FACTORS AFFECTING THE ADOPTION OF E-PAYMENT ON TRANSPORTATION SERVICE APPLICATION USING MODIFIED UNIFIED TECHNOLOGY OF ACCEPTANCE AND USE OF TECHNOLOGY 2 MODEL

¹FIKA DENINGTYAS, ²MAYA ARIYANTI

Telkom University Email: fika.deningtyas@gmail.com

Abstract—The increasing growth of e-commerce has encourage companies to innovate with technology, to develop a system of cashless payment in the transaction is one of the way, or commonly referred as an e-payment. However, it is known that the use of e-payment in Indonesia has not been much; it is only about 9%. Go-Jek as a popular online transportation service in Indonesia with the number of application downloads by 14 million users, has develop an e-payment system called Go-Pay. The use of Go-Pay itself is very high since it was first launched. This is a new phenomenon. Because in general the use of e-payment is still very small, but the use of Go-Pay iscontinues to increase. This study predicts the factors that affect the interests of users and the usage behavior in the using of Go-Pay as a payment transaction service of Go-Jek especially in Bandung by using the Modified Unified Theory of Acceptance And Use of Technology 2 model. The results showed that five factors in this study significantly and positively affect intention of using Go-Pay and three factors significantly and positively affect the use behavior of Go-Pay.

Keywords—E-Payment, Intention, Technology Adoption, UTAUT2

I. INTRODUCTION

Entering the digital age, the number of services that shaped and developed to enable people to meet their needs become increased. The growing of digital era led to the rapid growth of e-commerce industry.In 2013-2015 the average growth of e-commerce accounted for 33% and predicted to reach IDR 332 trillion in 2016 [11]. The increasing growth of ecommerce can not be separated from the growing number of Internet users in Indonesia. Association of Indonesian Internet Network (APJII) revealed that more than 50% of Indonesia's population is connected to the internet. The population of Indonesia is currently at 256.2 million people. APJII from surveys conducted throughout 2016, it was found that 132.7 million people in Indonesia are already using the internet. From that number, it had been increased 51.8% when compared to the number of users in 2014, which amounts to 88.1 million users [9].

The increasing growth of e-commerce payment system encourages the development of technology in the transaction. The payment method that was performed by cash payments shifted into a cashless payment. This is in line with Bank Indonesia program that launched the National Movement of Non Cash or commonly referred to as less cash society [14]. There are three advantages of a less cash society. First, noncash transactions more efficient because everyone does not have to carry cash everywhere to conduct business transactions. Second, non-cash transactions are relatively not costly. Third, non-cash transactions make it easier to track if the punishable acts occurred. In order to support the passage of the program, other banks have helped by providing ease of transactions using e-payment products.

Systems electronic payment or e-payment refers to the process of automatic monetary exchange in business transactions and the transmission of values through a network of information and communication technology (ICT) [3]. By using e-payment, payment transactions will be faster, easier, and safer. While the payment system like a credit or debit card is relatively inefficient and more expensive, even the usually incur additional transaction costs and minimum number of transactions. As the growth of epayment, appears a wide range of e-payment features such as e-cash, smart cards, e-checks, e-wallets, and many more. However, its use has not been widely applied in the transaction by the Indonesian society. Especially with the beginnings of an open market with the Asean Economic Community (AEC), online shopping consumers will need demand for e-payment that is more secure and more reliable.

The payment system that is commonly used by online shopping consumers is a bank transfer, Cash On Delivery (COD), and credit cards. The payment system most widely used by consumers shopping online is by bank transfer via ATM with a percentage of 70%, followed by the COD by 14%, which includes online payments internet banking, e-money, Quick Response (QR), etc. another 9%, 4% credit cards and joint accounts for 2% [7].

