



Technology Acceptance Model, Social Influence and Perceived Risk in Using Mobile Applications: Empirical Evidence in Online Transportation in Indonesia

Khairul Ikhsan^{1✉} and Deni Sunaryo²

Faculty of Economics and Business, Serang Raya University, Banten, Indonesia^{1,2}

Info Article

History Article:
Submitted 5 February 2020
Revised 27 June 2020
Accepted 20 July 2020

Keywords:

Technology acceptance model (TAM); social influence; perceived risk; mobile applications.

Abstract

The purpose is to examine the impact of technology acceptance model consisting of usefulness and ease of use on the intention to use, social influence and perceived risk consisting of physical and psychological risk on the intention to use, and examine its impact on behavior using mobile applications. Benefit, ease of use and social factors were considered as the critical factors in accepting and using a technology. However, mobile applications has limitation in consuming an online product or service. A total of 1383 questionnaires were obtained from respondents of online transportation service users in Jakarta, Bandung, Yogyakarta and Surabaya. Using PLS-SEM, it is found that there are significant relationships between technology acceptance model, physical risk, intention and behavior using mobile applications, but no relationship between psychological risk and intention. This study also found that the influence of intention on behavior using mobile applications is dependent on perceived usefulness, perceived ease of use and perceived physical risk rather than perceived psychological risks.

Technology Acceptance Model, Pengaruh Sosial dan Persepsi Risiko dalam Menggunakan Aplikasi Mobile: Bukti Empiris pada Transportasi Online di Indonesia

Abstrak

Tujuannya adalah untuk menguji dampak model penerimaan teknologi yang terdiri dari kegunaan dan kemudahan penggunaan terhadap niat menggunakan, pengaruh sosial dan persepsi risiko yang terdiri dari risiko fisik dan psikologis terhadap niat untuk menggunakan, dan menguji dampaknya terhadap perilaku menggunakan aplikasi mobile. Manfaat, kemudahan penggunaan dan faktor sosial menjadi faktor penentu dalam menerima dan menggunakan suatu teknologi. Namun, aplikasi seluler memiliki batasan dalam mengonsumsi produk atau layanan online. Sebanyak 1383 kuesioner diperoleh dari responden pengguna jasa transportasi online di Jakarta, Bandung, Yogyakarta dan Surabaya. Dengan menggunakan PLS-SEM, ditemukan bahwa terdapat hubungan yang signifikan antara model penerimaan teknologi, risiko fisik, niat dan perilaku menggunakan aplikasi mobile, tetapi tidak ada hubungan antara risiko psikologis dan niat. Studi ini juga menemukan bahwa pengaruh niat terhadap perilaku menggunakan aplikasi seluler tergantung pada persepsi kegunaan, persepsi kemudahan penggunaan dan persepsi risiko fisik daripada persepsi risiko psikologis.

JEL Classification: Z10, Z13

How to Cite: Ikhsan, K., & Sunaryo, D. (2020). Technology Acceptance Model, Social Influence and Perceived Risk in Using Mobile Applications: Empirical Evidence in Online Transportation in Indonesia. *Jurnal Dinamika Manajemen*, 11(2), 127-138.

✉Correspondence Address

Jl. Raya Cilegon No.Km. 5, Taman, Drangong, Kec. Taktakan, Kota Serang, Banten 42162
Email: khairulikhsan@unsera.ac.id

INTRODUCTION

The existence of internet has affect company operations and individual behavior in consuming products and service from conventionally to online for primary or secondary products (Porter, 2001). It's supported by increasing online marketplace and by increasing Indonesian user of internet in the last five years. Indonesian users have been a significant growth each year, particularly by using smartphones (APJII, 2016, 2017). It's because smartphone is the most media often was used to access the internet network with more than 50% of Indonesian user rather than computers (APJII, 2016, 2017). Further, they also use technology for online transactions. Online transactions by using mobile applications is a new lifestyle for people who actively use internet technology (Natarajan et al., 2017). Hedonic benefit in the form of enjoyment and aesthetics are found to affect people's intention in using the mobile application (Xu et al., 2015). It is explained that as they are having good time in using the mobile app and enjoying visual interface of the app, they are getting more satisfied and have stronger willingness to use the mobile application in the future. However, customers have no physical contact with the products directly such as touching, holding and testing the product (Porter, 2001). Our study provides evidence to support that technology acceptance model is a models to understand how individuals receive and use technology for economic purpose particularly using mobile applications.

We use technology acceptance model (TAM) to explain individual behavior toward a mobile applications that emphasize the role of benefits (usefulness and ease of use) as internal factor (Davis, 1989; Davis et al., 1989; Kim et al., 2016; Natarajan et al., 2017) and emphasize social information (social influence) as external factor (Venkatesh & Davis, 2000; Venkatesh et al., 2003, 2012; Pascual-Miguel et al., 2015).

