

EXAMINING THE ROLE OF INNOVATION, TRUST, CONVENIENCE, AND PERCEIVED RISK ON MOBILE PAYMENT ADOPTION IN GREATER JAKARTA

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ABSTRACT

Purpose - To investigate consumer intention to use in mobile payment through attitude with the role of innovation, perceived risk and trust. **Design/Methodology/Approach** - Used an online survey with 250 responses from millennials in Greater Jakarta. **Findings** - The study shows several factors affecting consumers' attitude toward mobile payment. Specifically when perceived risk and trust as an addition besides relative advantage, compatibility, complexity, trialability, observability, convenience, perceived security. This investigation contributes to millennials in Greater Jakarta. It offers specific insight for millennials on adoption of mobile payment. **Research limitations/implications** - Focus of this study only has respondents aged 27 - 42 and living in Greater Jakarta. **Originality/value** - This study highlights the addition of trust and perceived risk on how it reacts to the intention to use mobile payment adoption among millennials in Greater Jakarta.

Keywords: Consumer attitude, Adoption, Mobile payment, Diffusion of Innovation, Jakarta, Millennial.

INTRODUCTION

The emergence of mobile technologies has unavoidably been aided by the information and communication technology sector's significant growth in recent years (Hwang et al., 2007; Schierz et al., 2010; Thalia et al., 2011). The way individuals pay for the goods and services they use has changed as a result of the widespread use of mobile devices, constant internet connectivity, the development of electronic and mobile commerce and the availability of a wide range of mobile payment options. Instead of utilizing cash, cheques, credit/debit cards, or other payment methods, consumers can just utilize their smartphone to make purchases (Boden et al., 2020). Specifically, in the commercial sector, mobile commerce has had a profound impact on our daily activities, enabling people with convenient ways to pay for goods and services cashless using their mobile devices on the go, without having to use physical cash (Kim et al., 2010; Tee and Ong, 2016). One of the most rapidly expanding areas of mobile commerce is mobile payment (Chen, 2007), which is defined as conducting, approving, and verifying financial transactions via mobile devices in order to acquire goods and services (Au and Kauffman, 2008). Mobile payments – also referred to as mobile money, mobile payment or mobile wallets – are “payments for goods, services and bills with a mobile device by taking advantage of wireless and other communication technologies” (Dahlberg et al., 2008, p. 1; also referred to in updated Dahlberg et al., 2015). The emergence of the Internet has had a huge impact on “traditional forms of retail” (Caboni and Hagberg, 2019, p. 1125, see also Hagberget al., 2017) and has largely changed the way consumers purchase products or services (Yadav and Pavlou, 2014).

With over 250 million people and an estimated 5 million of them rising to middle-class status each year, Indonesia is the fourth most populous nation in the world and is regarded as one of the most promising new markets for the mobile payment sector (KPMG Siddharta Advisory, 2017). In 2018, it was reported 47% of people who using mobile phone are using smartphones, which supported mobile payment. However, while 61% of the internet users in the country had already used mobile banking, only 35% of them had made mobile payments (Kemp, 2019), which signified a considerable room for expansion. In terms of the major mobile payment players, there were around 41 registered financial technology providers at Bank Indonesia as of 2018, and the number is only expected to increase going forward, which reflected the massive potential in the market (Gumiwang, 2018). Indonesia is often regarded as having the fastest growth of the mobile commerce market in the world (Nikkei Asian Review, 2017).

There is an increasing trend in Indonesia in the use of mobile payment in the market, and it potentially dominates the future (MDI and Mandiri Sekuritas, 2019). Many mobile payment companies attempt to gain traction in physical establishments. But in order to do this, a number of tactics are pushed, including the use of mobile payment systems in place of outdated card-based payment methods, the adoption of simple, convenient payment methods like QR-based systems, and the provision of monetary incentives like cashback and discounts (Redseer, 2019). By 2025, the number of Indonesian smartphone users is predicted to be 410 million, with Indonesia having the third-largest number of smartphone users in the world (The Jakarta Post, 2019). Despite global growth in mobile patent systems, Indonesia is still at an early stage of mobile payment adoption and the 47% of consumers using mobile payment in 2019 represented an increase of only 11% from 2018 (Rolfe, 2019).

According to MDI Ventures (Agusta, 2018), there are at least two major types of cashless payment technology in Indonesia: chip-based electronic money (e.g. BCA Flazz,

Mandiri e-Money) and server-based mobile payment system (e.g. Go-Pay, OVO). However, while chip-based electronic money has been around since 2007 (Bank Indonesia, 2007), mobile payment services have managed to scale up significantly in recent years (Agusta, 2018). Furthermore, it is expected that in 2019, the mobile payment industry (led by Go-Pay, OVO, T-Cash/LinkAja, BCA KlikPay, among others) will contribute an even much larger portion of the overall retail sales transaction in Indonesia with the introduction of a centralized gateway by Bank Indonesia, using QR codes to conveniently pay for various retail transactions and transfer funds across platforms, rendering chip-based electronic money to be increasingly irrelevant (FT Confidential Research, 2018).