One of the e-payment services that are popular in Indonesia is Go-Pay. Go-Pay is an e-wallet that was presented by Go-Jek to facilitate its customers to make transactions on the application of Go-Jek. In late 2015, A global research institute named Growth for Knowledge (GfK) Indonesia, has released data on usage applications of transportation in Indonesia, and it is known that the Go-Jek applications most used by the number of users reached 21.6% of the total users

in the smartphone technology applications in Indonesia [13]. The number of smartphone users in Indonesia in 2016 is estimated to reach 65.2 million users [1]. Based on this number, then the number of Go-Jekapplication users is 21.6% of the 65.2 million users, reaching 14.0832 million users. Go-Jek finance director Kevin Aluwi revealed that the growth of the Go-Pay transaction is very high since it was first launched [12]. The high growth of transactions with Go-Pay that achieved by Go-Jek will not survive if it is not accompanied by efforts to improve the quality of service and understand consumer preferences in using the Go-Pay. Based on these, it is necessary to identify the factors that affect the interests of the users of Go-Jek in using Go-Pay as a Go-Jekpayment transaction service especially in Bandung.

II. PROBLEM STATEMENTS AND PURPOSE OF THE STUDY

In general, theuse of e-payment in the transaction is still very small. However, Go-Pay transaction growth is veryhigh since it wasfirstlaunched. This achievementmust be main tained to follow the trends, in themidst of intense competition in the industry similar services. Moreover, untilnow, previous studies that addresse dthisissue in Bandung has not beenfound. Based on these, it is necessary to identify thefactors that influence consumerstouse Go-Pay in the Go-Jekpayment transaction services, so it will be reflected how consumeracceptance of Go-Pay service in Bandung.

Related to the problem statement, thisre search focuses on predicting factor saffectinguser acceptance of the Go-Pay services using Modified Unified Theory of Acceptance And Use of Technology 2 (UTAUT2). The purpose of this study is to examine the factors in the UTAUT2 Modified Model, which is predicted to affect behavior alintention and use behavior of Go-Pay in Bandung, as well as examine whether differences in age and gender affect the relationship between these factors.

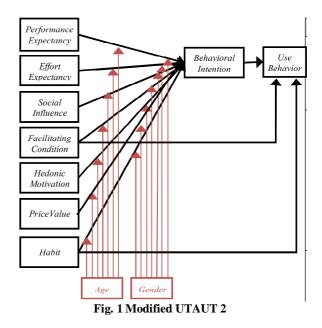
III. LITERATURE REVIEW AND CONCEPTUAL MODEL

Go-Pay is a virtual wallet or e-wallet that can be used for transactions within applications Go-Jek. With the concept of speed, simplicity, and security, Go-Pay offers various facilities for its customers. Speed, with a top-up system provides a quick and simple via ATM, mobile banking and internet banking. Simplicity, integration with services directly to all transactions in the Go-Jek application using Go-Pay balances. Security, with a high level of security without the money in physical form, all Go-Pay customer balances can be stored safely in the Go-Jek system.

This study uses the theory of technology adoption with the Modified Unified Theory of Acceptance and

Use of Technology 2 approachmodel, which aims to analyze the factors that influence the behavioral intention Go-Pay users and how the use behavior. UTAUT2 is a model developed by Venkatesh, Thong, and Xu (2012), andwas formed from the results of the examination of eight models of technology acceptance theories that had existed before and most appropriate in explaining acceptance of the technology by the consumer context. Those models are :(1) Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), (3) Model Technology Acceptance (TAM), (4)Motivational Model (MM), (5) Combined TAM-TPB (C-TAM-TPB), (6) Model of Personal Computer Utilization (MPCU), (7) Innovation Diffusion Theory (IDT), and (8)Social Cognitive Theory (SCT).UTAUT2 modelsalso been widely used in various studies with research objects such as internet banking, mobile application, mobile TV, e-learning system, and various other technologies both information technology (IT) and information systems

UTAUT2 models used in this study consisted of independent variables that include performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value, and habits, as well as the dependent variable that includes behavioral intention and use behavior. In addition, the independent variable is influenced also by the moderate variables include age, gender, and experience. Modifications were made to include the elimination of moderation of variable experience of the influence of the independent variables on the dependent variable, due to this research using cross sectional approach. Furthermore, experience moderate variable more appropriate used in the study with a longitudinal approach, so that experience moderate variable is not suitable for use in this study. The model used in this study is shown in Fig. 1.



