3	0.600**
User Satisfaction	Y2.1	0.714**
	Y2.2	0.755**
	Y2.3	0.645**
Use Behavior	Y3.1	0.695**
	Y3.2	0.814**
	Y3.3	0.683**

Based on the validity test of the table above, it produces the value of Corrected Item-Total Correlation with a correlation value > 0.5 so that it can be concluded that each variable questionnaire is valid.

4.4 Normality Test

The normality test uses the residual normality test to ensure the research data has a normal distribution. The following are the results of the residual normality test based on the regression equation.

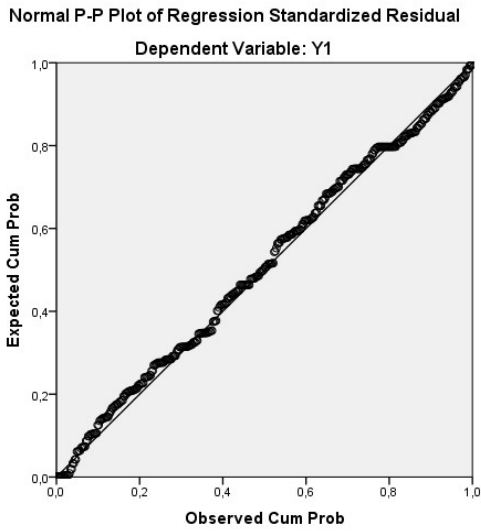


Figure 5: standardized residual Y1

In the picture above the distribution of the residual point in the regression equation $Y1 = \beta_0 + \beta_{11}X_1 + \beta_{12}X_2 + \beta_{13}X_3 + \beta_{14}X_4 + \beta_{15}X_5 + \beta_{16}X_6 + \beta_{17}X_7 + \beta_{18}Y_2 + \varepsilon_1$ spread around the line and follow the diagonal line so that the residual value is normal.

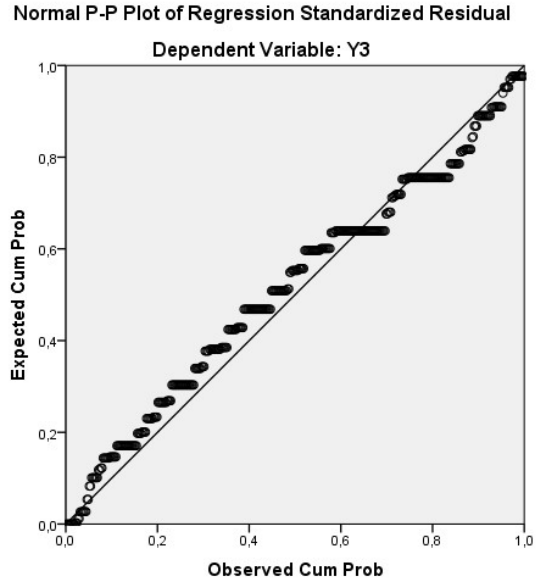


Figure 7: standardized residual Y3

In the picture above the distribution of the residual point in the regression equation $Y3 = \beta_0 + \beta_{31}Y_1$ spread around the line and follow the diagonal line so that the residual value is normal.

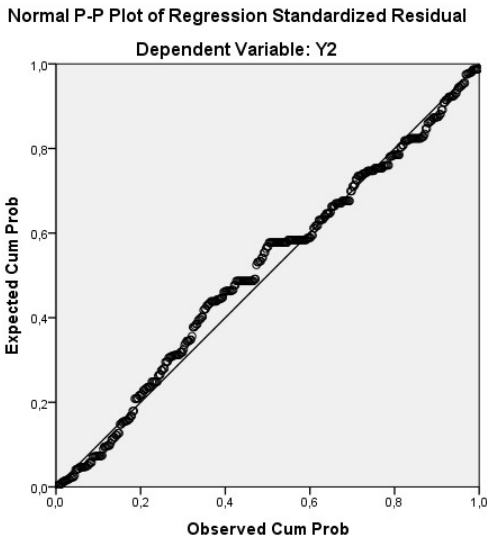


Figure 6: standardized residual Y2

In the picture above the distribution of the residual point in the regression equation $Y2 = \beta_0 + \beta_{21}X_5 + \beta_{22}X_6 + \beta_{23}X_7 + \varepsilon_2$ spread around the line and follow the diagonal line so that the residual value is normal.