Social influence depends on social information from the closest people who determine individual behavior towards a technology (Venkatesh et al., 2012), despite the encouragement will only

affect individuals who have no direct experience (Venkatesh & Davis, 2000). However, empirical evidence shows an inconsistent result related to the relationship between social influence and intention to use technology. Some scholars find the positive effect (Venkatesh et al., 2003; Pascual-Miguel et al., 2015) and the other don't find (Van Raaij & Schepers, 2008; Chaouali et al., 2016; Hsu & Lin, 2016). Therefore, this study provides evidence related to the role of social influence on intention to consume a product or service online particularly by using a mobile application.

Online transactions using technology have two sides of a coin. First, it offers benefits such as usefulness, ease of use, easy to transact (Natarajan et al., 2017), low price, comfortable and more choices (Gupta & Arora, 2017). On the other hand, it provides risks because individuals can not ensure and anticipate the consequences of using a product or service definitely (Cox & Rich, 1964; Featherman & Hajli, 2016). Several evidences exhibit that customers become a victim when they used an online transportation service such as harassment, kidnapping, robbery and verbal violence. Therefore, the possibility of losses that could them physically and psychologically tends to motivate individuals to avoid online media to use a product or service (Cox & Rich, 1964; Amaro & Duarte, 2015; Grob, 2016; Natarajan et al., 2017).

Previous study emphasize technology acceptance model as a model in determining and explain individual behavior in adoption a technology, not to transaction by using a technology. According to (Kim et al., 2016) both are different. Therefore, in this study the authors highlight technology acceptance model is consisting of perceived usefulness and perceived ease of use as a determinant factor of intention to use a mobile applications. Social influence also as a determinant factors and perceived risk as an impediment factors of behaviors for using mobile applications. Further, the authors also add contributions by exploring perceived risk in the violence consisting of perceived physical and perceived psychological risks as a variables influence intention to use and usage behavior in using mobile applications.

This study uses the setting of online transportation service in Indonesia. In the context of service, risks may be received by individuals will be greater than the products, because of the inherent characteristics, such as lack of standards and guarantees that can reduce consumer's confidence and increase risk (Mitchell, 1999; Cunningham et al., 2005). In other words, it might arise in the services will have a major impact and directly to the users. Assuming that the benefits and likelihood of a loss or danger in violence, the authors raise the issue of usefulness, ease of use, social influence and risk perception as the focal of the variables in this research. However, studies that have analyzed how perceived risk in the violence context affect the intention to use a service with technology (mobile application) have not been widely publicized.

The novelty of this research focused on the analysis of the effect of perceived violence risk components on the intention to use a service with mobile application.

Hypothesis Development

Perceived Usefulness to Intention to Use Mobile Applications

Perceived usefulness describes the benefits of using mobile applications is expected to increase the productivity of individual activities (Davis, 1989; Davis et al., 1989). Using online transportation services, for example, individuals who don't have private vehicles will be helped to reach a certain location if compared to having to use public transportation. Furthermore, individuals can cut travel time to a place if they use online transportation services when compared to public transportation. These conditions indicate that using online transportation services will facilitate their daily activities. Individuals who feel the benefits from online transportation services mobile applications, they tend to have greater intentions to use the applications. It's driven by their believe about the applications, that it will help their daily activities greatly (Davis, 1989; Davis et al., 1989). Therefore, the benefits of online transportation service mobile applications will appear the intention and encourage individuals to use the

applications. Our argument is supported by several studies such as (Davis et al., 1989; Venkatesh & Davis, 2000; Gefen et al., 2003; Van Raaij & Schepers, 2008; Kim et al., 2016; Natarajan et al., 2017) showing the positive effect of perceived usefulness on intention to use.

H1: Perceived usefulness has a positive impact on the intention to use mobile applications.

Perceived Ease of Use to Intention to Use Mobile Applications

Perceived ease of use describes a condition which is individuals can get a service easily through a mobile applications without spending much effort (Davis, 1989; Davis et al., 1989). This condition is seen in the features provided by online transportation services applications from easy-to-understand usage guide to uncomplicated ordering stages. Further, it become an attraction for individual because they don't need a lot of effort to gain the service. Generally, mobile applications of online transportation services can be used easily independently without any help from the others operating and ordering the services. Therefore, when people need transportation service they are motivated to use mobile applications of online transportation service. Our argument is supported by several studies such as (Davis et al., 1989; Venkatesh et al., 2003; Van Raaij & Schepers, 2008; Natarajan et al., 2017) showing the positive effect of perceived ease of use on the intention to use.

H2: Perceived ease of use has a positive impact on intention to use mobile applications.

Social Influence to Intention to Use Mobile Applications

Social influence describe a condition that determine intention and behavior of individuals in using technology is influenced by the closest people such as family and friends (Venkatesh et al., 2003, 2012). According to them, the encouragement are emerged from these people became a social pressure for them to using mobile applications in order to gain status and influence within their social groups. Therefore, they will follow the recommendation from family and friends voluntarily in using a technology particularly mo-

bile applications of online transportation service (French Jr. & Raven, 1959; Venkatesh et al., 2003, 2012). Our argument is supported by several studies such as (Venkatesh et al., 2003; Venkatesh et al., 2012; Pascual-Miguel et al., 2015; Chaouali et al., 2016; Hsu & Lin, 2016), showing the positive effect of social influence on the intention to use.

H3: Social influence has a positive impact on intention to use mobile applications.

