Article

Consumer Behavior in Adopting Application-Based Transportation Services

Darwin Lie [1], Efendi Efendi [1], Robert Tua Siregar [1], Sisca Sisca [1,*] and Acai Sudirman [1]

[1] Department of Management Sciences, Sekolah Tinggi Ilmu Ekonomi Sultan Agung, Pematangsiantar, North Sumatera, Indonesia; darwin@stiesultanagung.ac.id (D.L), efendi@stiesultanagung.ac.id (E.E), tuasir@stiesultanagung.ac.id (R.T.S), acaivenly@stiesultanagung.ac.id (A.S).

* Correspondence: sisca@stiesultanagung.ac.id (S.S).

Abstract: With the rapid development and use of information technology in various fields, who can say that information technology is the main pillar that provides added value to society in the development process towards a developed nation? Moreover, information technology has entered all fields or sectors, especially transportation. One transportation service that takes advantage of the speed of access to information is the JAKET application-based transportation. The urgency of this study is to determine the level of acceptance of consumer technology in adopting JAKET application-based transportation services using the UTAUT 2 model approach. The sample used in this study was 120 respondents who used the JAKET application. The data collection process will be carried out from January to February 2021. The data collection used a survey with 33 question constructs, summarized in eight manifest variables. This study uses Structural Equation Modeling with a variance-based or component-based approach with Partial Least Square. This study's results indicate that performance expectancy, effort expectancy, hedonic motivation, and perceived risk significantly affect behavioral intention. Following that, there was no significant influence of social influence, facilitating conditions, or behavioral intention habits.

Keywords: consumer behavior; UTAUT 2; online transportation; technology adoption

1. Introduction

The digital revolution in transportation has altered people's lives and market power dynamics, resulting in increased rivalry. Competition exists between conventional and online transportation and online transportation business actors (Kurniawati & Khoirina, 2020). Online transportation has become one of the important needs for people in Pematangsiantar City. These services' existence is related to disruptive innovations in the transportation sector (Alamsyah & Rachmadiansyah, 2018). One of the signs of the beginning of the era of fast transfer of information is unlimited and flexible internet access. The increasing use of internet services is considered to have the potential to be juxtaposed with transportation which also requires innovation in service access (Lie et al., 2019). Judging from technology's rapid and sustainable development, developers must create an innovation movement by providing convenient aspects to customers

in making transactions. As a result of this opportunity, many transportation service developers are taking a gamble and joining the application-based transportation service market through the internet, also known as online transportation. One of the transportation services that can access the speed of information is the JAKET application developer. This application-based transportation is online transportation that offers services between goods with more than one location with a single delivery method (Sudirman et al., 2021).

The main purpose of the JAKET application is to meet consumer expectations in using application-based transportation. The manifestation of fulfilled expectations is the level of customer satisfaction with the technology acceptance of the application. Therefore, the implications of customer satisfaction will impact consumer behavior in using the application. The constituents of consumer behavior in using the JAKET application can be viewed from the Technology Acceptance Model (TAM) aspect. Several aspects affect a person's attention to utilizing a technology according to the Technology Acceptance Model (TAM) principles, namely an evaluation of the utility obtained, known as performance expectancy. (Venkatesh et al., 2003), An assessment of the smoothness and difficulty level of use or what is called the effort expectancy (Venkatesh et al., 2003), social influence on reflections on the use of technology (Trinh et al 2020), the conditions of the facilities available on the application (Joshi, 2018), hedonic motivation to use the application (Al-Azawei & Alowayr, 2020), habitual behavior (Primasari, 2016), as well as the level of risk perception when using the application (Choi et al., 2013).

On the other hand, Yuniarto (2017) studied the technology adoption in the transportation sector using the TAM method, with the findings indicating that the Sumedang Regency community's acceptance of the Grab application is driven by its accessibility and comfort, as well as perceptions and attitudes toward the use of technology. Further study Septiani et al. (2017), using the Technology Acceptance Model (TAM) approach, Theory of Planned Behavior (TPB) and Diffusion of Innovation (DOI), states the internal perception factor (perceived ease of use), external influence (subjective norm), innovation characteristics (compatibility), perceived enjoyment and the variety of services affects the behavioral intentions of Gojek online transportation service users in Indonesia. The same is being studied by Silalahi et al. (2017) on the acceptance of technology in Gojek online transportation, and it was found that the three best aspects of GO-JEK's online transportation services were cognitive perception, ease of use, and perceived website innovation. Meanwhile, the three lowest criteria are compensation, trustworthiness, and risk perception.

Many studies on technology acceptance in the transportation sector have been researched using the TAM, TRA, TPB, and DOI approaches. The novelty of this research is based on the assumption that no theory can cover all the factors that explain user adoption of new technology. Thus, it can be concluded that each theory has its weaknesses. Therefore, this study tries to use the UTAUT 2 approach model following the current conditions of the JAKET application to determine the factors that influence the behavioral intentions of users of online transportation services in Indonesia, especially Pematangsiantar City. The urgency of this study is to determine the contribution of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, and perceived risk to the behavioral intention of the JAKET application. Furthermore, this study's results are expected to provide additional information for JAKET application developers in optimizing the performance of their services as application-based transportation services.