Proceedings of Academics World 64th International Conference, Putrajaya, Malaysia, 4th-5th May 2017

As seen in Fig. 1, this study uses variables such as performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value, habits, behavioral intention and use behavior, as well as moderating variables age and gender. The definition of each variable and items used in this study was adopted from some previous studies and literature[2], [4], [5], [6], [10], [15], [16], [17]. Operationalization of research variables is presented in Table I.

Va	ited in Table I.			
r	Definition	Item		
PE	The degree to which an individual believes that using the system will help him or her to attain gains in job performance.	a. b.	Go-Pay Service useful for me to make a payment of Go-Jek service. Go-Pay Service makes Go- Jekpayment processing service become faster than paying by cash. Go-Pay services increase my productivity.	
EE	The degree of ease associated with the use of the system.	а. b. c.	Learn how to use Go- Pay in Go-Jek application is easy for me. I felt Go-Pay easy to use. The transaction process with Go-Pay is clear and easy to understand.	
SI	The degree to which an individual perceives that important others believe he or she should use the new system.	а. b.	People who are important to me will encourage me to use Go-Pay. People who influence my behavior would encourage me to use Go-Pay. The people closest around me (family and friends) advised me to use Go-Pay.	
FC	The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.	a. b. c.	I have the facilities needed to use Go-Pay. I know and understand how to use Go-Pay. Go-Pay transactions can be used with my phone. Party Go-Jek or my friends would help if	

Va r	Definition	Item		
		in use Go-Pay.		
H M	The fun or pleasure derived from using a technology.	a. b.	I prefer to perform payment transactions using Go-Pay rather than with cash. I am more comfortable making payment transactions by using Go-Pay rather than with cash. Overall, I enjoyed the payment transaction services with Go-Pay rather than with cash.	
НВ	The tendency of a person to perform the behavior automatically because the learning process.	a. b. c.	Using the Go-Pay for Go-Jek payment services has become a habit for me. Go-Pay service has become a necessity for me. If the balance is exhausted by the time I would perform payment transactions with Go-Pay, then I will top up the balance first.	
PV	Consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost for using them.	а. b.	I like, if I receive the benefits of the promotion (such as discounts, vouchers, bonuses, etc.) offered by using Go-Pay. I would prefer to use Go-Pay when I get discounts, vouchers or bonus. I will pay with cash if no sale is offered.	
ВІ	The degree of a person's interest to use a product.	a. b.	I intend to continue to use Go-Pay for payment of Go-Jek services in the future. I will always try to use Go-Pay for Go- Jek payment services. I plan to continue to use Go-Pay for Go- Jek payment services.	
U B	Intensity the use of Go-Pay.	a.	I often use Go-Pay in the Go-Jek payment transaction service. In almost every transaction I use Go- Pay for payment transactions service	

Va r	Definition	Item
		Go-Jek.

TABLE I Operationalization Variables

IV. HYPOTHESIS AND MEASUREMENT

Based on the conceptual model used in this study, the hypotheses formulated are shown in Table II.

	esi	

H1a: Performance Expectancy has a positive significant influence to Behavioral Intention.

H1b: Age affects the influence ofPerformance Expectancy to Behavioral Intention.

IIIc: Gender affects the influence of Performance Expectancy to Behavioral Intention.

H2a: Effort Expectancy has a positive significant influence to Behavioral Intention.

112b: Age affects the influence of Effort Expectancy to Behavioral Intention.

H2c: Gender affects the influence of Effort Expectancy to Behavioral Intention.

H3a: Social Influence has a positive significant influence to Behavioral Intention.

H3b: Age affects the influence of Social Influence to Behavioral Intention.

H3c: Gender affects the influence of Social Influence to Behavioral Intention.

H4a: Facilitating Condition has a positive significant influence to Behavioral Intention.

H4b: Facilitating Condition has a positive significant influence to Use Behavior.

H4c: Age affects the influence of Facilitating Condition to Behavioral Intention.

H4d: Gender affects the influence of Facilitating Condition to Behavioral Intention.

