Determine Factors of NFC Mobile Payment Continuous Adoption in Shopping Malls:
Evidence From Indonesia

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ABSTRACT

Near Field Communication (NFC) mobile payment systems allow users to utilize services through smartphones. There is insufficient literature exploring the adoption of NFC with payment scenarios in developing countries. This study aims to explore the influential factors of consumer adoption of NFC, taking payment behaviors through NFC in Indonesia as an example. One hundred forty-seven participants were enrolled in the 5-point Likert scale survey, and 124 valid samples were analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that trust mediates the effect of context on consumers' continuous intention to use NFC mobile payment. Additionally, trust mediates the effect of perceived risk on consumers' continuous intention to use. The perceived ease of use and perceived usefulness have no effects on consumers' continuous intention to use. The mediating effect of religiosity has not been observed in this study. The findings can enbale service providers and local governments to offer better mobile payment services.

KEYWORDS

Determine Factors, Mobile Payment in Indonesia, NFC Mobile Payment Adoption

1. INTRODUCTION

The diffusion of smartphones and the innovation of information and communication technology have not only changed the way people live but also changed all aspects of the whole society. Till the end of 2015, the number of mobile line subscriptions has reached the whole number of the global population (Ericsson Mobility Report, 2016). In recent years, the number of usages of mobile devices is bombing in new emerging countries. For example, ITU (2017) reports that in Indonesia,

the mobile-cellular subscriptions are higher than the average level of the world (Indonesia: 149.1; World: 101.5). Furthermore, the number of mobile broadband subscriptions has a significant increase from 2016 to 2017, suggesting that the consumers in Indonesia are willing to accept the mobile technologies. Additionally, to support the development of ICT, the government launched the Indonesia Broadband Plan to achieve a fast network connection in government, hospital, and school by 2019 (ITU, 2017). With the gradually improving infrastructure of the telecommunications industry and climate of encouraging from the government, Indonesians obtain the relevant knowledge to connect with innovative technologies and then feel easy to use mobile applications, including mobile payment adoption (Khatimah and Halim, 2016). Ghezzi et al. (2010) believe that the mobile payment system will be an important feature of future mobile phones. Among different mobile payment systems, Near Field Communication (NFC), the next generation of payment technology, has been encouraged to be used at the company level and individual level (Forrester,2012). Although GSMA (2011) reports that NFC has many benefits compared with past technologies (e.g., SMS), consumers are reluctant to use this new system (Mallat, 2007). Therefore, this study has been conducted to explore the influential factors of the adoption of NFC technology, aiming to help the Indonesian governments realize a cashless society and help organizations to transform. The structure of the paper is organized as follows. First, the review of the mobile payment and related background is elaborated. Second, the research model and the hypotheses are proposed based on past literature. Third, the issues related to data collection are explained. Fourth, the results are demonstrated according to data analysis. Finally, the discussion, implication and conclusion are stated.

2. LITERATURE REVIEW

2.1. Near Field Communication

Mobile payment is defined as the business activities that are acted through wireless handsets and mobile communication devices (Dewan & Chen, 2005; Luna, 2017). The mobile payment system is categorized into proximity payment and business model (Innopay, 2013). There are three payment technologies from the perspective of B2C, including SMS, NFC and QR. All these approaches are established based on different technologies. To be specific, the SMS is established based on several information technologies, including the 'global system for mobile communications', 'general packet radio services' and 'universal mobile telecommunications system' (Sebola and Penzhorn, 2003). QR is a specific 2D barcode containing hundreds of amounts of data (QR code, 2011). NFC is a radio frequency-based technology that allows data to be exchanged in short-range (Forum NFC, 2011). What makes NFC different from the features of the SMS and QR is as follows. NFC has its wide application scope and availability, ease of use, high security, free registration fee and wide added value services (Grassie, 2007; Madlmayr et al., 2008; Csapodi & Nagy,2007). However, the popularization of NFC is not easy due to the disputes among different interests of stakeholders (Benyó et al., 2009).

2.2. Mobile Payment and its Adoption Studying

Since the mobile payment service was first launched in 1997 by Finnish telecom operator Sonera, the electronic payment method has been regarded as a potential service in the markets (Dahlberg et al., 2003). Mobile payment is regarded as an alternative payment method with features such as convenience, efficient transaction speed, and versatility in today's market (Chen, 2006). The existing literature provides various definitions of this growing payment method (e.g., Dahlberg et al., 2008; Au and Kauffman, 2008; Dahlberg et al., 2006; Chen and Adams, 2005; Chen, 2006; Dahlberg et al., 2003; Mallat, 2007; Van der Heijden, 2002). All these definitions give similar meanings to the function of the mobile payment method and its supporting technologies. At the same time, the only difference is the explanation for mobile payments' usage. Mallat (2007) and van der Heijden (2002) propose that mobile payment enables money or funds to be transferred between organizations or

individuals through a mobile device. However, Dahlberg et al. (2003) involve the payment of goods, services, and bills into the scope of the payment objects in their definition. Chen and Adams (2005) also point out that mobile payment supports remote and proximity payments. Considering the influence between transferring money from payers to receivers or exchanging money for goods and services on the consumer's acceptance, mobile payment is defined as a service on mobile devices (often smartphones) for paying goods, services, and bills/invoices remotely or proximately with wireless communication technologies (Dahlberg et al., 2008; Schierz et al., 2010). Based on this definition, this research focuses on consumer-to-business mobile payment methods for commodities and services.