We identify some factors that influence attitude and intention to use towards mobile payment.

(Research question) Previous study shows that (reference journal) We adopt and extend the modified diffusion of innovations (DOI) model of consumer attitudes toward mobile payments. While most mobile payment studies have focused on the Technology Acceptance Model (TAM), we offer DOI as a new perspective to investigate the motivations and barriers of mobile payment adoption. Our study modifies the previous approach and identifies important elements in the context of mobile payment diffusion. Specifically, our model shows how consumer attitudes mediate the intentions to use mobile payment.

METHODOLOGY

a. Data Collection

Data were collected through google forms with 251 final respondents. Participants have been filtered into 225 Respondents. The questionnaire was shared to colleagues of work and friends with most of them are millennials, that is why there is a question age between 27-42 years old. And filtered again unto only respondents that lived in Greater Jakarta. There were 57% male and 43% female. and most of those who were not between the ages of 27 and 42 were correspondents over the age of 42. The complete items are summarized in Table 1.

Table 1. Demographic Table

Demographic	Percentage
Gender	
Male	43%
Female	57%
Mobile Banking Use	
OVO	8%
Go-Pay	13%
Mbanking	74%
Shopee Pay	4%
Tidak Pernah	1%
Age between 27 – 42 years old	
Tidak	9%
Ya	91%

b. Measures

We use a 5point scale from 1 to 5 with 1 for strongly disagree and 5 for strongly agree, adopting from 2 journals Exploring the role of innovation attributes on mobile payment adoption, Denni Arli, Marat Bakpayev (2023) and Determining factors of

continuance intention in mobile payment: fintech industry perspective, Patria Laksamana, Suharyanto, Yohannes Ferry Cahaya (2022). Cronbach's alpha and composite reliability were assessed to

examine the internal consistency reliability of the constructs (Denni Arli, 2023). Cronbach's alpha values of measurements of all constructs and composite reliability surpassed the acceptable threshold of 0.70 (Nunnally, 1994), indicating acceptable reliability. We further tested whether the correlation between constructs is significantly less than one (Anderson and Gerbing, 1988).

c. Statistical analysis

Cronbach's alpha and composite reliability were assessed to examine the internal consistency reliability of the constructs. (Denni Arli et al, 2023). The convergent validity was assessed using bootstrapping analysis (Denni Arli et al, 2023). The average variance extracted (AVE) values exceeded the threshold value of 0.5 suggested by Fornell and Larcker (1981), demonstrating as shown in Table 4.

Loading >0.7 alpha >0.6

Table 2. Confirmatory Factor Analysis

Item Factor	Loading	Cronbach's Alpha (C.A)
Relative Advantage		.892
Mobile Payment membuat transaksi saya menjadi lebih cepat	.903	
Mobile Payment akan meningkatkan kualitas dari transaksi saya	.876	
Mobile Payment akan meningkatkan efektivitas transaksi saya	.923	
Mobile Payment membuat transaksi menjadi lebih mudah	.853	
Mobile Payment memberikan kendali lebih untuk transaksi saya	.720	
Compatibility		.932
Mobile Payment cocok dengan gaya transaksi saya	.972	
Mobile Payment cocok dengan cara saya melakukan transaksi	.964	
Mobile Payment akan sesuai dengan sebagian besar aspek dari transaksi saya	.891	
Complexity		.956
Mempelajari penggunaan Mobile Payment mudah untuk saya	.942	
Secara keseluruhan, mudah bagi saya untuk menggunakan Mobile Payment	.958	
Mudah bagi saya untuk mahir dalam penggunaan Mobile Payment	.983	
Saya yakin Mobile Payment dapat memudahkan untuk melakukan apa yang saya mau lakukan	.879	
Triability		.896
Saya ingin bisa menggunakan Mobile Payment pada saat pertama kali mencoba	.934	