Perceived Risk to Intention to Use Mobile Applications

Perceived risk is a multidimensional construct in traditional (Cox & Rich, 1964; Jacoby & Kaplan, 1972; Stone & Grønhaug, 1993; Mitchell, 1999) and online shopping contexts (Forsythe & Shi, 2003; Cunningham et al., 2005; Yang et al., 2015), researchers define perceived risk in several term. This study focuses on two type of risks, which consists of physical risk and psychological risk.

Physical risk define as a “risk associated with physical danger because of use of the product” (Stone & Grønhaug, 1993). The possibility of physical risk will encourage individuals to stop using its service in the future (Stone & Grønhaug, 1993; Mitchell, 1999; Carroll et al., 2014; Featherman & Hajli, 2016). It’s caused by the possibility of losses that could harm them physically such as harassment, kidnapping, robbery, etc., so that they tend to stop using the service anymore. Whereas psychological risk define as a “consumer’s perception of any possible psychological frustration, pressure, or anxiety resulting from the use” (Lim, 2003).

Psychological risk is related with a situation which makes consumers feel uncomfortable and psychological pressure from using a product or service. Further, psychological risk is also related to verbal and non verbal violence when using a product or service such as flattery, terror, observe and comment on the appearance and the body of individuals and so on. These conditions tend to encourage individuals to stop using its service, because they fell that they are not threaten well or appropriate with the standard of its services (Stone & Grønhaug, 1993; Mitchell, 1999; Feather-

man & Hajli, 2016). Therefore, both elements of risk can deter individuals to use online transportation services through a mobile applications.

Previous studies suggest that, individual perceptions on the possibility of negative consequence can impede them for using a service as they concern about the violence that might be accepted (Mitchell, 1999). It arises because they have no information about the service completely (Bettman, 1973) and inherent characteristic such as lack of standards and guarantees (Jia et al., 1999; Mitchell, 1999; Cunningham et al., 2005), so they can’t anticipate the consequences of using these services (Cox & Rich, 1964; Jia et al., 1999; Featherman & Hajli, 2016). Therefore, individuals tend to avoid and will not use an online service when they felt that risks in using these service too high (Cox & Rich, 1964; Mitchell, 1999).

H4: Physical risk has a negative impact on intention to use mobile applications.

H5: Psychological risk has a negative impact on intention to use mobile applications.

Intention to Use to Usage Behavior Mobile Applications

Previous studies suggest that individual behavior in using a product or service through technology depends on their intention to use (Davis, 1989; Davis et al., 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003, 2012). Moreover, individual behavior in using online transportation service through mobile applications depends on their intention to use. When individuals have a high intention to use they will tend to exhibit the real behavior such as download the applications, order and giving feedback towards the online transportation service. Therefore, the intention would encourage and determine behavior to use online transportation service through mobile applications.

H6: Intention to use has a positive impact on usage behavior mobile applications.

METHOD

This study conducted in online transportation service customers in several cities in Indone-

sia, particularly in Jakarta, Bandung, Yogyakarta and Surabaya, and those that had been using for at least three months as our criteria for purposive sampling (judgement) (Cooper & Schindler, 2014). These cities have a majority internet technology user, particularly in smartphone or mobile (APJII, 2016, 2017). Moreover, the majority of users from these cities are also a productive users, so that users from these cities could represent customers perception about online transportation service in Indonesia. An online questionnaire using a five-point Likert scale was conducted to collect the data from respondents. We adopted and adapted all measurements from previous literatures. Items of perceived usefulness and perceived ease of use were adapted from (Davis, 1989; Natarajan et al., 2017). Items of perceived usefulness reflect the benefits of using a service with mobile application such as “online transportation service mobile application will be useful in my life”. Items of perceived ease of use reflect the easily to get a service using mobile application such as “It is easy to find a transportation service with using an online transportation service mobile application”.

Table 1 presents the profiles of respondents, it can be seen that most of the respondents are male (62%) whom their age are between 21-35 years old and live in Jakarta with income less than 2 million rupiahs. Most of the respondents use motorcycle and taxi online as their main transportation since motorcycle is the most owned vehicle of the respondents. Most of them have used the mobile applications for 1-2 months and use it almost everyday.

Items of perceived social influence and intention to use were adapted from (Venkatesh et al., 2012). Items of social influence reflect the social information from the closest people to use mobile application such as “People who influence my behavior think that I should use online transportation service mobile application”. Items of intention to use reflect the intention to use a service with mobile application in future such as “In the future, I will always try to use online transportation service mobile application in my daily life”. Items of perceived physical risk were adapt-

ed from (Carroll et al., 2014). Items of perceived physical risk reflect the possibility of physical violence of using a service with mobile application such as “Using online transportation service mobile application makes me worry becoming a victim of harassment”. Items of perceived psychological risk were adapted from (Stone & Grønhaug, 1993). Items of perceived psychological risk reflect the possibility of psychological violence of using a service with mobile application such as “Using online transportation service makes me feel anxious or agitate or worry because the driver observe on my appearance and body shape”. Items of usage behavior were adapted from (van