II5a: IIedonic Motivation has a positive significant influence to Behavioral Intention.

H5b: Age affects the influence of Hedonic Motivation to Behavioral Intention.

H5c: Gender affects the influence of Hedonic Motivation to Behavioral Intention.

H6a: Habit has a positive significant influence to Behavioral Intention.

H6b: Habit has a positive significant influence to Use Behavior.

H6c: Age affects the influence of Habit to Behavioral

Intention

H6d: Gender affects the influence of Habit to Behavioral Intention.

H7a: Price value has a positive significant influence to Behavioral Intention.

H7b: Age affects the influence of Price value to Behavioral Intention.

II7c: Gender affects the influence of Price value to Behavioral Intention.

H8: Behavioral Intention has a positive significant influence to Use Behavior.

TABLE II Research Hypothesis

V. DATA COLLECTION, ANALYSIS, AND RESULT

Data collection is done by distributing questionnaires online and offline through TypeForm by spreading directly to the respondents who are users Go-Pay service. The number of questionnaires obtained amounted to 398 questionnaires, but the valid and can be used is 384 questionnaires. Valid data is data that meets the criteria in this study and answered all the questions in the questionnaire.

The collected data were analyzed by using Partial Least Square (PLS) in two steps, namely the analysis of the measurement model or models and analytical models outer or inner structural models. In processing the data with SmartPLS3.0, after the input data that will be analyzed, the next thing to do is to create a model path. Path model is created to describe the causal relationship between the latent variable exogenous, endogenous, intervening, and manifest variables. Exogenous latent variables have the same role as the independent variables, the endogenous variables have the same role with the dependent variable, the intervening variables have the same role with moderate variable, and the manifest variables have the same role with the indicator variables. Path model in this study are shown in Fig.

Objective analysis of the measurement model is to test the reliability and validity of the measurement instruments are used. Test was conducted on the Average Variance Extracted (AVE) test with the criteria ≥ 0.5 reference value, and Cronbach's Alpha (CA) and the Composite Reliability (CR) with a reference value criteria ≥ 0.7 (Hair et al., 2010).The collected data were processed by using software SmartPLS 3.0 and provides the results that the model is declared valid and reliable measurement, as shown in Table III.

Fig. 2Path Model

Variable	CA	CR	AVE
Performance Expectancy	0.908	0.942	0.845
Effort Expectancy	0.939	0.961	0.891
Social Influence	0.904	0.94	0.839
Facilitating Condition	0.868	0.91	0.718
HedonicMotivation	0.897	0.936	0.829
Habit	0.885	0.929	0.814
Price value	0.882	0.918	0.738
Behavioral Intention	0.919	0.949	0.861
Use Behavior	0.719	0.876	0.78

TableIII Result of Value Measurement

After the test results of the measurement model states that the data collected were valid and reliable, then the next step is calculating the R² and the path coefficient to test the structural model. R² value for the variable behavioral intention amounted to 0.662. These values indicate that the independent variable performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value, and the habit is able to explain the variable behavioral intention amounted to 66.2%. While the R² value of 0.55 for variable use behavior indicates that facilitating the variable condition. habits, and behavioral intention were able to explain the variable use behavior by 55%. Meanwhile, to test the hypothesis whether accepted or not, is done by looking at the value of the path coefficient and tvalue as shown in Table IV.

Variable	Path Coefficient	T-Value	Result
PE -> BI	0.14**	2.501	Accepted
EE -> BI	0.078	1.417	Rejected
SI -> BI	0.132**	2.43	Accepted
FC -> BI	0.014	0.236	Rejected
FC -> UB	0.342**	7.32	Accepted
HM -> BI	0.075*	1.569	Accepted
HB -> BI	0.373**	8.589	Accepted
HB -> UB	0.19**	3.3	Accepted
PV -> BI	0.169**	4.086	Accepted
BI -> UB	0.307**	5.09	Accepted

Note: **) Significant Level = 0.05; *) Significant Level = 0.15TableIV.
T-Value of Each Variable

From Table IV, it can be concluded that the only effort expectancy and facilitating condition that does not have a significant influence on behavioral intention. In the first position, the factors that most influence the behavioral intention are habit, and then at the next position followed by price value, social influence, performance expectancy, and the last is hedonic motivation. While the main factor affecting

the use behavior is facilitating condition, followed by behavioral intention and habit.