2. Materials and Methods

2.1. UTAUT-2

Technology Acceptance Model (TAM) is considered to be the most powerful and influential in technology acceptance behavior (Mezni et al. 2009). Pavlou (2003) addresses the issue of how users can accept and use technology. It is considered to be one of the best frameworks for reflecting on the degree of adoption of technology acceptance (Joshi, 2018). This research is oriented using the UTAUT 2 model, which is the result of the development of the UTAUT model introduced by Venkatesh et al. (2003). They described eight main theories as forming technology acceptance, namely the Theory of Reasoned (TRA), Theory of Planning Behavior (TPB), Technology Acceptance Model (TAM), Motivational Model (MM), combined TAM and TPB model, Model of PC Utilization (MPCU)), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). Furthermore (Venkatesh et al., 2012) added new variables to the UTAUT 2 model, namely hedonic motivation, price value, and habit, to determine the extent to which consumers accept and use new technology.

2.2. Performance Expectancy

Performance expectancy is defined as a way to determine the extent to which someone believes using technology will follow the desired expectations (Subawa et al., 2021). Research by Martono et al. (2020),

with the Technology acceptance model (TAM) and theory of reasoned action (TRA) approaches, states that performance expectancy has a significant effect on the intention to use information system services. The same thing was also conveyed by Purnamasari et al. (2020) by using the same theoretical approach in their research, which stated that the intention to use technology in the financial service system for the micro, and small business sector was strongly influenced by performance expectancy. Therefore, the hypothesis proposed in this study:

Hypothesis 1 (H1): Performance expectancy significantly affects behavioral intention.

2.3. Effort expectancy

The optimistic expectation is the level of ease associated with using the system (Venkatesh et al., 2003). This condition has captured three models such as perceived ease of use (TAM), complexity (MPCU), and ease of use (IDT). Most of the previous studies have discussed investigating consumer intentions to use. It has been found in the acceptance and use of information technology consumers (Khatimah & Halim, 2014). Sung et al. (2015) states that business expectations positively affect behavioral intentions of mobile learning services. The same thing was conveyed by Ghalandari (2012) on the acceptance model of E-Banking service technology; with the research results, the discussion concludes Effort expectancy has a dominant influence on behavioral intention. Wang et al. (2020) shows that performance expectations, effort expectations, facilitation conditions, and social impact positively and significantly influence consumers' behavioral intention to use and together accounted for 68.0% of the variance. Therefore, the hypothesis proposed in this study:

Hypothesis 2 (H2): Effort expectancy significantly affects behavioral intention.

2.4. Social influence

In the case of application-based transportation, social impact is characterized as external influences promoting or affecting digital technologies, in this case, online transportation. The implications of social factors will help individuals adapt to the environment, including accepting new technology as an individual effort to survive in the existing environment (Venkatesh & Davis, 2000). The social atmosphere has various influences, including those of relatives or family, friend recommendations, the environment, commercials, user testimonials, and so on (Putri, 2018). Research by Sudarsono et al. (2021) using the theory of innovation diffusion approach states that social factors strongly influence the adoption of Islamic banking services. The same thing was expressed by Santoso & Nelloh (2017). It is heavily motivated by the advantages of social influences, with an orientation to the social sharing principle, which conveys the user's plan to use peer-to-peer online transportation. Therefore, the hypothesis proposed in this study:

Hypothesis 3 (H3): Social influence significantly affects behavioral intention.

2.5. Facilitating conditions

Facilitating conditions describe supporting facilities' availability from technology-based applications (Rathore, 2016). One of the important considerations in implementing application-based transportation services is the state of the supporting facilities. Without supporting facilities, it won't be easy to adopt new technologies in online transportation (Putri, 2018). Service units established by service providers for supporting facilities, such as operational equipment, awareness of usage, and customer assistance programs, are embodied in the manifestation of the facility's situation. Results of the discussion from the study Suzianti et al. (2018) said the intention to use the Gojek online application from the point of view of the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) is very dominantly influenced by technology facilitating conditions. In line with Aggelidis & Chatzoglou's (2009) research, they discovered that facilitating structures have a strong effect on behavioral intention by developing and testing the modified technology in the acceptance model. Therefore, the hypothesis proposed in this study:

Hypothesis 4 (H4): Facilitating conditions significantly affect behavioral intention.

2.6. Hedonic motivation

The hedonism dimension may apply to the aesthetics and experience-based happiness extracted from the buying decision process, from identifying a need to post-purchase actions involving product or service use (Mort & Rose, 2004). The experiential view of hedonism broadly approaches purchasing and consumption processes (Rezaei & Ghodsi, 2014). Khatimah et al. (2019), using the UTAUT 2 approach to

using E-Money, states that hedonic motivation significantly affects behavioral intentions. Yeo et al. (2017) conveyed the same thing, which states that hedonic motivation significantly impacts behavioral intentions in online-based food delivery services. Salimon et al. (2017) stated the same about E-Banking adoption, which was heavily influenced by hedonic motivation. Therefore, the hypothesis proposed in this study:

Hypothesis 5 (H5): Hedonic motivation has a significant effect on behavioral intention