Dahlberg et al. (2015) summarize that at least 22 papers prior to the 2015 study mobile payment adoption based on the Technology Adoption Model (TAM) that refers to two factors, including perceived ease of use (PEU) and perceived usefulness (PU). In this study, NFC is considered as new technology and the purpose of this study is to explore the antecedents of adoption of new technology. Therefore, the technology acceptance model (TAM) is an appropriate theoretical base for application. However, many scholars believe that the only two dependent variables cannot fully reflect the influence on consumers' acceptance intention of mobile payment service and explore other influential factors. Dahlberg et al. (2015) list the factors that have been verified by the previous literature to influence the consumers' acceptance intention of mobile payment service. Except for the first two most influential constructs, PU and PEU, the subsequent significant factor is trust. For example, Munoz-Leiva et al. (2017) verify that trust can directly influence the intentions of consumers in using mobile payment services, suggesting that trust plays a significant role in adopting mobile payment services by consumers. Therefore, trust is added to the research model for exploration. Although many papers verify the influential effect of perceived risk on the intention to adopt new things, the relationships among trust, risk and technology acceptance are still dispute (Mou et al., 2015). Therefore, this study adds perceived risk to explore the relationships among trust, risk and intention to continuously usage.

2.3. Context

As mobile technology and mobile service have integrated into people's daily life in shopping, ordering, hospital appointments, delivery, and transportation, mobile applications can be used almost everywhere and in many situations. In this case, the usage situations are relevant to the usage of mobile applications by users. Belk (1975) divides consumers' using situations into five perspectives, including 1) physical surroundings such as location, lighting, and weathers; 2) social surroundings which refer to other relevant people; 3) temporal perspective related to past experiences or future events; 4) task definition associated with the purpose or requirement for purchasing, and finally 5) antecedent states which include buyers' mood and their conditions. Subsequently, Chen and Kotz (2000) include the way and the location of using an application in the concept of using text. Based on the previous research, Dey (2001) studies the situation under the Internet environment and extends the concept into any information that describes the case of using the application. Considering that Dey's definition is broad, this study redefines the context in two aspects: social surroundings and personal factors. To be specific, social surroundings include the immediate social setting in which users live and the circumstance in which users interact with each other (Wellman, 2001; Dourish, 2004). Personal factors include users' personal experience, task completion and personal emotions (Arning and Ziefle, 2009). This study divides context into five dimensions, including immediate social setting, immediate using environment, interpersonal interactions, personal experience and task completion. To be specific:

1. The immediate social setting is referred to the outside circumstances related to political climates, infrastructure, country situation and marketing influence (Wellman, 2001; Agrawal, 2003; Dourish, 2004). For example, if a country takes a positive action in policy to build infrastructure, encourage a company to advertise their products to let the public to use, then we consider that the context of adoption is good for people from the perspective of immediate social setting;

2. The immediate user environment is referred to the physical surrounding of people (Aubert-Gamet, 1997; Wellman, 2001). For example, if using a kind of product require individuals to stay at home or office to access this product, the immediate using environment is considered to be unsatisfied as people are not at home or offices, we consider that the context of adoption is unsatisfied from the perspective of the immediate using setting;

3. Interpersonal interactions are referred to the communications among individuals and their close relationship people, which is similar to social surroundings proposed by Belk (1975) and Cummings et al. (2002). For example, if the friends, family members, colleagues, teachers, classmates of an individual all use and recommend a kind of product, we consider the context of the adoption of this product is good from the perspective of interpersonal interactions;

4. Personal experience is referred to as an individual once did or may do something, which is similar to the temporal perspective proposed by Belk (1975) and Simons et al. (2004). For example, if an individual once uses a product and considers whether it is good; or if individuals tend to use a particular product and they confirm that their experiences are pleasant. In both cases, we consider that the context of the adoption of a particular product is right from the perspective of personal experience;

5. Task completion is referred to as to what extent products can support people to realize their aims, which is like the task-technology fit proposed by Goodhue (1995), and Klopping and McKinney (2004). For example, if people want to book tickets or buy products through particular devices, which can fully help users do and complete these tasks, we can consider that the contexts of adoption of these devices are good from the perspective of task completion.