Table 1. Profiles of Repondent

Characteristics	Item	Persentase (%)
Sex	Male	62
	Female	38
Age	≤ 20 Years	34.9
	21-35 Years	61.8
	≥ 35 Years	3.3
Income	No income	12.7
	≤ 2 milion rupiah	35.1
	2.1-3.5 milion rupiah	24.9
	> 3.5 milion rupiah	27.3
Transportation services used	Online motorcycle	25.2
	Online taxi	2.1
	Motorcycle & taxi online	72.7
Experience (length of use)	≤ 6 months	11.1
	7-12 months	19.9
	1-2 months	44.8
	≥ 2 months	24.2
Habit (frequency of use)	Everyday	73.8
	Every week	10.2
	Every month	7.9
	Rarely	8.1
Location	Jakarta	51
	Bandung	10.3
	Yogyakarta	28.8
	Surabaya	9.9
Owned vehicle	Motorcycle	61.4
	Car	11.7
	Motorcycle and car	2.3
	none	24.6

Raaij & Schepers, 2008). Items of usage behavior reflect the behavior in using an online service with mobile application such as “In the last 3 months, I have already ordered more than five times online transportation services on mobile applications”.

All questions were related to issues at individual level in using online transportation service by mobile applications. The questionnaire was distributed over 3 days in January 2018 through advertising in 3 Instagram account of the community from transportation online in Indonesia such as @gojek24jam, @dramaojol.id and @jogjafood, which is each account has hundreds of thousands followers in Indonesia. These ads appear on instastory each account for 24 hours. We received 1449 complete questionnaires. After eliminating 66 unusable response, we verified 1383 valid questionnaires coming

from different cities (705 from Jakarta, 143 from Bandung, 398 from Yogyakarta, and 137 from Surabaya).

RESULT AND DISCUSSION

Evaluation of the Measurement Model

To test construct validity of all variables (technology acceptance model-two variables, social influence, perceived risk-two variables) in this research using confirmatory factor analysis (CFA); to ensure all of measured items reflected the variables that those items were designed to measured (Hair et al., 2014). We used convergent and discriminant validity to assess the construct validity (Hair et al., 2010; Hair et al., 2014). Table 2 shows all item measurements with loadings and cross-loading greater than 0.7 (Hair et al., 2014).

Table 2. Loading and Cross Loading

	Perceived Usefulness	Perceived Ease of Use	Social Influence	Physical Risk	Psychological Risk	Intention to Use	Usage Behavior
PU1	.835	-.009	-.085	.015	-.012	-.010	.036
PU2	.811	.019	-.053	-.021	.004	-.014	-.013
PU3	.874	-.020	-.026	.006	.008	-.012	.049
PU4	.836	-.096	.071	.048	-.026	.067	.022
PU5	.720	.125	.107	-.058	.031	-.036	-.112
PEU1	-.047	.691	-.047	.016	.002	.003	.046
PEU2	-.041	.877	-.071	.030	-.015	-.011	.097
PEU3	-.005	.887	-.032	.017	-.005	-.050	.028
PEU4	.093	.813	.043	-.014	.002	.025	-.116
PEU5	-.059	.808	.084	-.012	-.002	.056	-.031
PEU6	.054	.850	.024	-.037	.019	-.017	-.026
SI1	.053	-.027	.861	-.002	-.006	.084	.005
SI2	-.081	-.001	.903	.010	-.021	-.031	-.014
SI3	.030	.027	.890	-.008	.028	-.049	.010
PHR1	.026	-.011	.056	.878	-.102	.006	-.056
PHR2	-.006	-.016	.008	.902	.048	.029	-.033
PHR3	.000	.003	-.003	.910	-.044	.009	-.013
PHR4	-.007	.016	-.030	.889	.103	.018	-.005
PHR5	-.033	-.004	-.009	.872	-.076	-.002	.050
PHR6	.020	.013	-.022	.868	.070	-.061	.059
PSR1	-.006	-.018	.010	-.024	.886	-.015	.018
PSR2	-.018	.037	.009	-.048	.919	-.008	-.008
PSR3	.012	-.013	-.002	.050	.928	.006	-.002
PSR4	.011	-.006	-.016	.021	.931	.016	-.006
IU1	.078	.084	-.072	.010	-.016	.872	.008
IU2	-.037	-.026	.000	.005	.011	.940	.039
IU3	-.037	-.054	.071	-.015	.004	.899	-.048
USE1	.123	.093	.031	-.012	-.011	-.059	.832
USE2	-.032	-.054	-.039	.002	-.001	.026	.927
USE3	-.080	-.030	.011	.009	.011	.028	.911

Notes: bold values are loading for items are above the recommended value of .7

CFA of all items in this research had loading above 0.720, with correlation among variables below 0.590. From Table 2, we can observe each loading and cross-loading from all item measurements, thus confirming construct validity.

To test discriminant validity, we used Fornell-Larcker criterion as suggested by (Hair et al., 2014). We compare the square root of the average variance extracted (SRAVE) from every variables to correlations among variables in the model. If the SRAVE's value of each variable is greater than the correlation between that variable and other variables, it suggest that the variables in this research are distinct from one another. Table 3 shown that all variables have a SRAVE's value greater that the correlation between them and all other variables. These result indicate that all variables are truly distinct from other variables by empirical standards. Based on these result, the measurement model exemplify adequate convergent validity and discriminant validity.