4.5 Model Output Graphic

The following are the output results of the flow diagram (path diagram) of causality relationships between factors. Input graphics are made using Amos SPSS software.

Table 4: Result output SPSS Amos

No	Hypothesis	Estimate	S.E	C.R	P	Description
1	PE --> BI	0.517	0.093	5.544	***	Have a positive influence
2	EE --> BI	-0.146	0.045	-3.212	0.001	Have a positive influence
3	FC --> BI	-0.026	0.082	-0.320	0.749	Not have a positive influence
4	PV --> BI	0.426	0.064	6.602	***	Have a positive influence
5	IQ --> BI	-0.111	0.083	-1.338	0.181	Not have a positive influence
6	STQ --> BI	-0.389	0.123	-3.166	0.002	Have a positive influence
7	SVQ --> BI	-0.163	0.049	-3.354	***	Have a positive influence
8	US --> BI	0.912	0.113	8.094	***	Have a positive influence
9	IQ --> US	0.282	0.060	4.676	***	Have a positive influence
10	STQ --> US	0.680	0.090	7.571	***	Have a positive influence
11	SVQ --> US	0.126	0.031	4.002	***	Have a positive influence
12	BI --> UB	0.983	0.080	12.297	***	Have a positive influence

Based on the results of the graph results of the research test, it can be concluded which constructs are significantly influential and which constructs are significant have no effect

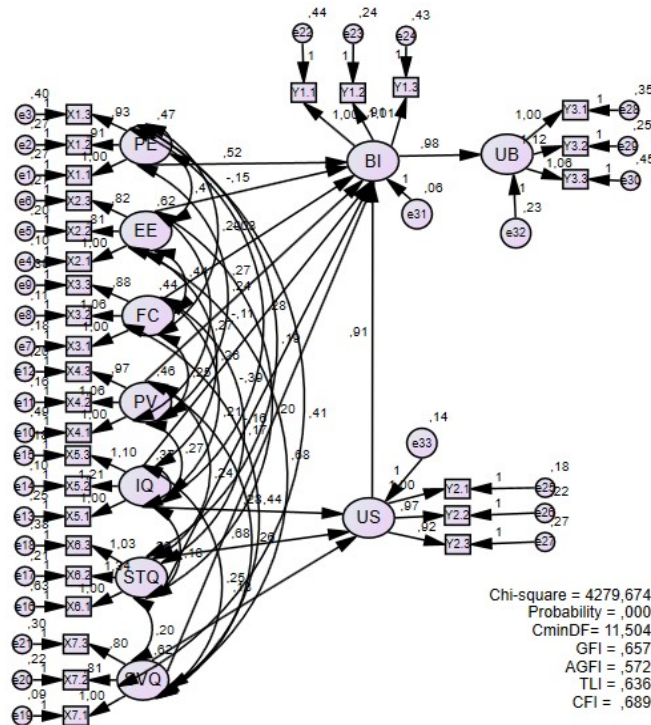


Figure 8: Graphic Output SPSS Amos

Based on the table above with a value of $\alpha = 5\%$. P value which has a significant effect on behavioral intention variables is performance expectancy (PE),

user satisfaction (US) variables while facilitating variable conditions and information quality variables have no significant effect on the behavioral intention variable. Based on the results

of the above calculations the most influential on the behavioral intention variable is the user satisfaction (US) variable of 91.2%, the variable performance expectancy is 51.7%, the price value variable is 42.6%.

The P value that has a significant effect on the user satisfaction variable is the variable information quality (IQ), system quality (STQ), service quality (SVQ). The P value that has a significant effect on the variable use behavior (UB) is the behavioral intention (BI) variable. Based on the results of the above calculations which most influence the user satisfaction (US) variable is the system quality variable of 68%, the information quality variable is 28.2% and the service quality variable is 12.6%.

While the behavioral intention influences the use behavior is 98.3%.