3. HYPOTHESIS AND RESEARCH MODEL

3.1. Context

Several researchers discovered that the context significantly influences consumers' product selection and buying decisions (e.g., Gehrt and Yan, 2004; Verplanken and Herabadi, 2001; Mihić and Kursan, 2010; Floh and Madlberger, 2013). Mallat et al. (2009) assert that the context can determine people's intention to use mobile service. The information from the social influence may influence peoples to judge to what extent the mobile applications are useful or to what extent they are easy to use (Rupanjali et al., 2013; Takur, 2013). If individuals are immersed in a climate that encourages people to use mobile payment, and their experience shows that the new technology is useful and easy to use; they may be influenced to consider the new mobile payment is easy to use and useful in specific occasions. Therefore, this study hypothesizes that:

H1: Context contributes to the consumers' perceived ease of use.
H2: Context contributes to the consumers' perceived usefulness.

3.2. TAM: PU and PEU

The technology acceptance model (TAM) is one of the most accepted theories in studying consumers' adoption of new technology (Kim et al., 2010). TAM is first proposed by Davis (1989) that involves three core concepts: PU, PEU, and behavioral intentions (BI). The TAM model has been widely used in studying different subjects and areas, also in the markets of developing countries such as Internet adoption (Wahid, 2007; Abbasi et al., 2011), mobile commerce (Yang, 2005; Chong et al., 2012), e-education (Wong et al., 2012; Raman, 2011) and Online banking (Ramayah et al., 2002).

The construct "PU" is used to describe to what extent people perceive that an application can help to do the job (Davis, 1989; Kim et al., 2010). There are existing studies to verify the direct effect of PU on users' intention to use mobile payment services (e.g., Pai and Huang, 2011; Wu et al., 2017; Dahlberg et al., 2015). People may use mobile payment when they find that this new

technology is useful for their transactions in their daily life. PEU is defined as to what extent people believe that using an application would be free of effort (Davis, 1989). This definition is related to complexity quite closely (Rogers and Shoemaker, 1971). Complexity is regarded as a significant barrier to the consumers' acceptance of mobile payment (Mallat, 2007). Due to technical limitations such as complex payment procedures and obscure instruments, consumers may feel hard to use mobile payment services exactly. In this case, PEU becomes a significant driver of adopting mobile payment application (Venkatesh, 2000; Schierz et al., 2010). Many existing studies verify that PEU can directly influence people's mobile payment acceptance (e.g., Nguyen et al., 2016; Wu and Wang, 2005). This is related to PU when consumers keep paying mobile payment as regular habits or have the perception it is convenient and easy to use. In this study context, if people consider mobile payment with NFC technology is easy to use and useful as they pay bills in the shopping mall, they may consider to use mobile payment with NFC technology in the future continuously. Therefore, this study hypothesizes that:

H3: Perceived ease of use contributes to the consumers' continuous intention to use.
H4: Perceived usefulness contributes to the consumers' continuous intention to use.

3.3. Trust

The most common definition of trust is the belief in somebody's competency doing a specific job or the expectancy on the possibility of relying on an individual's promise (Morgan & Hunt, 1994). For online transaction circumstances, Mcknigh et al. (2002) define trust as the willingness of consumers to be vulnerable to get expected and desired services after learning about the vendor's features. The existing literature has verified the positive effect of trust on consumer behavioral intentions toward Internet technology (e.g., Gefen et al., 2003; Yousafzai et al., 2005). Especially, Gefen (2000) demonstrates that trust can positively influence consumers' acceptance behaviors and Keen (1997) believes that suffering from a lack of trust significantly limits the e-commerce and e-payment systems for the long-term development. However, Cho et al. (2007) and Srivastava et al. (2010) indicate that there are differences between e-payment and mobile payment. Srivastava et al. (2010) highlight two dimensions of consumer trust in mobile payment systems, including trust in mobile service provider and trust in technology. In this case, the subsequent researchers such as Zhang et al. (2012) and Nguyen et al. (2016) verify the influential role of trust in people's adoption of mobile payment, which confirms the findings of past literature.

Furthermore, several scholars research the antecedents of consumer trust in the Internet environment. Walczuch and Lundgren (2004) investigate the influential factors of trust on e-retailing and discover that consumers experience, their knowledge, and their perception toward the organization included word of mouth, friends, and families, marketers' investment, and product controlling can directly influence consumers trust, which suggests that immediate social settings, interpersonal interaction, and personal experience may have effects on the consumers' trust of mobile payment services. Additionally, Luo et al. (2010) believe that social factors play important roles in inspiring the trust of people in specific services, indirectly influencing their attitudes toward specific services or goods and intentions of usage. In this study, as individuals notice that their peers and the entire society have positive attitudes toward the use of new technology (i.e., NFC), they may be influenced to trust such technology, indirectly influencing their usage intentions. Therefore, this study hypothesizes that:

H5: Trust mediates the effect of context on the consumers' continuous intention to use.