To test the reliability of this measurement, researcher used the cronbach's alpha coefficient and composite reliability with the rule of thumb of 0.7 (Hair et al., 2014). Table 4 summarizes the cronbach's alpha and composite reliability. Cronbach's alpha value ranged from 0.861 to 0.946 and composite reliability value ranged from 0.909 to 0.957. Based on these result, researcher can conclude that this measurement are reliable.

Evaluation of the Structural Model

To test H1, H2 and H3, partial least square structural equation modeling (PLS-SEM, WarpPLS 6.0) was used, with technology acceptance model, social influence, perceived risk, intention to use and usage behavior being seven variables (Figure 1). The model fit statistics was satisfactory (ARS = 0.315, AVIF = 1.474, and APC = 0.221). The R² values were 0.44 and 0.19, suggesting that 44% variance in extent of intention to use can be explained by technolo-

Table 3. Descriptive Statistics and Correlations of the Variables (N = 1383)

Variabel	Mean	SD	AVE	SRAVE	PU	PEU	SI	PHR	PSR	IU	USE
PU	4.622	.507	.667	.817	1						
PEU	4.702	.472	.678	.823	.590 ^a	1					
SI	3.924	.893	.783	.885	.491 ^a	.348 ^a	1				
PHR	2.608	1.117	.786	.887	-.115 ^a	-.117 ^a	-.051 ^c	1			
PSR	2.363	1.303	.839	.916	-.042	-.060 ^a	.051 ^c	.575 ^a	1		
IU	4.243	.789	.817	.904	.561 ^a	.503 ^a	.487 ^a	-.147 ^a	-.015	1	
USE	4.532	.772	.793	.891	.507 ^a	.448 ^a	.364 ^a	-.095 ^a	-.023	.431 ^a	1

Note: significance: ^ap-value < .001. ^bp-value < .05. ^cp-value < .1. AVE = average variances extracted; SRAVE = square root of average variances extracted; PU = Perceived usefulness; PEU = Perceived ease of use; SI = Social influence; PHR = Physical risk; PSR = Psychological risk; IU = intention to use; USE = usage behavior.

Table 4. Result of Reliability Test

Variables	Measurement Items	Cronbach's A	Composite Reliability	Number of Items
Perceived usefulness	PU1, PU2,PU3, PU4, PU5	-.874	-.909	5 (5)
Perceived ease of use	PEU1, PEU2, PEU3, PEU4, PEU5, PEU6	-.903	-.926	6 (6)
Social influence	SI1, SI2, SI3	-.861	-.915	3 (3)
Physical risk	PHR1, PHR2, PHR3, PHR4, PHR5, PHF6	-.946	-.957	6 (6)
Psychological risk	PSR1, PSR2, PSR3, PSR4	-.936	-.954	4 (4)
Intention to use	IU1, IU2, IU3	-.888	-.931	3 (3)
Usage behavior	USE1, USE2, USE3	-.869	-.920	3 (3)

Note: final items numbers (initial numbers)

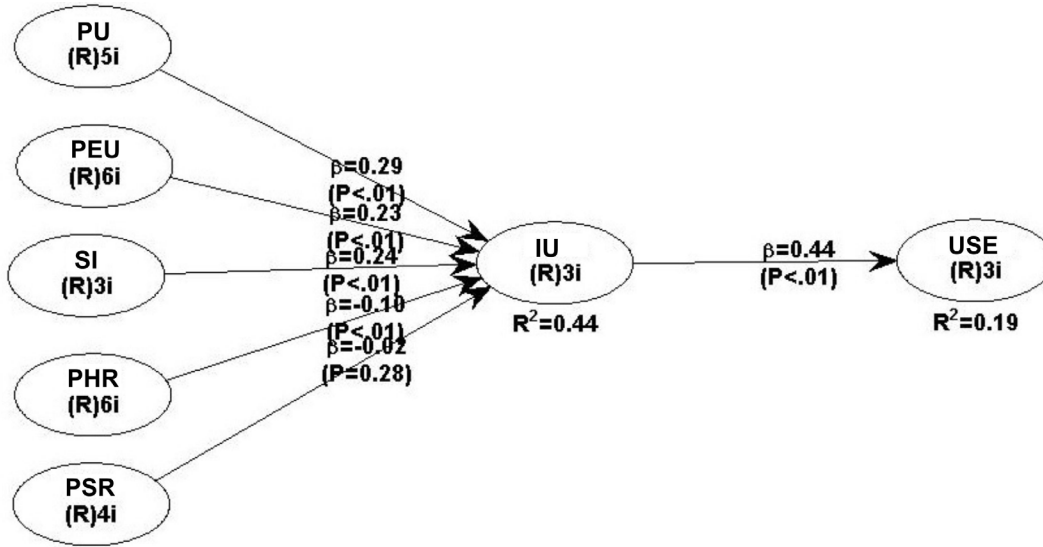


Figure 1. Research Model

gy acceptance model, social influence and perceived risk and 19% variance in extent of usage behavior can be explained by intention to use. Path coefficient from perceived usefulness to intention to use ($\beta = 0.29$, p-value < 0.01), perceived ease of use to intention to use ($\beta = 0.23$ p-value < 0.01) and social influence to intention to use ($\beta = 0.24$, p-value < 0.01) were significant (Table 4). Based on these result, H1, H2, H3 are supported.