This study also examines the effect of moderate variables age and gender to influence the relationship between variables. The result of the influence of moderate age and gender variables are presented in Table V.

Based on the result shown in Table V, it can be concluded that the difference in age or age moderate the influence of performance expectancy, effort expectancy, social influence, facilitating condition, habit, and the price value of the behavioral intention in adopting Go-Pay, and gender differences in moderating influence effort expectancy, social influence, facilitating condition, and the habit of the behavioral intention in adopting Go-Pay.

Table V. Results of Moderation Variables

Correlation of Variables	T-Value for Moderating Variable			
	Agc	Result	Gender	Result
PE -> BI	1.682*	Accepted	0.496	Rejected
EE -> BI	3.701**	Accepted	1.705*	Accepted
SI -> BI	1.742*	Accepted	2.19**	Accepted
FC -> BI	1.666*	Accepted	2.759**	Accepted
HM -> BI	1.474	Rejected	1.512	Rejected
HB -> BI	3.257**	Accepted	2.259**	Accepted
PV -> BI	1.684*	Accepted	0.227	Rejected

Note: **) Significant Level = 0.05; *) Significant Level = 0.1

CONCLUSION AND SUGGESTION

A. Conclusion

There were five factors in the Modified UTAUT2 were proven to have a positive and significant influence on the intention to adopt Go-Pay in Bandung.In the first position, the factors that most influence the behavioral intention are habit, and then at the next position followed by price value, social influence, performance expectancy, and the last is hedonic motivation. Only effort expectancy facilitating conditionthatdoes not have a significant influence on behavioralintention. While the main factor affecting the use behavior is a facilitating condition, followed by behavioral intention and habit. The order of the factors based on their effects on behavioral intention from the highest to lowest respectivelyhabit (0.373), price value (0.169), performance expectancy (0.14), social influence (0.132), and hedonic motivation (0.075). Meanwhile, the order of the factors based on their effects on use behavior from the highest to the lowest respectively facilitating condition (0.342), behavioral intention (0.307), and habit (0.19).

Differences in gender is only shown to moderated the effect of variable effort expectancy, facilitating

condition, habits, and social influence on behavioral intention. While the difference in age is only shown to moderated the effect of variable performance expectancy, effort expectancy, facilitating condition, habit, price value and social influence on behavioral intention.

The model in this study has an R-square of 0.662 and 0.55 for the behavioral intention to use behavior. This means that this model can explain the behavioral intention of 66.2% and 55% use behavior in the use of Go-Pay service in the city of Bandung.

B. Suggestion

Habit is the variable that most influences the interest to use Go-Pay service. Based on the results of this study, in order to increase the interest of customers in using Go-Pay, providers of Go-Pay should be able to continue to create dependency on the use of service Go-Pay as a payment transaction, so that when users experience the benefits of service Go-Pay from the experience of use, then the user will return to continue to use Go-Pay service. In other words, Go-Pay should be able to build the value of experience, so that both the old and new users have the interest to continue using Go-Pay service.

Furthermore, in the second position, price value variable is a factor that affects interest using Go-Pay service. Go-Jekpromotional programs that offered to Go-Pay users is a benefit or advantage in terms of price which is one of the reason for users prefer to choose Go-Jek than its competitors. The more promotions offered, the more customers interested in using Go-Pay.

Then the effect of social influence is the third largest factor affecting interest in using Go-Pay. As an effort to boost interest in using Go-Pay, Go-Jek should continue to issue an advertising media through the Internet and social media in accordance with the marketing target of Go-Jek. Nowadays, social media become one of marketing media that is often used by product owner to market their products. Because in this digital age, the use of social media has become a lifestyle, so advertising in social media will be very effective.