3.4. Perceived Risk

Perceived risk was defined as the perceptions of individuals about the uncertainty and consequences of specific events (Gerrard & Cunningham, 2003). Featherman and Pavlou (2003) believe that

perceived risk, to some extent, is related to the acceptance of innovative items. If individuals think the new products or approaches are not familiar and the results of adoption are not certain, they may hesitate to use or accept these new things. Crespo and del bosque (2010) and Slade et al. (2015) also assert that perceived risk may negatively influence the acceptance of the remote system and the internet system. In this study, as people are recommended to use NFC mobile payment, they may be unsure about the safety of using new technology and hesitate to use it. However, if people trust the technology, they may be more willing to use new technology. Therefore, this study hypothesizes that:

H6: Trust mediates the effect of perceived risk on the consumers' continuous intention to use.

3.5. Effect of Religion

Engel et al. (1968) and Ganassali et al. (2006) believe that social factors have great influences on individuals' attitudes, values and behavior. As an inherent human value, religiosity can be influenced by peers and social influence. Since value is the premise of individuals' attitudes and behavior, Mokhlis (2009) believes that religion significantly influences the attitudes, beliefs, behavior and values of people. Past literature tried to explore the relationship between religion and consumers' behavior. For example, Wilkes et al. (1986) find that people with high religiosity prefer to use cash and national brand products. In this study, Islamic culture is common in Indonesia and many people communicate with each other, indirectly influencing their behavior (e.g., food) and attitudes (e.g., political intention). Therefore, this study hypothesizes that:

H7: Religiosity mediates the relationship between context and continuous use intention.

4. METHOD

4.1. Research Design and Ethical Consideration

This study aimed to explore the effects of context, trust, perceived usefulness, perceived ease of use, perceived risk on consumers' continuous intention to use. A quantitative research method (survey-based) was applied because of its comparative advantage in investigating the antecedents of a phenomenon (Creswell, 2009). Bryman (2012) believes that there are several reasons for conducting a quantitative research method. Firstly, setting control variables and isolating variables decrease the negative effects of confound variables so that the study can be more focused. Secondly, the results can be much easier to replicate for examining. Thirdly, the study can figure out the causal relationships among variables. Fourthly, the measurements used in the research can reflect the data objectively, and the statistical results can be evaluated and referred by researchers to make a conclusion.

Bryman (2012) believes that research ethics should be considered before conducting investigations. In this study, the authors conducted the research under the ethic guides of Xi'an Jiaotong-Liverpool University to avoid harm to participants, lacking informed consent, the invasion of privacy and the existence of deception (Diener & Crandall, 1978). The participants were required to answer the questionnaires honestly and anonymously and their responses are protected in case of leaked out.

4.2. Measurements

Since the antecedents of mobile payment usage were generally determined by the cognitions and attitudes of individuals, a self-report survey was adopted for measuring the independent and dependent variables by applying face-face convenient sampling on 28 January 2018, at Central Park in Jakarta, Indonesia. All the scales were selected from the existing literature with high reliability and validity items. The structured 5-point Likert questionnaire (1 is 'Strongly Disagree' and 5 is 'Strongly Agree'), was elaborated in English. The first part of the questionnaires was about the items related

to demographic variables (gender, age, income, educational level and job) and the second part of the questionnaires was about the items related to latent constructs. To be specific, in the second part of the questionnaire included two items of intention to use from Fishbein and Ajzen (1975); three items of trust from Kim, Shin, and Lee (2009); five items of perceived ease of use from Davis (1989); four items of perceived usefulness from Bhattacherjee (2001), Devaraj, Fan, and Kohli (2002) and van der Heijden (2003); seven items of context from Koc et al. (2016); three items of perceived risk from Munoz et al. (2017) and eight items of religiosity from Shah et al. (2011).

A total of 147 people was selected based on the convenience sampling and snowball sampling method from Indonesia and they were voluntarily enrolled in the study. To assess the socio-psychological factors behind the adoption of mobile payment, participants who never heard about or used mobile payments were not included in the data analysis stage. A total of 124 participants (valid response rate was 84.4%) were enrolled in the final data analysis.

4.3. Data Analysis Approaches

For this study, Partial Least Squares Structural Equation Modeling was adopted to test the hypotheses with SmartPls 3.0. The data analysis procedure was conducted as follows: the first was a preliminary screening of data. The second was an assessment of the measurement model and the third was the assessment of the structural model. To be specific, the participant demographics, descriptive statistics of the constructs and standard method bias were described in the first step. Then the outer model loading, reliability and validity of the measurement model were reported. Finally, the hypotheses were tested through 5000-time bootstrapping, following reports of Q square and f square.

5. RESULT

5.1. Demographic Variable and Descriptive Statistics

The demographic report (Table 1) showed that females were the main group of the participant, accounting for 54.8%. In terms of the age, the youth were the main group, while the number of people who were 45-50 years old was the least (15-19 years old,14; 20-24 years old, 42; 25-29 years old, 26; 30-34 years old,12; 35-39 years old,14, 40-44 years old,8; 45-50 years old,3; over 50 years old,5.). In terms of individual income, 52.8% of people earned less than 10000 US dollars per year, while only 4% of people earned more than 90000. In terms of the educational level, 82.2% of people had no Master's degree and Doctorate degree.