2.7. Habit

Habit is one of the predictors in predicting behavioral intention to use a technology-based application (Putri, 2018). Verplanken et al. (1998) compared the Theory of Reasoned Action (TRA) and associated habit theory as predictors of behavioral intention, found that the positive effects of habits on behavioral intention outweighed the impact of attitudes and social norms. The same thing was conveyed by Rafique et al. (2020), which stated that the habit factor in the adoption of technology in library applications is expected to increase the continuation of user behavior in the future. Furthermore, Gefen et al. (2003) found that habit was a major factor in explaining the variance of continued website use, indicating the positive effect of habit on continued use of the same technology. Therefore, the hypothesis proposed in this study:

Hypothesis 6 (H6): Habit has a significant effect on behavioral intention

2.8. Perceived Risk

Due to the high-risk level of uncertainties in using new technology, the trust factor is vital for users (Ha et al., 2021). In turn, the user's concern about payment security can influence their usage intentions and behavior (Zhou 2012). As a result, in addition to the non-cash payment mechanism, the JAKET application also includes an on-site payment system to help customers reduce their perceived risk. Nguyen & Nguyen (2020), from the Theory of Reasoned Action (TRA) approach, states that the perceived risk significantly affects the behavior of using mobile banking services in Vietnam. Lee said the same thing and that the intention to use online banking is subject to security/privacy risks. Therefore, the hypothesis proposed in this study:

Hypothesis 7 (H7): Perceived risk significantly affects behavioral intention.

2. Materials and Methods

This study was conducted in Pematangsiantar City, North Sumatra, Indonesia. The strong reason for choosing this city is that the JAKET application can only be used in Pematangsiantar City. Its services are not yet available in other cities in Indonesia. The population in this study were all users of the JAKET application. Because the population is so large that it cannot be ascertained with certainty, the sample size is determined by multiplying the number of indicators from the eight variables by 5-10 (Augusty, 2006). Based on this provision, the sample size used is 33 x 5 = 165 people. This study uses a non-probability sampling approach with a purposive sampling technique. Using purposive sampling is because selecting samples based on the fulfillment of the research criteria so that they can provide answers that can support this research. One of the criteria used is an active user of the JAKET application with minimum use of it once a month. The data analysis stage includes the outer model analysis by analyzing the validity and reliability and the inner model analysis to test the hypothesis.

Furthermore, the researcher tested the hypothesis using variant-based Structural Equation Modeling (SEM) called Partial Least Square (PLS) and the SmartPLS version 3.0 application as a tool to analyze it. Measurement of variable components used surveys to measure respondents' perceptions. The measuring scale used is the 1-6 Likert scale from strongly disagree to strongly agree (1 = strongly disagree, 2 = disagree, 3 = quite agree, 4 = neutral, 5 = agree, 6 = strongly agree).

Study question items are oriented towards previous research results (See Appendix 1), namely for the construct of exogenous variables consisting of research-oriented performance expectations. Joshi (2018); Martins et al. (2014) comprise 4 items. The next construct is effort expectancy which is research-oriented (Lavenia, 2018; Zhou et al., 2010) and consists of 4 items. The social influences construct research-oriented (Kietzmann et al., 2011; Singh et al., 2020), consisting of 3 items. Facilitating conditions were research-oriented (Venkatesh et al., 2012; Yusliansyah, 2017), consisting of 4 items. The construct of hedonic motivation is research-oriented (Putri, 2018) and comprising 6 items. Research-oriented by Putri (2018); Venkatesh et al. (2012) consist of 4 items in the habit construct. Furthermore, question items for the construct of perceived risk are research-oriented (Martins et al., 2014; Yang et al., 2012), which consists of

International Journal of Global Optimization and Its Application
Vol. 1, No. 3, September 2022, pp.202-214.

206

4 items. For endogenous variables, namely behavioral intention, it is research-oriented (Alalwan et al., 2017; Venkatesh et al., 2012), consisting of 4 items.

3. Results

On the basis of the demography profile of respondents in Table 1, it shows that the majority of JAKET application users are female, with a percentage of (53.33%). From the JAKET application's educational aspect, most users have a high school education (59.83%). From the professional element, students (35%) are the majority of the JAKET application users, with the orientation of using JAKET in a month ranging from 2-5 times (46.67%). Furthermore, for the frequency of use of the JACKET application, most consumers use it two to 5 times (46.67%) a month with an average expenditure of below 100,000 thousand rupiahs (63.33%).

Table 1. Demography Profile of Respondents

Demography	Category	Frequency	Percentage
Gender	Men	56	46.6
	Woman	64	53.33
Age (Year)	15-24 years	25	20.83
	25-34 years	45	37.5
	35-44 years	38	31.67
	45-54 years	12	10
Education	High school	61	50.83
	D1 to D3	33	27.5
	S1	24	20
	S2	2	1.67
Profession	College student	42	35
	Employees	21	17.5
	Teacher	14	11.67
	Entrepreneur	29	24.17
	Government employees	10	8.33
	Others	4	3.33
The income per month (Million Rupiah)	<IDR 1,000,000	34	28.34
	IDR 1,000,000 - IDR 5,000,000	61	50.83
	IDR 5,000,000 - IDR 9,000,000	18	15
	> IDR 10,000,000	7	5.83
The frequency of using the JAKET application in a month	1 time	41	34.16
	2-5 times	56	46.67
	5-10 Times	17	14.17
	> 10 Times	6	5
Total expenditures for using JAKET in a month (Million Rupiah)	<IDR 100,000	76	63.33
	IDR 100,000 - IDR 500,000	28	23.33
	IDR 500,000 - IDR 1,000,000	14	11.67
	> IDR 1,000,000	2	1.67