Further, to test H4 and H5 the relationship between perceived risk, intention to use and usage behavior. Path coefficient from physical risk to intention to use ($\beta = -0.10$, p-value

< 0.01) and intention to use to usage behavior ($\beta = 0.44$, p-value < 0.01). Unfortunately, we find a non significant path coefficient ($\beta = -0.02$, p-value < 0.25). The f-squared effect size value was 0.003 (Table 5), suggesting perceived psychological risk has a small effect size in order to affect intention to use online transportation service (Hair et al., 2014). Based on these result, H4, H5 are supported, whereas H6 is not.

This study provides support on the influence of technology acceptance model such as perceived usefulness, perceived ease of use and social influence in using mobile applications in

Table 5. Path Coefficients and Hypothesis Testing

Hyphotesis	Relationship	Coefficient	R ²	Standard error	Effect Size	Supported
H ₁	Perceived usefulness → Intention to use	.29 ^a	.44	.030	.167	Yes
H ₂	Perceived ease of use → Intention to use	.23 ^a		.027	.118	Yes
H ₃	Social influence → Intention to use	.24		.028	.119	Yes
H ₄	Physical risk → Intention to use	-.10 ^a		.023	.030	Yes
H ₅	Psychological risk → Intention to use	-.02 ^d P = .25		.023	.003	No
H ₅	Intention to use → Usage Behavior	.44	.19	.028	.194	Yes
Goodness of Fit			ARS=.315 ^a ; AVIF=1.474 ^c ; APC=.221 ^a			

Note: significance: ^ap-value $< 0,001$, ^bp-value $< 0,05$, ^cGood if < 5 , ^dnon-significance.

the online transportation service in Indonesia. Using partial least square structural equation modeling (PLS-SEM) technique to test the hypothesis. We also examine the impact of intention to use on usage behavior in using mobile applications. As an extension of the perceived risk study, we explore the role of perceived risk physical and psychological in the violence context to predict intention to use. By using the PLS-SEM Approach, we also examine the quality of measurements assessed by looking at the validity and reliability of the measures carried out. The results shows that our measurements are at par with the criteria set up by other established researchers. As such, the measures in the model are valid and reliable.

Our study provides evidence to support that technology acceptance model is a models to understand how individuals receive and use technology for economic purpose particularly using mobile applications. Individual behavior in using an online service through a mobile applications is depends on their intention to use it and its determined by internal beliefs (Davis, 1989; Davis et al., 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003, 2012). However, our assumptions is different from others perspectives saying that internal beliefs only affect intention to use through attitudes (Davis et al., 1989; Hu et al., 1999). We argue that both beliefs are determinants of intention to use a technology directly because cognition or rational judgment can affect individual intentions (Bagozzi, 1982; Venkatesh & Davis, 2000). In other words, the motivation or encouragement of individual feelings and other non-affective processes tend to dominate their intentions and behaviors (Bagozzi, 1982).

More importantly, our study provides new evidence on how individuals accept and use a technology particularly in the context of online services. In this paper, we examine the effect of technology acceptance model that is consisted of perceived usefulness, perceived ease of use and social influence on intention to use, and intention to use on usage behavior of mobile applications. The finding of this pa-

per confirm that three variables in technology acceptance model have a significant impact on intention to use, and intention to use also has a significant impact on usage behavior. In despite of perceived usefulness has a greater impact rather than perceived ease of use (Davis et al., 1989; Davis, 1993; Hu et al., 1999; Venkatesh & Davis, 2000). This makes sense because individuals more emphasize benefits gained when using a technology, after that individuals consider the ease or difficulty of using the technology (Davis, 1989; Hu et al., 1999). We also examine the effect of social influence on intention to use an online service with mobile applications. The finding of this paper confirm that social influence has a significant impact on intention to use. It's because individuals emphasize desire to gain status and influence within social groups when using a technology so that their behavior depends on their belief in the other people's opinions (French & Raven, 1959; Venkatesh & Davis, 2000; Venkatesh et al., 2003, 2012). Furthermore, this paper also confirm that usage behavior toward online transportation services mobile applications depends on their intention to use them (Davis et al., 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003, 2012). It's because when individuals have a high intention to use online transportation services mobile applications they will tend to exhibit the real behavior such as download the applications, order and giving feedback towards the service.