The descriptive statistics show in Table 2.

The results showed that context and perceived usefulness have a similar means as much as around 3.95, followed by religiosity, perceived ease of use, intention, trust and perceived risk. The results showed that the participants had similar attitudes on the same constructs because the standard deviation of the constructs was low than 1. The standard deviation of religiosity was 0.813, listing on the highest among all constructs. However, the standard deviation of context was the lowest, accounting for 0.554.

For the normality test, the test of the Skewness and Kurtosis and Shapiro-Wilk were applied. The results show that the value of Skewness and the value of Kurtosis of items were not zero. Additionally, the results of the Shapiro-Wilk test showed that the p values of indicators are all 0.000 (less than 0.05). Therefore, the above results show that the data were not normally distributed. Therefore, this study applied PLS-SEM to examine the measurement model and establish the structural model. Chin and Newsted (1999) believed that PLS-SEM was a robust approach designed to deal with these non-normally distributed data.

Since this study applied a self-report questionnaire and all the data about independent and dependent variables were all collected among the same group people, common method variance should be concerned to avoid the incorrect conclusions. Podsakoff and this co-authors (2003) suggested

Table 1. Demographics

Items	Frequency	Percentage (%)
Gender		
Male	56	45.2
Female	68	54.8
Age (years old)		
15-19	14	11.3
20-24	42	33.9
25-29	26	21
30-34	12	9.7
35-39	14	11.3
40-44	8	6.5
45-50	3	2.4
Over 50	5	3.9
Income (US dollar per year)		
Under 10000	66	52.8
10001-30000	36	28.8
30001-50000	9	7.2
50001-70000	7	5.6
70001-90000	1	0.8
90001-100000	2	1.6
Over100000	3	2.4
Educational level		
High school	49	39.5
Bachelor	53	42.7
Master	16	12.9
Doctorate	6	4.8

researchers consider whether the self-report method was a suitable approach for the studies. This study focused on the perceptions and feelings of individuals and these ideas cannot be accessed directly by other people. Although peer or supervisor assessments were considered as alternative approaches, the third parties could not witness all the situations. Therefore, a self-reported questionnaire was appropriate for evaluating constructs. Additionally, to avoid common method bias as much as it could, this research conducted a trick by demonstrating an instruction for the content of each variable before the questions. This strategy could help participants to better understand the concepts and respond to the following questions more seriously and carefully. Additionally, common-method variance (CMV) of the survey was diagnosed by applying Harman's one-factor test (Podsakoff & Organ, 1986). The result showed that CMV was not a problem because there was no single factor accounting for most of the variance in the measures (the difference of principal component interpretation accounts 33.587% for the total variance, which was less than 50%).

Table 2. Descriptive statistics

Indicator	Mean	SD	Skewness	Kurtosis
PRI1	3.02	.841	-.130	-.552
PRI2	3.00	.920	-.064	-.543
PRI3	3.12	.889	-.241	-.390
PRI	3.05	.798	-.315	-.452
INT1	3.61	.833	-.537	.575
INT2	3.73	.800	-.335	.286
INT	3.669	.7780	-.411	.542
MOT1	3.59	.744	.112	.318
MOT2	3.42	.755	.049	-.301
MOT3	3.36	.790	-.242	.950
MOT	3.457	.667	.143	.505
RLI 1	3.89	.876	-.367	-.593
RLI 2	3.55	1.171	-.535	-.413
RLI 3	3.91	.893	-.590	.048
RLI 4	3.92	1.001	-1.172	1.532
RLI 5	3.62	1.200	-.692	-.408
RLI 6	4.40	.919	-1.659	2.467
RLI	3.882	.813	-.416	.076
PeU1	3.82	.699	-.613	.736
PeU2	3.76	.737	-.823	1.437
PeU3	3.76	.758	-1.267	3.119
PeU4	3.75	.782	-1.081	1.936
PeU5	3.81	.683	-.981	2.409
PeU	3.779	.6298	-.947	1.918
PU1	3.98	.727	-.739	1.749
PU2	3.98	.780	-.792	1.304
PU3	4.03	.686	-.656	2.052
PU4	3.81	.772	-.942	2.030
PU	3.9476	.65896	-.695	1.589
C1	4.10	.869	-.946	.849
C5	4.02	.715	-.577	.619
C6	3.93	.866	-1.154	2.070
C7	3.86	.725	-.825	1.088
C2	3.97	.764	-.611	1.008
C3	4.10	.737	-.898	2.045
C4	3.66	.764	-.338	.491
C	3.948	.554	-.461	.716

5.2. Measurement Model

Partial least squares structural equation modeling was adopted by SmartPLS 3.0 to test the measurement model and establish the structural model. For the measurement model, several researchers had proposed a series of Quality Criteria. Bagozzi and Yi (1988) believed that all average variance extracted should more than 0.5 and Composite Reliability should be more than 0.6. Table 3 showed that the AVE of context was the minimum, accounting for 0.51. Therefore, all average variance extracted (AVE) was more than 0.5. Additionally, the CR of context was the minimum, accounting for 0.878. Therefore, all the values of Composite Reliability (CR) were more than 0.7. Thus, convergent validity was ensured. For the reliability, Hulland (1999) asserted that the Cronbach's Alpha should be more than 0.4. Table 3 showed that the Cronbach's Alpha of context was the minimum, accounting for 0.839. Therefore, the values of Cronbach's Alpha were more than 0.6, suggesting that the reliability was ensured.