3.1. Reliability and Validity Analysis

The feasibility test of the model is carried out to test how a set of latent construct indicators consistently explains each measurement. The reliability of the variables is assessed by Cronbach's Alpha and Composite Reliability values (Chin et al., 2003). The value of each reliability measurement can be accepted if it has a threshold value> 0.70. Furthermore, Convergent validity testing was determined by the loading factor and AVE in which the loading factor should be> 0.7, and the AVE value is 0.5 to meet convergent validity (Hair et al., 2014). Based on the test result's reliability and validity analysis (See Table 2), the reliability value for each latent construct in terms of Cronbach's Alpha and the Composite Reliability value has a threshold value> 0.7. The analysis of the validity value of each manifest variable in terms of the loading factor value also has a threshold value> 0.70.

Table 2. Result of Validity and Reliability Testing.

Variable	Code	Outer Loading	Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
Performance Expectancy	PE1	0.938	0.686	0.969	0.858
	PE2	0.948			
	PE3	0.937			
	PE4	0.942			
Effort Expectancy	EE1	0.784	0.65	0.857	0.839
	EE2	0.966			
	EE3	0.949			
	EE4	0.974			
Social Influence	SI1	0.896	0.787	0.817	0.878
	SI2	0.923			
	SI3	840			
Facilitating Conditions	FC1	0.799	0.684	0.896	0.858
	FC2	0.753			
	FC3	0.845			
	FC4	0.903			
Hedonic Motivation	HM1	0.974	0.648	0.891	0.889
	HM2	0.98			
	HM3	0.985			
	HM4	0.979			
	HM5	0.964			
	HM6	0.96			
Habit	HB1	0.976	0.647	0.886	0.881
	HB2	0.992			
	HB3	0.977			
	HB4	0.948			
Perceived Risk	PR1	830	0.692	0.901	852
	PR2	0.801			
	PR3	864			
	PR4	833			
Behavioral Intention	BI1	0.922	0.693	0.871	0.86
	BI2	0.962			
	BI3	0.929			
	BI4	0.967			

The discriminant validity was tested for this analysis by comparing the average variance extracted square root with the constructs' correlation coefficient. According to Byrne & Van de Vijver (2010), it is acceptable to measure Discriminant Validity if the average variance extracted from the value of the two construction values is higher than the correlation square. The analysis revealed that all the unobserved square root variables of the 10 constructs were greater than the relationship between each pair of latent variables (See Table 2). Therefore, in this analysis, all latent variables' discriminant validity is well accepted and reasonable (Schaupp et al., 2010). The results of further analysis (See Table 2) obtained values. The R-square is 0.569 (56.9%), which shows the ability of exogenous variables to explain endogenous variables (behavioral intention) is moderate (Ghozali, 2014).

Table 3. Results of the Discriminant Validity

	Variable	1	2	3	4	5	6	7	8
1	Behavioral Intention	0.945							
2	Effort Expectancy	0.283	0.922						

3	Facilitating Conditions	0.204	0.052	827					
4	Habit	0.158	-0.095	0.178	0.973				
5	Hedonic Motivation	0.668	0.13	0.289	0.139	0.974			
6	Perceived Risk	0.332	0.217	0.44	0.264	0.139	832		
7	Performance Expectancy	0.173	-0.054	0.229	0.184	0.092	-0.035	0.941	
8	Social Influence	0.129	0.128	0.783	0.069	0.222	0.36	0.21	0.887

3.2. Hypotheses Test

A significance test was also used to evaluate the exogenous and endogenous variables' relationship to prove the hypothesis testing. The p-value revealed the relevance criteria. Suppose the p-value between the exogenous and endogenous variables is less than 0.05 at a significance range of 5%. In that case, the exogenous variables have a major impact on the endogenous variable. In contrast, if the value is higher than 0.05, the exogenous variables do not significantly develop the endogenous variable. The results of the hypothesis test are presented (See Table 4).

Table 4. Result of Hypothesis Testing

Path Analysis	Coefficients	t statistics	P-Value	Decision
Performance Expectancy → Behavioral Intention	0.173	2.168	0.031	Support
Effort Expectancy → Behavioral Intention	0.168	2.775	0.006	Support
Social influence → Behavioral Intention	-0.136	1.118	0.264	Not Support
Facilitating Conditions → Behavioral Intention	-0.046	0.413	0.680	Not Support
Hedonic motivation → Behavioral Intention	0.635	7.623	0.000	Support
Habit → Behavioral Intention	-0.003	0.030	0.976	Not Support
Perceived risk → Behavioral Intention	0.283	2.906	0.004	Support

4. Discussion

This study indicated that performance expectancy positively and significantly affects behavioral intention. One of the conditions felt in the performance expectancy aspect is the ease of use of the JAKET application. Most female users claim to have a user experience that matches the application's performance expectations. The urgency of performance expectancy gives more confidence in users to affect the behavior of using the JAKET application. This study's results align with the studies conducted by Nguyen & Nguyen (2020) using the Theory of Reasoned Action (TRA) approach. The results show that performance expectancy significantly affects behavioral intention to use mobile banking services in Vietnam. The same thing was conveyed by Septiani et al. (2017) using the Theory of Planned Behavior (TPB) and Diffusion of Innovation (DOI) approaches, it shows that factors of internal perception (performance expectancy) have a significant effect on the behavioral intention of online transportation service.