Our study also sheds new light on how individuals reject a technology in the context of online services. In this study, we examined the effect of perceived risk in the context of violence that is consisted of physical risk and psychological risk on intention to use online transportation service mobile applications. The finding of this paper confirm that physical risk has a significant effect on intention to use, while psychological risk does not. This makes sense because of lack of standards and guarantees that can reduce consumer's confidence and increase risk in the context of services (Mitchell, 1999; Cunningham et al., 2005). The possibility of physical violence such as harassment, kidnapping, robbery

and so on has a greater impact, while psychological violence in verbal or non-verbal such as flattery, terror, observe and comment on the appearance and the body of individuals and so on, are not. Therefore, individuals tend to avoid and stop to use online transportation services because they feel that physical violence that may arise from using these services has a greater risk than psychological violence (Cox & Rich, 1964; Mitchell, 1999). In addition, it may be due to the Indonesian people's view of psychological violence verbally is not a threat that can harm personal safety, so they will continue to use these services to travel anywhere such as to offices, schools, colleges, tours and so on. Further, majority respondents of this study are men, so they tend not to feel that flattery, terror, observe and comment on the appearance and the body of individuals and so on is a threat.

Practically, this research indicates that any Indonesia companies, especially in the trade sector of products and services to utilize the internet technology system, namely mobile applications to support the company's operations. The mobile applications is expected to be able to encourage companies offer and sell products or services conventionally and online at the same time. The benefits provided by these technologies are expected to motivate users to have the desire to transact online and to shape in the real behavior, even though their opinions on the risks of using it can hinder their intentions. In addition, the technology plays an important role for companies to adapt and competitive in the digital age because it will provide opportunities for companies to create better strategic positions by applying them to the company's value chain (Porter, 2001). This way, decision makers must adopt a mobile applications in order to be able to serve more users from various regions and be aware of the risks that may arise and can harm their users, especially in the violence context.

CONCLUSION AND RECOMMENDATION

We conceptualized technology acceptance model, social influence and perceived risk

and examined its impact on intention to use and usage behavior in using a mobile applications of online transportation services in Indonesia. This research exhibits a positive and significant impact of technology acceptance model and social influence on intention to use and positive and significant impact of intention to use on usage behavior, particularly for economic purpose by using mobile applications. It also shows a negative and significant of physical risk on intention to use, whereas psychological risk not. This means that usage behavior depends on their intention toward the technology (mobile applications) and intention to use depends on internal beliefs about the technology. Technology acceptance model emphasized the benefit and ease of use to motivate individual to use a technology. Social influence emphasized social information from the closest people that depends on their belief in the others opinion to motivate individual to use a technology, meanwhile perceived risk emphasized uncertainty and consequences which become the determinant factors that deter of using the technology.

This study provides guidance for future research. First, this research only focuses on service industries in Indonesia. Future research should extend this research by conducting comparative studies between service and consumer goods industries to test the effects of technology acceptance model and perceived risk. Second, this research only focuses on the perceived risk in the context of physical and psychological violence as a barrier factor for individual intention to use a mobile application. Future research can extend this research by conducting comparative studies between countries with significant cultural differences such as high context and low context to examine the effect of perceived risk. Finally, this study only focuses on perceived risk in the physical and psychology, whereas risk perception itself is a multidimensional construct (Taylor, 1974; Peter & Tarpey Sr., 1975; Stone & Grønhaug, 1993; Mitchell, 1999; Forsythe & Shi, 2003; Cunningham et al., 2005; Carroll et al., 2014; Yang et al., 2015). Future research is expected to extend the other forms of perceived risk such as

performance, financial, social and time risks in the context of violence and testing its influence on intention to use a mobile applications.

This paper has its limitation in the context of perceived risk particularly in physical and psychological violence. Future research could extend perceived risk in the other context and with the other form such as financial, time, social and product risks. Moreover, future research could perhaps conduct comparative study on a customer who come from the different culture such as high context and low context culture so that determinant and impediment factors in using application mobile could be better understood.