Table 3. Cronbach's Alpha context

Construct	Cronbach's Alpha	rho_A	CR	AVE
context_	0.839	0.852	0.878	0.51
intention	0.898	0.904	0.951	0.907
peu	0.913	0.92	0.935	0.743
pu	0.912	0.912	0.938	0.792
religiosity	0.889	1.003	0.906	0.621
risk	0.888	1.017	0.927	0.808
trust	0.847	0.851	0.907	0.765

Fornell-Larcker Criterion (FLC) and Cross Loadings (CL) were chosen to test discriminant validity. The results (Table 4 and Table 5) showed that all the values of the square root of AVE were larger than their correlation coefficients with other factors, suggesting that the discriminant validity of the model was ensured (Fornell & Larcker, 1981). Henseler et al. (2009) believed that outer loading should be more than 0.7. Therefore, this study deleted a few indicators with low out loading, including C4 (0.674), C7 (0.572), Rli 4 (0.680) and Rli 6 (0.695).

Table 4. Fornell-Larcker

Construct	Context	Intention	PEU	PU	RELI	Risk	Trust
context_	0.714						
intention	0.495	0.953					
peu	0.662	0.493	0.86				
pu	0.656	0.553	0.71	0.89			
Religiosity	-0.047	-0.203	0	-0.22	0.788		
risk	-0.204	-0.267	-0.2	-0.16	-0.007	0.9	
trust	0.5	0.619	0.43	0.519	-0.049	-0.4	0.875

Table 5. Cross loading

Indicator	Context	Intention	PEU	PU	REL	Risk	Trust
C1	0.706	0.276	0.537	0.426	0.072	-0.359	0.326
C2	0.779	0.289	0.48	0.461	0.004	-0.118	0.384
C3	0.733	0.391	0.48	0.515	-0.099	-0.093	0.408
C4	0.674	0.31	0.413	0.426	-0.042	0.097	0.294
C5	0.807	0.492	0.544	0.617	-0.125	-0.228	0.434
C6	0.704	0.432	0.463	0.48	-0.119	-0.152	0.331
C7	0.573	0.213	0.364	0.278	0.169	-0.136	0.296
INT1	0.448	0.948	0.432	0.511	-0.128	-0.248	0.557
INT2	0.492	0.957	0.504	0.542	-0.254	-0.259	0.621
MOT1	0.408	0.622	0.377	0.509	-0.146	-0.302	0.875
MOT2	0.511	0.536	0.426	0.489	-0.034	-0.286	0.901
MOT3	0.389	0.459	0.32	0.354	0.064	-0.401	0.848
RISK1	-0.079	-0.116	-0.063	0.009	0.022	0.855	-0.212
RISK 2	-0.222	-0.32	-0.191	-0.196	0.036	0.939	-0.427
RISK 3	-0.203	-0.211	-0.219	-0.164	-0.088	0.902	-0.294
PU1	0.571	0.534	0.657	0.907	-0.212	-0.103	0.502
PU2	0.576	0.443	0.634	0.904	-0.174	-0.099	0.43
PU3	0.588	0.489	0.638	0.91	-0.313	-0.148	0.492
PU4	0.598	0.499	0.589	0.838	-0.071	-0.206	0.422
PeU1	0.459	0.444	0.781	0.519	-0.022	-0.024	0.361
PeU2	0.63	0.508	0.939	0.674	-0.005	-0.162	0.42
PeU3	0.526	0.404	0.859	0.615	-0.003	-0.187	0.363
PeU4	0.611	0.34	0.827	0.562	0.041	-0.23	0.367
PeU5	0.612	0.424	0.897	0.67	-0.006	-0.207	0.341
Rel 1	-0.104	-0.145	-0.035	-0.196	0.806	0.084	-0.102
Rel 2	-0.008	-0.191	0.054	-0.143	0.903	0.077	0.013
Rel 3	-0.12	-0.027	-0.031	-0.191	0.704	-0.034	-0.036
Rel 4	0.022	-0.055	0.039	-0.05	0.691	0.017	-0.038
Rel 5	-0.038	-0.242	-0.023	-0.245	0.904	-0.122	-0.04
Rel 6	-0.016	-0.076	-0.003	-0.139	0.687	-0.024	-0.07

5.3. Structural Model

The structural model analysis is adopted by calculating the significance of each path coefficient with 5000-time bootstrapping.