Furthermore, positive and significant results were obtained for the effect of effort expectancy on behavioral intention. The performance of the JAKET application follows the user's expectations and desires. Applications that run on the JAKET application have simple features that make it easier for users because it does not take long to learn to use the JAKET application. In addition to its simple elements, this application has the advantage of delivering orders that can serve more than one shopping place, increasing the user's perception of the application. The results of this study are in line with the studies conducted by Indrawati & Yusliansyah (2017) by using the Technology acceptance model (TAM) approach. The results of the survey

show that effort expectancy has a significant effect on the behavioral intention of using smartphones as a medium for making non-cash transactions in business processes. Further studies conducted by Suzianti et al. (2018) conveyed the same thing by being oriented towards the Theory of Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB). They stated that the effort expectancy is considered high enough, so it is hoped that Gojek can maintain its current position by providing a touch of the latest innovations.

The following result shows that social influence has a negative and insignificant effect on behavioral intention. This research result's social influence factor is not the main factor for consumers to use application-based transportation, namely the JAKET application. If you look at the respondents' characteristics in this study, as many as 80% of the respondents came from the millennial generation, which, when related to the adoption theory, occupy the innovators and early adopters (Indrawati & Yusliansyah, 2017). The hallmark of this group is the courage to take risks in adopting new technologies. High curiosity causes this group to use new technology, which is expected to provide solutions to their needs. Therefore, social influence from the surrounding environment is not the main trigger for this group to use new technology. Likewise, based on the results of this study, the results were negative and insignificant for the effect of facilitating conditions on behavioral intention. This result is strengthened by measuring the validity test. The second measurement item for the facilitating conditions variable (FC2) obtained the lowest loading factor value compared to the loading factor for the other models' constructs in this study. It can be interpreted that the JAKET application's condition does not facilitate the needs of consumers, such as support or service compatibility, supporting facilities for the features provided, and the ease of obtaining and accessing internet facilities. Conditions that facilitate users of this application do not support implementing assessment procedures such as administrative, organizational, or technical support (Nikou & Economides, 2017).

Then for influence hedonic motivation against behavioral intention shows a positive and significant influence on behavioral intention. It means that the higher the acquisition of the application's convenience, the higher the motivation for use and will encourage consumer behavior to reuse it. The results of the discussion of this study are supported by the research of Venkatesh et al. (2012), which says Hedonic motivation is a critical determinant of behavioral intention and is considered a more crucial driver when compared to performance expectancy in a non-organizational context. Furthermore, Primasari (2016) concerned Digital Advertising, and hedonic motivation is the third-largest factor in the model tested in influencing behavioral intention. The results of subsequent research indicate that habit has a negative and insignificant effect on behavioral intention. It means that there are still not many consumer habits in using the JAKET application. The habit factor is unable to encourage user habits to use the application. It is because the JAKET application partners are still limited, and cooperation with culinary businesses is minimal compared to the Gojek and Grab applications. Furthermore, only about 28% of users often use the application if it is viewed from respondent characteristics. Most of the users come from entrepreneurial and other professional backgrounds.

Therefore, The jacket application developer needs to make further innovations on the application to reuse joy. These findings suggest that service providers should be positive in encouraging consumers to use online services and gradually eliminate the negative effects of habits (Lu et al., 2011). Meanwhile, the latest research results show that perceived risk positively and significantly affects behavioral intention. The chances of using the JAKET application as a payment system or personal data information are crucial for consumers. Perceptions of risk play an important role in encouraging consumer confidence in using these applications. Based on the hypothesis's results (See Table 4), perceived risk has the second largest value of coefficients after hedonic motivation in influencing behavioral intention to the JAKET application. It proves that user concerns regarding payment security and personal data information are important things for the application developer to pay attention to, so it is hoped that a good security system setup can affect their intentions and usage behavior. The results of this study are in line with the studies conducted by Silalahi et al. (2017), and Yuliati et al. (2020) use the Technology Acceptance Model (TAM) approach states that a smaller risk will increase customer usage behavior.

5. Conclusions

This study uses the UTAUT 2 model on acceptance of JAKET application technology. This study indicated that UTAUT 2 affect the behavioral intention of the JAKET application, including performance expectancy, effort expectancy, hedonic motivation, and perceived risk. It provides important information for JAKET application developers to maintain and improve the quality of their applications. Furthermore, based on the discussion results, it turns out that social influence, facilitating conditions, and habits cannot influence the behavioral intention of the JAKET application. The discussion results emphasize that JAKET

application developers need to improve aspects of social influence, facilitating conditions, and habits to encourage the behavior of using the application on an ongoing basis. Furthermore, application-based transportation benefits the community as users in everyday life, which are very efficient and effective. This study has limitations in its location, which is limited to only one city, namely Pematangsiantar City.