REFERENCES

- Amaro, S., & Duarte, P. (2015). An Integrative Model of Consumers' Intentions to Purchase Travel Online. *Tourism Management*, 46(1), 64-79.
- APJII. (2016). *Penetrasi & Profil Perilaku Pengguna Internet Indonesia 2016*. Available at: <https://apjii.or.id/content/read/39/264/Survei-Internet-APJII-2016>. 20 December 2019.
- APJII. (2017). *Penetrasi & Profil Perilaku Pengguna Internet Indonesia 2017*. Available at: <https://apjii.or.id/content/read/39/264/Survei-Internet-APJII-2017>. 2 January 2017.
- Bagozzi, R. P. (1982). A Field Investigation of Causal Relations among Cognitions, Affect, Intentions, and Behavior. *Journal of Marketing Research*, 19(4), 562-583.
- Bettman, J. R. (1973). Perceived Risk and Its Components: a Model and Empirical Test. *Journal of Marketing Research*, 10(2), 184-190.
- Carroll, M. S., Connaughton, D. P., Spengler, J. O., & Byon, K. K. (2014). A Multi Dimensional Model of Perceived Risk in Spectator Sport. *Marketing Management Journal*, 24(1), 80-95.
- Chaouali, W., Ben Yahia, I., & Souiden, N. (2016). The Interplay of Counter-Conformity Motivation, Social Influence, and Trust in Customers' Intention to Adopt Internet Banking Services: the Case of an Emerging Country. *Journal of Retailing and Consumer Services*, 28(January), 209-218.
- Cooper, D. R., & Schindler, P. S. (2014). *Business Research Methods (12Th Edition)*. New York: McGraw Hill.
- Cox, D. F., & Rich, S. U. (1964). Perceived Risk and Consumer Decision-Making: the Case of Telephone Shopping. *Journal of Marketing Research*, 1(4), 32-39.
- Cunningham, L. F., Gerlach, J. H., Harper, M. D., & Young, C. E. (2005). Perceived Risk and the Customer Buying Process: Internet Airline Reservations. *International Journal of Service Industry Management*, 16(4), 357-372.
- Davis, F. D. (1989). Perceived Usefulness, Perceived, and User Acceptance. *Management Information System Quarterly*, 13(3), 319-339.
- Davis, F. D. (1993). User Acceptance of Information Technology: System Characteristics, User Perceptions and Behavioral Impacts. *International Journal of Man Machine Studies*, 38(3), 475-487.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: a Comparison of Two Theoretical Models. *Management Science*, 35(8), 982-1003.
- Featherman, M. S., & Hajli, N. (2016). Self-Service Technologies and E-Services Risks in Social Commerce Era. *Journal of Business Ethics*, 139(2), 251-269.
- Forsythe, S. M., & Shi, B. (2003). Consumer Patronage and Risk Perceptions in Internet Shopping. *Journal of Business Research*, 56(11), 867-875.
- French, Jr, Raven, B., & Cartwright, D. (1959). *Classics of Organization Theory*. Boston: Cengage Learning.
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: an Integrated Model. *Management Information System Quarterly*, 27(1), 51-90.
- Grob, M. (2016). Impediments to Mobile Shopping Continued Usage Intention: a Trust-Risk-Relationship. *Journal of Retailing and Consumer Services*, 33(1), 109-119.
- Gupta, A., & Arora, N. (2017). Understanding Determinants and Barriers of Mobile Shopping Adoption Using Behavioral Reasoning Theory. *Journal of Retailing and Consumer Services*, 36(August), 1-7.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Premier on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oak: Sage Publication.
- Hsu, C. L., & Lin, J. C. C. (2016). Effect of Perceived Value and Social Influences on Mobile App Stickiness and in-App Purchase Intention.

- Technological Forecasting and Social Change*, 108(July), 42-53.
- Hu, P. J., Chau, P. Y. K., Liu Sheng, O. R., & Tam, K. Y. (1999). Examining the Technology Acceptance Model Using Physician Acceptance of Telemedicine Technology. *Journal of Management Information Systems*, 16(2), 91-112.
- Jacoby, J., & Kaplan, L. B. (1972). The Components of Perceived Risk. *Proceedings*. Presented at the Third Annual Convention of the Association for Consumer Research, 3-5 November, Chicago.
- Jia, J., Dyer, J. S., & Butler, J. C. (1999). Measures of Perceived Risk. *Management Science*, 45(4), 519-532.
- Kim, H. W., Kankanhalli, A., & Lee, H. L. (2016). Investigating Decision Factors in Mobile Application Purchase: a Mixed-Methods Approach. *Information and Management*, 53(6), 727-739.
- Lim, N. (2003). Consumers' Perceived Risk: Sources Versus Consequences. *Electronic Commerce Research and Applications*, 2(3), 216-228.
- Mitchell, V. (1999). Consumer Perceived Risk: Conceptualisations and Models. *European Journal of Marketing*, 33(1/2), 163-195.
- Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2017). Understanding the Intention to Use Mobile Shopping Applications and its Influence on Price Sensitivity. *Journal of Retailing and Consumer Services*, 37(July), 8-22.
- Pascual-Miguel, F. J., Agudo-Peregrina, Á. F., & Chaparro-Peláez, J. (2015). Influences of Gender and Product Type on Online Purchasing. *Journal of Business Research*, 68(7), 1550-1556.
- Peter, J. P., & Tarpey, Sr., L. X. (1975). A Comparative Analysis of Three Consumer Decision Strategies. *Journal of Consumer Research*, 2(1), 29.
- Porter, M. E. (2001). Strategy and the Internet. *Harvard Business Review*, March, 62-78.
- Stone, R. N., & Grønhaug, K. (1993). Perceived Risk: Further Considerations for the Marketing Discipline. *European Journal of Marketing*, 27(3), 39-50.
- Taylor, J. W. (1974). The Role of Risk in Consumer Behavior. *Journal of Marketing*, 38(2), 54-60.
- Van Raaij, E. M., & Schepers, J. J. L. (2008). The Acceptance and Use of a Virtual Learning Environment in China. *Computers and Education*, 50(3), 838-852.
- Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, 46(2), 186-204.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *Management Information System Quarterly*, 27(3), 425-478.
- 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. *Management Information System Quarterly*, 36(1), 157-178.
- Xu, C., Peak, D., & Prybutok, V. (2015). A Customer Value, Satisfaction, and Loyalty Perspective of Mobile Application Recommendations. *Decision Support Systems*, 79(November), 171-183.
- Yang, L., Liu, Y., Li, H., & Yu, B. (2015). Understanding Perceived Risks in Mobile Payment Acceptance. *Industrial Management & Data System*, 115(2), 253-269.