The H1 and H2 believe that context may predict consumers' perceived ease of use and perceived usefulness. The results show that context positively predicts perceived ease of use at 0.001 level (Original Sample=0.657, Sample Mean =0.660, Standard Deviation=0.054, T Statistics =12.227, P Values=0.000), and perceived usefulness at 0.001 level (Original Sample=0.662, Sample Mean

=0.669, Standard Deviation=0.055, T Statistics =12.059, P Values=0.000) respectively. Therefore, H1 and H2 are supported. It reflects that the context may influence consumers to consider NFC mobile payments are easy to use and useful for their payment in a shopping scenario.

H3 and H4 believe that consumers' perceived ease of use and perceived usefulness can contribute to consumers' continuous intention to use NFC mobile payment. Out of the authors' expectation, the p values of between perceived ease of use and continuous usage intention, and the relationship between perceived usefulness and continuous usage intention are more than 0.05 (P-Value for H3 is 0.132 and P-Value for H4 is 0.325). Therefore, H3 and H4 are not supported.

H5 believes that trust mediates the effect of context on the consumers' continuous intention to use. The results of path coefficients show that context has no significant relationship with continuous usage intention (Original Sample=0.076, Sample Mean =0.088, Standard Deviation=0.101, T Statistics =0.753, P Values= 0.451). However, context positively predicts trust at 0.001 level (Original Sample=0.430, Sample Mean =0.434, Standard Deviation=0.079, T Statistics =5.478, P Values=0.000), and trust positively predicts continuous usage intention at 0.001 level (Original Sample=0.425, Sample Mean =0.427, Standard Deviation=0.086, T Statistics =4.967, P Values=0.000). The result of indirect effect among context, trust and continuous usage intention shows that trust positively mediates the effect of context on continuous usage intention at 0.001 level (Original Sample= 0.183, Sample Mean =0.186, Standard Deviation=0.052, T Statistics =3.507, P Values=0.000). Therefore, H5 is supported. It reflects that trust is the key factor in the path of context that affects consumers' continuous usage intention.

H6 believes that trust mediates the effect of perceived risk on the consumers' continuous intention to use. The results of path coefficients show that perceived risk has no significant relationship with continuous usage intention (Original Sample= -0.039, Sample Mean =-0.040, Standard Deviation=0.076, T Statistics =0.511, P Values=0.609). Perceived risk negatively predicts trust at 0.001 level (Original Sample=-0.267, Sample Mean = -0.266, Standard Deviation=0.074, T Statistics =3.593, P Values=0.000), while trust positively predicts continuous usage intention at 0.001 level (Original Sample=0.425, Sample Mean =0.427, Standard Deviation=0.086, T Statistics =4.967, P Values=0.000). The specific indirect effect among perceived risk, trust and continuous usage intention supports the H6 (Original Sample= -0.114, Sample Mean = -0.113, Standard Deviation=0.039, T Statistics =2.919, P Values=0.004). It reflects that trust is the key factor on the path of a perceived risk that affects consumers' continuous usage intention.

H7 believes that religiosity mediates the relationship between context and continuous use intention. The results of path coefficients show that context has no significant relationship with religiosity(Original Sample= -0.095, Sample Mean =-0.110, Standard Deviation=0.138, T Statistics =0.684, P Values=0.494), and religiosity has no significant relationship with continuous usage intention (Original Sample= -0.150, Sample Mean =-0.155, Standard Deviation=0.114, T Statistics =1.313, P Values=0.189). Additionally, the specific indirect effect among context, religiosity and continuous usage intention is not verified (Original Sample 0.014, Sample Mean =0.010, Standard Deviation=0.030, T Statistics =0.474, P Values=0.635). Therefore, H7 is not supported. It reflects that religiosity is not an influential factor in the path of context that affects consumers' continuous usage intention (Table 6).

The overall model fit can be assessed through the R square and Q square. R square is applied to explain the target endogenous variable variance (Hair et al., 2014b). Besides R square, f square and Q square are also applied to the degree of effect of predictors on a consequence.

The results showed that the R square was 0.493 for the intention endogenous latent variable. This means that the other variables weakly explained 49.3% of the variance of intention. The values of R square are 0.438 for the perceived ease of use endogenous latent variable and 0.431 for the perceived usefulness endogenous latent variable, respectively. This means that the other variables weakly explained 43.8% of the variance of the perceived ease of use and 43.1% of the variance of the perceived usefulness. The R square was 0.003 for the religiosity endogenous latent variable. This means that the other variables weakly explained 0.3% of the variance of the religiosity. The R

Table 6. Hypotheses

Hypotheses	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Conclusion
H1	0.657	0.660	0.054	12.227	0.000	support
H2	0.662	0.669	0.055	12.059	0.000	support
H3	0.162	0.161	0.108	1.506	0.132	not support
H4	0.128	0.116	0.130	0.985	0.325	not support
H5	0.183	0.186	0.052	3.507	0.000	support
H6	-0.114	-0.113	0.039	2.919	0.004	support
H7	0.014	0.010	0.030	0.474	0.635	not support

square was 0.327 for the trust endogenous latent variable. This means that the other variables weakly explained 32.7% of the variance of the trust.