Furthermore, research in the field was only carried out once or was cross-sectional regarding data collection. Further research can be carried out in other cities with JAKET online transportation using other technology adoption models. Then for further research, it can be done by combining the Theory Combined TAM and TPB (C-TAM-TPB) approach as well as using the Innovation Diffusion Theory (IDT) approach, which comes from periodic primary data collection, for example, once every six months. Finally, further research can be carried out using a larger number of samples so that generalizations can be made about the acceptance of technology in the application-based transportation sector, especially for the JAKET application.

Appendix A: Measurement Instruments

Variable	Code	Item	Source
Performance Expectancy	PE1	Using JAKET application increases my productivity	Joshi (2018) Martins et al (2014)
	PE2	Using the JAKET application helps me to run my daily activities faster	
	PE3	I can save time when I use the JACKET application to move from one place to another	
	PE4	I find JAKET application useful in my daily life	
Effort Expectancy	EE1	Learning how to use JAKET application is easy for me	Zhou et al (2010) Lavenia (2018)
	EE2	It does not take long time to learn to use the JAKET application	
	EE3	I find JAKET application easy to use	
	EE4	It is easy for me to become skilful at using JAKET application	
Social Influence	SI1	People who are important to me think that I should use the JAKET application	Kietzmann et al (2011) Singh et al (2020)
	SI2	People who influence my behavior think that I should use JAKET application	
	SI3	People whose opinions that I value prefer that I use the JAKET application	
Facilitating Conditions	FC1	I have the resources necessary to use JAKET application	Venkateshetal., (2012) Indrawati & Sofiar (2017)
	FC2	I have the knowledge necessary to use JAKET application	
	FC3	JAKET application is compatible with other technologies I use	

	FC4	I can get help from others when I have difficulties using JAKET application	
Hedonic Motivation	HM1	It is fun for me to use the JAKET application	Venkatesh et al (2012) Putri (2018)
	HM2	Features in JAKET application entertain me	
	HM3	Features in JAKET application (Discounts) entertain me	
	HM4	Features in JAKET application (Vouchers) entertain me	
	HM5	JACKET application is enjoyable	
	HM6	I feel excited about using the JAKET application	
Habit	HB1	Using JAKET application has become a habit for me.	Venkatesh et al (2012) Putri (2018)
	HB2	Using JAKET application is something that I do without thinking	
	HB3	Using JAKET application is a part of my daily routine.	
	HB4	I am addicted to using JAKET application	
Perceived Risk	PR1	The bidding price of JAKET application is considered expensive	Yang et al (2012) Martins et al (2014)
	PR2	Long time required to order by JAKET application	
	PR3	Long time waiting for the estimated time of the arrival	
	PR4	The anxious feeling caused by riding an online	
Behavioral Intention	BI1	I intend to use JAKET application in the future	Venkatesh et al (2012) Alalwan et al (2017)
	BI2	I will always try to use JAKET application in my daily life	
	BI3	I plan to use JAKET application in future	
	BI4	I predict I would use JAKET application in the future	

References

Aggelidis, V. P., & Chatzoglou, P. D. (2009). Using a modified technology acceptance model in hospitals. *International Journal of Medical Informatics*, *78*(2), 115–126. https://doi.org/10.1016/j.ijmedinf.2008.06.006

Al-Azawei, A., & Alowayr, A. (2020). Predicting the intention to use and hedonic motivation for mobile learning: A comparative study in two Middle Eastern countries. *Technology in Society*, *62*, 101325. https://doi.org/10.1016/j.techsoc.2020.101325

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors Influencing Adoption Of Mobile Banking By Jordanian Bank Customers: Extending UTAUT2 With Trust. *International Journal of Information Management*, *37*(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

Alamsyah, A., & Rachmadiansyah, I. (2018). Mapping online transportation service quality and multiclass classification problem solving priorities. *Journal of Physics: Conference Series*, *971*(1), 12021.

Byrne, B. M., & Van de Vijver, F. J. R. (2010). Testing for measurement and structural equivalence in large-scale cross-cultural studies: Addressing the issue of nonequivalence. *International Journal of Testing*, *10*(2), 107–132. https://doi.org/10.1080/15305051003637306

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, *14*(2), 189–217. https://doi.org/10.1287/isre.14.2.189.16018

Choi, J., Lee, A., & Ok, C. (2013). The effects of consumers' perceived risk and benefit on attitude and behavioral intention: A study of street food. *Journal of Travel & Tourism Marketing*, *30*(3), 222–237. https://doi.org/10.1080/10548408.2013.774916

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 51–90. https://doi.org/10.2307/30036519

Ghalandari, K. (2012). The effect of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran: The moderating role of age and gender. *Middle-East Journal of Scientific Research*, *12*(6), 801–807. https://doi.org/10.5829/idosi.mejsr.2012.12.6.2536

International Journal of Global Optimization and Its Application
Vol. 1, No. 3, September 2022, pp.202-214.

212

Ghozali, I. (2014). Alternative Structural Equation Modeling Method with Partial Least Squares (PLS). *Semarang: Diponegoro University Publishing Agency*.