Saya ingin mencoba menggunakan Mobile Payment secara tepat	.956	
Saya ingin bisa mencoba menggunakan Mobile Payment untuk waktu yang cukup lama untuk mengetahui saya lakukan	.899	
Observability		
Saya akan menggunakan Mobile Payment pada saat banyak orang telah menggunakannya	.915	
Saya akan menggunakan Mobile Payment pada saat saya melihat orang-orang sudah menggunakannya	.953	
Saya akan menggunakan Mobile Payment setelah mengetahui tentang hal tersebut		
Saya akan menggunakan Mobile Payment apabila sudah menjadi populer	.926	
Saya akan menggunakan Mobile Payment setelah customer lain mulai menggunakannya	.901	
Convenience		.849
Terdapat banyak keuntungan dengan menggunakan Mobile Payment dibandingkan alat pembayaran lainnya	.779	
Penggunaan Mobile Payment lebih mudah dan nyaman dibandingkan alat pembayaran lainnya	.853	
Dengan penggunaan Mobile Payment berarti anda tidak perlu khawatir mengenai banyaknya kartu kredit, antri di ATM dan ketersediaan	.746	
Penting bagi anda memiliki Mobile Payment pada saat anda berpergian ke luar negeri	.812	
Menggunakan mobile payment lebih aman dibandingkan dengan alat pembayaran lainnya	.767	
Perceived Security		.942
Saya percaya akan keamanan dari transaksi pembayaran dengan Mobile Payment	.863	
Saya percaya informasi pribadi yang saya berikan pada saat melakukan transaksi dengan Mobile Payment tidak akan bocor	.946	
Saya percaya informasi pribadi yang saya berikan selama transaksi dengan Mobile Payment tidak dimanipulasi oleh pihak yang tidak	.946	
Saya percaya informasi pribadi yang saya berikan pada saat melakukan transaksi dengan menggunakan Mobile Payment tidak akan diberikan kepada pihak yang tidak bertanggung jawab	.974	

Trust		.949
Saya percaya dengan provider Mobile Payment saya	.938	
Saya percaya dengan keamanan yang diberikan oleh provider Mobile Payment saya	.964	
Saya percaya pada saat ada masalah dalam keamanan, provider Mobile Payment saya dapat mengatasinya dengan segera	.959	
Perceived Risk		.790
Menggunakan Mobile Payment akan diasosiasikan dengan tingginya resiko	.764	
Terdapat banyak ketidakpastian dalam penggunaan Mobile Payment	.912	
Secara keseluruhan, manfaat penggunaan Mobile Payment lebih sedikit dibanding dengan alat pembayaran lainnya	.859	
Attitude		.946
Menurut saya penggunaan Mobile Payment adalah ide yang baik	.893	
Menurut saya penggunaan Mobile Payment untuk transaksi finansial adalah hal yang bijak	.902	
Menurut saya menggunakan Mobile Payment itu menyenangkan	.899	
Menurut saya akan lebih baik menggunakan Mobile Payment	.900	
Orang-orang seharusnya menggunakan Mobile Payment	.854	
Intention to use		.924
Saya berniat untuk menggunakan Mobile Payment lebih sering saat berbelanja	.962	
Saya berniat menggunakan Mobile Payment kapanpun diperlukan untuk berbelanja	.982	
Saya akan berbelanja menggunakan Mobile Payment dalam waktu dekat	.904	

According to the data above, it can be concluded that the instruments for perceived convenience, perceived risk, perceived benefits and behavior of using mobile payment are declared reliable because they have a Cronbach alpha value above 0.60.

Tabel 3. KMO and bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.910
Bartlett's Test of Sphericity Approx. Chi Square	1468,840
df	55
Sig	,000

Based on the data above, it can be seen that the kaiser-meyer-oklin measure of sampling adequacy is 0.910. With a chi-square value of 1468.840. and a significant value of 0.000.

Table 4. Significant Data for Independent H1 – H10

Model	Unstandardized coefficients		Standardized Coefficients beta	t >2.000	Sig <0.05
	B >1.2	Std.error			
H1	0.206	0.069	0.168	2.963	0.003
H2	0.129	0.063	0.136	2.267	0.010
H3	0.135	0.052	0.131	2.324	0.009
H4	0.164	0.051	0.172	3.267	0.001
H5	0.182	0.059	0.163	3.442	0.001
H6	0.321	0.060	0.291	5.263	0.000
H7	0.298	0.062	0.272	5.179	0.000
H8	0.253	0.054	0.241	4.843	0.000
H9	0.072	0.046	0.072	1.456	0.192
H10	0.920	0.052	0.846	19.635	0.000

Based on the results of the t-test (partial) statistical test, it shows that as follows:

- 1) The relative advantage variable has a significance value (Sig.) of 0.003 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.003 < 0.05$ and the t-count value is greater than the t table, namely $2.963 > 1.66039$. This means that relative advantage has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 2) The compatibility variable has a significance value (Sig.) of 0.010 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.010 < 0.05$ and the t-count value is greater than the t table, namely $2.267 > 1.66039$. This means that compatibility has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta..
- 3) The complexity variable has a significance value (Sig.) of 0.009 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.009 < 0.05$ and the t-count value is greater than the t table, namely $2.324 > 1.66039$. This means that complexity has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 4) The triability variable has a significance value (Sig.) 0.001 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.001 < 0.05$ and the t-count value is greater than the t table, namely $3.267 > 1.66039$. This means that triability has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 5) The observability variable has a significance value (Sig.) 0.001 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.001 < 0.05$ and the t-count value is greater than the t table, namely $3.442 > 1.66039$. This means that triability has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 6) The convenience variable has a significance value (Sig.) of 0.000 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.000 < 0.05$ and the t-count value is greater than the t table, namely $5.263 > 1.66039$. This means that convenience has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 7) The perceived security variable has a significance value (Sig.) 0.000 in the Coefficientsa table with an α (degree of significance) value of 0.05, meaning that $0.000 < 0.05$ and the t-count value is greater than the t table, namely $5.179 > 1.66039$. This means that perceived security has a positive and significant effect on the

adoption of mobile payments among millennials in Jakarta.

- 8) The Trust variable has a significance value (Sig.) 0.000 in the Coefficients table with an α (degree of significance) value of 0.05, meaning that $0.000 < 0.05$ and the t-count value is greater than the t table, namely $4.843 > 1.66039$. This means that trust has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 9) The perceived risk variable has a significance value (Sig.) 0.192 in the Coefficients table with an α (degree of significance) value of 0.05, meaning that $0.192 > 0.05$ and the t-count value is smaller than the t table, namely $1.456 < 1.66039$. This means that perceived risk has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.
- 10) The Attitude variable has a significance value (Sig.) 0.000 in the Coefficients table with an α (degree of significance) value of 0.05, meaning that $0.000 < 0.05$ and the t-count value is greater than the t table, namely $19.635 > 1.66039$. This means that Attitude has a positive and significant effect on the adoption of mobile payments among millennials in Jakarta.

RESULT AND DISCUSSION

The results show that of the indicators are supported. The most supported indicators are trialability and convenience. That means consumers are more concerned with the try for something new and the convenience to attitude towards intention to use mobile payments. Studies found that consumers' attitudes toward the adoption of mobile technology, in general, were affected by ease of use (Bailey et al., 2017; Schierz et al., 2010; Min et al., 2019). Therefore, the trust and perceived risk as an addition in this journal showed that millennials in Greater Jakarta are not that really concerned about it. When we talk about the internet of things, mobile payment is always followed for convenience transactions using mobile payment either the bank application or the third party application. With respect to other factors affecting consumer attitude, perceived usefulness has the most substantial impact (Suharyanto et al., 2022). We suggest that social media is an alternative electronic medium for enhancing trust in relationships and engagement with consumers (Ananda et al., 2019; Laksamana, 2020). In this era of digitalization and digitization, less hassle, speed, simplicity and safety are found to be useful and practical (Gobble, 2018)

Meanwhile, a lot of indicators from DOI theory in 1962, half of them have been chosen by millennials in Greater Jakarta such as compatibility, perceived security, relative advantage and of course the most concerned indicators trialability and convenience. That means the DOI theory can still be used in the modern era.

The study has shown that if there is a new application for mobile payment (bank application or third party application), the most important things for millennials in Greater Jakarta are convenience, trialability, relative advantage and perceived security. Consumers still look after the security but it is only just in 4th grade in this study because maybe they believe that in this modern area, the payment company always provides security transactions in the first place. Hence, as a result of the COVID-19 pandemic, consumers have continued to use mobile payments instead of traditional ones. Correspondents who are over the age of 42 or what we can call generation X, based on the survey results above, it can be said that the influence of the millennial generation, which is already literate in technology, is able to influence the use of mobile banking. this is also influenced by compelling circumstances such as the presence of the covid virus which requires

everything to be online. It seems unlikely that the shift to mobile payment will be reversed (Suharyanto et al, 2022).

The trialability factors got too concerning because millennials in Greater Jakarta would like to use and try something new to test the innovation that financial company gave to them to determine whether it fits their criteria (Lin and Bautista, 2017; Zolkepli and Kamarulzaman, 2015).

LIMITATION AND FUTURE RESEARCH

This study has several limitations, which provide opportunities for future research. First, it's only focus in Greater Jakarta and among millennials although some of the correspondents were generation X. even, it limits the study about perception towards mobile payment in other cities and other generations such as baby boomer generation. Second, this study did not look at the income level and the level of technological literacy, which often influences consumers adoption of new technology. Future research may perform segmentation studies to investigate the differences between various levels of technological literacies. Finally, the nature of the study is quantitative with a cross-sectional approach. Future research with a combined quantitative and qualitative approach is able to give a broader view and insight.

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