Wong (2013) believes that the cut point of the f square is 0.02, 0.15 and 0.35, respectively, suggesting small, medium and large effect sizes, respectively. The value of f square between context and perceived ease of use is 0.778. The value of f square between context and perceived usefulness is 0.757. The value of f square between context and trust is 0.278. The value of f square between perceived risk and trust is 0.114. The value of f square between trust and intention is 0.203.

Wong (2013) believes that the cut point of Q square is 0.02, 0.15 and 0.35, respectively, suggesting small, medium and large predictive relevance for an endogenous latent variable, respectively. The Q square of intention, perceived ease of use, perceived usefulness and trust is 0.381, 0.290, 0.315, and 0.221, respectively.

6. DISCUSSION

6.1. Mobile Payment and Development of a Country

Mobile payment can push society to become a cashless society and bring great benefits and convenience for industries, banks, governments, and consumers. For the companies, the mobile payment increases more purchases and transactions due to special discounts on offer. This can contribute to the development of industries, with a reduction in accounting costs (Skaggs, 2014). For banking institutions, banks may monitor the credit and investment preferences of consumers so that they can offer better services and gain more profits (Skaggs, 2014). For the governments, the mobile payment contributes to the cashless development and it will help governments to monitor the safety and control the crime of society so that the society can be more stable (James and Adsule, 2018). For the consumers, they can complete transactions in a few seconds without operating on bank systems or taking out individuals' wallets based on technologies linking to debit and credit cards issued by the banks (eg, Alipay's e-wallet service called Yu'E Bao) on mobile payment services with time and location independent possibility (Carlsson et al., 2006; Constantiou et al., 2006).

6.2. Implication

Although NFC has been widely encouraged to be used, this technology is still an emerging service for Indonesian consumers. Therefore, it is important to determine the influential factors for the adoption and continuous usage of NFC in daily consumption.

From the perspective of theory, the findings support the results of Koç et al. (2016) on the predictive effect of the context on the consumers' perceived ease of use and perceived usefulness. This result may be referred to by further study to develop the dimensions of context. Additionally, perceived risk is examined as the antecedent of trust, supporting the results of Mitchell (1999). This

result gives more evidence on the dispute of the relationship between trust and perceived risk. The mediating effect of trust between perceived risk and intention may inspire further research to study the perceived risk with a critical attitude, aiming to explore the mechanism between perceived risk and intention of adoption. The result rejects the positive effects of perceived ease of use and perceived usefulness on continuous intention to use new technology, which is opposite to the past literature. This result may inspire further research to explore the reasons for this phenomenon. This result rejects the mediating effect of religiosity on the path of context influences on continuous intention to use new technology, which may inspire further research to explore the role of religiosity from other perspectives.

From the perspective of practice, the findings can be referred to by practitioners. The findings show that context and trust are significant in predicting consumers' continuous usage intention. The results of this study can be used by mobile payment companies to improve the investment of marketing through advertisements to guide the public to believe that mobile payment can be reliable for their daily uses. Additionally, the companies may propose a rewarding policy for old consumers and in-advance experience policy for the new target market, maintaining present consumers and cultivating potential consumers. For the governments, it is necessary to cooperate with the companies to cultivate a better usage climate to determine the perceived risk of people toward the NFC mobile payment system, establishing the interactive trust between consumers and companies.

6.3. Limitation and Future Research

Although the paper develops an acceptable adoption model of mobile payment, there are some limitations as follows: Firstly, the small size and source of the sample may limit the reliability of results and the generalization of the developed model. For future research, authors may conduct the research based on more samples from different regions in developing countries with comparing results between different cultural backgrounds from the perspective of culture (individualism, uncertainty avoidance, power distance, masculinity, long-term orientation, and indulgence).

Secondly, the information on the questionnaire might not be conveyed clearly and accurately due to the language gap between English and Indonesian. They had been provided help to understand questions well before answering them. Even so, there was a small possibility that some responders would become confused about some questions when they answered the survey in another language. For future research, researchers may conduct the research based on the questionnaire in Indonesian or other local languages so that the feedbacks may be more accurate.

Finally, the quantitative methods have been criticized by some scholars due to epistemological bases (Bryman, 2012). This study generates the model from the past literature without significant qualitative elements (except helping responders understand what questionnaire meant) and this may neglect some potential factors for not using mobile payment. For future research, researchers may explore some other important factors through qualitative research to construct the development of an integrated framework together with new quantitative analysis.

7. CONCLUSION

Our research questions focused on influential factors of the adoption of mobile payment in Indonesia. It analyzed the data from 124 responders to develop the model generated from the literature based on TAM. The study suggested that companies and governments should pay attention to the individual difference of consumers and to cultivate better environments and incentives for the wide adoption of mobile payments. This study explained implications for practitioners and it also identified the future research directions from the perspective of research methods and samples in developing regions.

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