Following are the results of the analysis on below:

Table 5: Result of Analysis

H1	Performance expectancy will have a positive influence on behavioral intention.
H2	Efort expectancy will have a positive influence on behavioral intention.
H3	Facilitating conditions will not have a positive influence on behavioral intention.
H4	Price value will have a positive influence on behavioral intention.
H5	Information quality will not have a positive influence on behavioral intention
H6	System quality will have a positive influence on behavioral intention
H7	Service quality will have a positive influence on behavioral intention
H8	User satisfaction will have a positive influence on behavioral intention
H9	Information quality will have a positive influence on user satisfaction
H10	System quality will have a positive influence on user satisfaction
H11	Service quality will have a positive influence on user satisfaction.
H12	Behavioral intention will have a positive influence on use behavior

5 CONCLUSION

The hypothesis testing states that it has accepted H1, H2, H4, H6, H7, H8, H9, H10, H11, H12 and rejects H3 and H5. The researcher concluded the results of the study as follows:

1. Variable Performance Expectancy has a significant effect on Behavioral Intention

variables, three indicators (X1.1, X1.2, X1.3) used to measure this variable have met the validity and reliability test requirements. These results support the research of Nassuora (2013), Shah et al. (2014), states that user behavior intention (behavioral intention) will increase if users feel Gojek / Grab helps in daily life.

2. Effort Expectancy variables have a significant effect on Behavioral Intention variables, three indicators (X2.1, X2.2, X2.3) that are used to measure this variable have met the validity and reliability test requirements. The results obtained were in accordance with Shah et al. (2014), and Nassuora (2013). Research by Chang, Sun, Pan, & Wang (2015) states that the easier the operation and use of the Gojek / Grab application, the higher the intention of Gojek / Grab users.
3. Variable Facilitating Conditions have no significant effect on Behavioral Intention variables; three indicators (X3.1, X3.2, X3.3) that are used to measure this variable have met the validity and reliability test requirements. The results of this study are not in accordance with Guo (2015), but in accordance with Mousa Jaradat & Al Rababaa (2013) which states that facilitating conditions do not significantly influence user intentions because infrastructure such as smartphones are available to access the application of online transportation services.
4. Price Value variables have a significant effect on Behavioral Intention variables; three indicators (X4.1, X4.2, X4.3) that are used to measure this variable have met the validity and reliability test requirements. With prices issued using online transportation, the user's intention to use online transportation services applications will increase. This result supports the study of Namin (2016) which states that user-issued costs (price value) is one of the factors that determine the user's intention in using the application of online transportation services.
5. Information Quality variables have no significant effect on Behavioral Intention variables, three indicators (X5.1, X5.2, X5.3) that are used to measure this variable have met the validity and reliability test requirements. The quality of information or content from the application of online transportation services itself already contains useful information for users so that information quality does not

- significantly influence the intention to use the application of online transportation services (behavioral intention).
6. System Quality variables have a significant effect on Behavioral Intention variables, three indicators (X6.1, X6.2, X6.3) that are used to measure these variables have met the validity and reliability test requirements.
 7. Service Quality variables have a significant effect on Behavioral Intention variables; three indicators (X7.1, X7.2, X7.3) that are used to measure this variable have met the validity and reliability test requirements.
 8. User Satisfaction variables have a significant effect on Behavioral Intention variables, three indicators of user satisfaction variables (X9.1, X9.2, X9.3) that are used to measure this variable have met the validity and reliability test requirements.
 9. Information Quality variables have a significant effect on User Satisfaction variables, three indicators (X5.1, X5.2, X5.3) that are used to measure this variable have met the validity and reliability test requirements.
 10. System Quality variables have a significant effect on User Satisfaction variables, three indicators (X6.1, X6.2, X6.3) that are used to measure this variable have met the validity and reliability test requirements.
 11. Service Quality variables have a significant effect on User Satisfaction variables; three indicators (X7.1, X7.2, X7.3) that are used to measure this variable have met the validity and reliability test requirements.
 12. Behavioral Intention variables have a significant effect on User Satisfaction variables; three indicators (X8.1, X8.2, X8.3) that are used to measure this variable have met the validity and reliability test requirements.
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