Performance expectancy is also a factor that affects the desirability of using Go-Pay. Adding the variety of services, reduce the error rate and improve Go-Jekapplications reliability, particularly in the Go-Pay payment feature can be a solution in influencing user's interests to use Go-Pay.

Hedonic motivation is another factor affecting customer interest in using Go-Pay. This can be enhanced by efforts to make a display more attractive and add an entertainment element in application to make people feel happy and comfortable when use Go-Jekapplication, especially in Go-Pay payment transaction services.

For further research, it is necessary to explore the

influence of aspects of security, trust, and perceptions of risk to determine its impact on the desirability of using Go-Pay.

REFERENCES

- [1] Asia-Pacific Boasts More Than 1 Billion Smartphone Users. (2015, 16 September). E-Marketer. Retrieved from http://www.emarketer.com/Article/Asia-Pacific-Boasts-More-Than-1-Billion-Smartphone-Users/1012984
- [2] Aydin, G., &Burnaz, S. (2016). Adoption of mobile payment systems: A study on mobile wallets. *Journal of Business*, *Economics and Finance*, 5(1), 73-92.doi: 10.17261/Pressacademia.2016116555
- [3] Ayo, C. K., &Ukpere, W. I. (2010). Design of a secure unified e-payment system: in Nigeria a case study. African Journal of Business Management, 4(9), 1753-1760. Terdapatpada http://www.academicjournals.org/AJBM
- [4] Buettner, R. (2015). Towards a new personal information technology acceptance model: Conceptualization and empirical evidence from a bring your own device dataset. 21th Americas Conference on Information Systems, Puerto Rico.
- [5] Chou, C.M., &Kimsuwan, A. (2013). Factors affecting purchase intention of online game prepayment card – evidence from Thailand. *Journal of Internet Banking and Commerce*, 18(3), 2-13.
- [6] Dodds, W. B., Monroe, K. B., &Grewal, D. (1991). Effects of price, brand, and store information on buyers. *Journal of Marketing Research*, 28(3), 307-319.
- [7] Eka, R. (2016, 7 Maret). Survei: Masyarakat Indonesia Makin SelektifBerbelanjaBerkat E-Commerce. *DailySocialid*. Retrieved from https://dailysocial.id/post/survei-masyarakat-indonesia-makin-selektif-berbelanja-berkat-e-commerce
- [8] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis (7th ed.). Upper Saddle River, New Jersey: Prentice Hall.
- [9] HasilSurvei Internet Tahunan APJII 2016.(2016, 25 Oktober). Asosiasi E-Commerce Indonesia, idEA. Retrieved from https://www.idea.or.id/berita/detail/hasil-survei internet-tahunan-apjii-2016
- [10] Martins, C., Oliveira, T., &Popovic, A. (2014). Understanding the internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(2014),1–13.
- [11] Murdiansyah, A. (2016, 15 Maret). TrenTransaksi E-Commerce di Indonesia. SWAOnline. Retrieved fromhttp://swa.co.id/swa/trends/business-research/ trentransaksi-e-commerce-di-indonesia
- [12] Nababan, C. (2016, 18 Mei). GojekBakalRangkulLebihBanyak Bank Demi Gopay. CNN Indonesia. Retrieved from http://www.cnnindonesia.com/ teknologi/20160517191820-185-131430/gojek-bakalrangkul-lebih-banyak-bank-demi-gopay/
- [13] Ngazis, A. N., & Angelia, M. (2016, 16 Maret). Survei: GojekUngguli Grab. VIVA.co.id. Retrieved fromhttp://teknologi.news.viva.co.id/news/read/74846 4survei-gojek-ungguli-grab
- [14] Segara, T. (2014). Mengurangiketergantunganpadauangtunai. Gerai Info Bank Indonesia.50, 4-5.
- [15] Venkatesh, V., Thong, J. Y. L., &Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly, 36(1), 157–178.
- [16] Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425-478.
- [17] Wu, M.Y., Yu, P. Y., &Weng, Y. C. (2012). A study on user behavior for I Pass by UTAUT: Using Taiwan's MRT as an example. *Asia Pacific Management Review*, 17(1), 91-111.