Ha, N. T., Nguyen, T. L. H., Pham, T. Van, & Nguyen, T. H. T. (2021). Factors influencing online shopping intention: An empirical study in Vietnam. *The Journal of Asian Finance, Economics and Business*, *8*(3), 1257–1266. https://doi.org/10.13106/JAFEB.2021.VOL8.NO3.1257

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis (ed. 7th). Essex*. Prentice-Hall, Inc., Pearson Education Limited.

Indrawati & Yusliansyah, S. (2017). Adoption factors of online-web railway ticket reservation service (A case from Indonesia). *5th International Conference on Information and Communication Technology (ICoIC7), Malacca City*, 403–408.

Joshi, D. C. (2018). Consumer attitude and intention to adopt mobile wallet in India—An empirical study. *Int. J. Bank Mark. Emerald Publ. Ltd*.

Khatimah, H., & Halim, F. (2014). Consumers' intention to use e-money in Indonesia based on Unified Theory of Acceptance and Use of Technology (UTAUT). *American-Eurasian Journal of Sustainable Agriculture*, *8*(12), 34–40.

Khatimah, H., Susanto, P., & Abdullah, N. L. (2019). Hedonic motivation and social influence on behavioral intention of e-money: The role of payment habit as a mediator. *International Journal of Entrepreneurship*, *23*(1), 1–9.

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, *54*(3), 241–251. https://doi.org/10.1016/j.bushor.2011.01.005

Kurniawati, D. E., & Khoirina, R. Z. (2020). Online-Based Transportation Business Competition Model of Gojek and Grab. *1st Borobudur International Symposium on Humanities, Economics and Social Sciences (BIS-HESS 2019)*, 1054–1057.

Lavenia, B. C. (2018). *Pengaruh Technology Acceptance Model (TAM) sdan Electronic Wod of Mouth (EWOM) Terhadap Kepuasan Pelanggan (Survei Pada Pelanggan Gojek di Kota Kediri)*. Universitas Brawijaya.

Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, *8*(3), 130–141. https://doi.org/10.1016/j.elerap.2008.11.006

Lie, D., Sudirman, A., Efendi, E., & Butarbutar, M. (2019). Analysis of mediation effect of consumer satisfaction on the effect of service quality, price and consumer trust on consumer loyalty. *International Journal of Scientific and Technology Research*, *8*(8), 421–428.

Lu, Y., Cao, Y., Wang, B., & Yang, S. (2011). A study on factors that affect users' behavioral intention to transfer usage from the offline to the online channel. *Computers in Human Behavior*, *27*(1), 355–364. https://doi.org/10.1016/j.chb.2010.08.013

Martins, C., Oliveira, T., & Popovič, 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*(1), 1–13.

Martono, S., Nurkhin, A., Mukhibad, H., Anisykurlillah, I., & Wolor, C. W. (2020). Understanding the employee's intention to use information system: Technology acceptance model and information system success model approach. *The Journal of Asian Finance, Economics and Business*, *7*(10), 1007–1013.

Mezni, H., Gagnon, M.-P., & Duplantie, J. (2009). Étude des déterminants individuels de l'adoption du dossier de santé électronique du Québec. *Pratiques et Organisation Des Soins*, *40*(2), 125–131.

Mort, G. S., & Rose, T. (2004). The effect of product type on value linkages in the means-end chain: implications for theory and method. *Journal of Consumer Behaviour: An International Research Review*, *3*(3), 221–234.

Nguyen, V. A., & Nguyen, T. P. T. (2020). An integrated model of CSR perception and TAM on intention to adopt mobile banking. *The Journal of Asian Finance, Economics and Business*, *7*(12), 1073–1087.

Nikou, S. A., & Economides, A. A. (2017). Mobile-Based Assessment: Integrating acceptance and motivational factors into a combined model of Self-Determination Theory and Technology Acceptance. *Computers in Human Behavior*, *68*, 83–95.

International Journal of Global Optimization and Its Application
Vol. 1, No. 3, September 2022, pp.202-214.

213

Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, *7*(3), 101–134.

Primasari, N. (2016). Digital advertising media adoption in consumer goods industry (An Indonesian perspective). *2016 4th International Conference on Information and Communication Technology (ICoICT)*, 1–6.

Purnamasari, P., Pramono, I. P., Haryatiningsih, R., Ismail, S. A., & Shafie, R. (2020). Technology acceptance model of financial technology in micro, small, and medium enterprises (MSME) in Indonesia. *The Journal of Asian Finance, Economics and Business*, *7*(10), 981–988.

Putri, D. A. (2018). Analyzing factors influencing continuance intention of e-payment adoption using modified UTAUT 2 model. *2018 6th International Conference on Information and Communication Technology (ICoICT)*, 167–173.

Rafique, H., Almagrabi, A. O., Shamim, A., Anwar, F., & Bashir, A. K. (2020). Investigating the acceptance of mobile library applications with an extended technology acceptance model (TAM). *Computers & Education*, *145*, 103732.

Rathore, H. S. (2016). Adoption of digital wallet by consumers. *BVIMSR's Journal of Management Research*, *8*(1), 69–75.

Rezaei, S., & Ghodsi, S. S. (2014). Does value matters in playing online game? An empirical study among massively multiplayer online role-playing games (MMORPGs). *Computers in Human Behavior*, *35*, 252–266.

Salimon, M. G., Yusoff, R. Z. Bin, & Mokhtar, S. S. M. (2017). The mediating role of hedonic motivation on the relationship between adoption of e-banking and its determinants. *International Journal of Bank Marketing*, *35*(4), 558–582. https://doi.org/10.1108/IJBM-05-2016-0060

Santoso, A. S., & Nelloh, L. A. M. (2017). User satisfaction and intention to use peer-to-peer online transportation: A replication study. *Procedia Computer Science*, *124*, 379–387.

Schaupp, L. C., Carter, L., & McBride, M. E. (2010). E-file adoption: A study of US taxpayers' intentions. *Computers in Human Behavior*, *26*(4), 636–644.

Septiani, R., Handayani, P. W., & Azzahro, F. (2017). Factors that affecting behavioral intention in online transportation service: Case study of GO-JEK. *Procedia Computer Science*, *124*, 504–512.

Silalahi, S. L. B., Handayani, P. W., & Munajat, Q. (2017). Service quality analysis for online transportation services: Case study of GO-JEK. *Procedia Computer Science*, *124*, 487–495.

Singh, N., Sinha, N., & Liébana-Cabanillas, F. J. (2020). Determining factors in the adoption and recommendation of mobile wallet services in India: Analysis of the effect of innovativeness, stress to use and social influence. *International Journal of Information Management*, *50*, 191–205.

Subawa, N. S., Dewi, N. K. A., & Gama, A. W. O. (2021). Differences of Gender Perception in Adopting Cashless Transaction Using Technology Acceptance Model. *The Journal of Asian Finance, Economics and Business*, *8*(2), 617–624. https://doi.org/10.13106/jafeb.2021.vol8.no2.0617

Sudarsono, H., Tumewang, Y. K., & Kholid, M. N. (2021). Customer adoption of Islamic banking services: empirical evidence from Indonesia. *The Journal of Asian Finance, Economics and Business*, *8*(3), 1193–1204. https://doi.org/10.13106/jafeb.2021.vol8.no3.1193

Sudirman, A., Halim, F., Sinaga, O. S., & Marpaung, F. K. (2021). Reflection on Customer Satisfaction Using the Jaket Application in Terms of Aspects of E-Service Quality, Price, and Brand Awareness. *Target: Jurnal Manajemen Bisnis*, *3*(1), 37–48. https://doi.org/10.30812/target.v3i1.1082

Sung, H.-N., Jeong, D.-Y., Jeong, Y.-S., & Shin, J.-I. (2015). The relationship among self-efficacy, social influence, performance expectancy, effort expectancy, and behavioral intention in mobile learning service. *International Journal of U-and e-Service, Science and Technology*, *8*(9), 197–206. https://doi.org/10.14257/ijunesst.2015.8.9.21

Suzianti, A., Herawati, R., & Septiandi, Y. (2018). Analysis of affecting technology adoption factors in online transportation reservation for smartphone application: case study: PT. GoJek Indonesia. *Proceedings of the 4th International Conference on Communication and Information Processing*, 198–203.

Trinh, T., Le, H., & Nguyen, N. (2020). Factors affecting private customers in adopting mobile banking in Vietnam. *Management Science Letters*, *10*(12), 2769–2780. https://doi.org/10.5267/j.msl.2020.4.033

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

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. https://doi.org/10.2307/30036540

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. https://doi.org/10.2307/41410412

Verplanken, B., Aarts, H., Van Knippenberg, A. D., & Moonen, A. (1998). Habit versus planned behaviour: A field experiment. *British Journal of Social Psychology*, *37*(1), 111–128. https://doi.org/10.1111/j.2044-8309.1998.tb01160.x

Wang, H., Tao, D., Yu, N., & Qu, X. (2020). Understanding consumer acceptance of healthcare wearable devices: An integrated model of UTAUT and TTF. *International Journal of Medical Informatics*, *139*(104156), 1–10. https://doi.org/10.1016/j.ijmedinf.2020.104156

Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior*, *28*(1), 129–142. https://doi.org/10.1016/j.chb.2011.08.019

Yeo, V. C. S., Goh, S.-K., & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. *Journal of Retailing and Consumer Services*, *35*, 150–162. https://doi.org/10.1016/j.jretconser.2016.12.013

Yuliati, L. N., Dradjat, H. A., & Simanjuntak, M. (2020). Online bike: Role of perceived technology, perceived risk, and institution-based trust on service usage via online trust. *Cogent Business & Management*, *7*(1), 1–19. https://doi.org/10.1080/23311975.2020.1798067

Yuniarto, D. (2017). Analisis Penerimaan Penggunaan Aplikasi Grab di Kabupaten Sumedang. *Infoman's: Jurnal Ilmu-Ilmu Manajemen Dan Informatika*, *11*(2), 75–85. https://doi.org/10.33481/infomans.v11i2.23

Yusliansyah, S. (2017). Adoption factors of online-web railway ticket reservation service (A case from Indonesia). *2017 5th International Conference on Information and Communication Technology (ICoIC7)*, 1–6.

Zhou, T. (2012). Examining location-based services usage from the perspectives of unified theory of acceptance and use of technology and privacy risk. *Journal of Electronic Commerce Research*, *13*(2), 135–144.

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, *26*(4), 760–767. https://doi.org/10.1016/j.chb.2010.01.013