

FINANCIAL TECHNOLOGY ADOPTION ON PAYMENT SYSTEMS AND FINANCIAL TRANSACTIONS AMONG MILLENIALS IN INDONESIA

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Abstract

This research aims to see how far the adoption of digital payment systems and electronic financial transactions in Indonesia is based on the factors used in the theory acceptance model (TAM) method, such as perceived usefulness and perceived ease of use. Several factors, such as social influences, financial literacy, security and privacy, and government support, are added to the effects of the intention to adopt digital payments, especially after the COVID-19 pandemic. Data processes with SmartPLS 3 and uses SEM-PLS method to see that all the factors are supported to adopt digital payment systems in Indonesia. Results show that perceived usefulness and ease of use are the factors that drive the intention to adopt digital payment systems. Besides that, government support drives the intention to adopt digital payment systems by regulations to develop digital payment ecosystems. Others such as social influences, financial literacy, and security-privacy aren't influenced on intention to adopt digital payment systems in Indonesia.

Keywords: Digital Payment System, Theory of Acceptance Model, SEM-PLS

Introduction

The development of information technology in the world has started in the last three decades. Starting from the beginning of the 90's era, people were changed gradually to adapt and adopt information technology as a part of their daily basis (Daragmeh et al., 2021; Villanthenkodath et al., 2022). Development of the system such as internet, big data, cloud computing; data analytics and management system, drives all sectors to digitalization and use them to improve productivities, innovation, and decision making without boundaries (Bajunaied et al., 2023; Gai et al., 2018; Lestari, 2019).

One of the sectors that has applied digitalization is financial and banking with financial technology (*fintech*) in the scope of digital payment systems. With digital payment systems, people allow to pay and transact without going to the bank and ATM center – it can be accessed with mobile devices in online banking and/or digital wallet applications (Agustina et al., 2019; Susilo et al., 2019). Digital payments also drive accessibility to people and businessman to do financial transaction which financial inclusions can be happened (Bollaert et al., 2021; Ozili, 2018). Fintech adoptions as digital payments are popular among Indonesians as the development of prepaid payment card or electronic money and any kind of digital wallet that can be accessed in mobile devices (OVO, GOPAY, DANA, ShopeePay, etc) (Agustina et al., 2019). This is reflected from *Bank Indonesia* (2023) data that this scope of financial technology has grown

significantly based on the transaction value and number of systems (figure 1). Several factors contribute to the growth of digital payment usage such as age and economics level which people at the age of 18 – 40 and middle-low level helps the adoption of this payment method (IPSOS, 2022; Kadence, 2021). This growth is driven by the impact of COVID-19 pandemic which encourages people to use digital systems to prevent virus transmission.

This research use TAM (*technology acceptance model*) as the base method to find the impact of variables relate to the people’s behavioral intention to adopt digital payment system in Indonesia. TAM which was developed by Davis (1989) has two main dependent variables: perceived usefulness (PU) and perceived ease of use (PEOU), but to strengthen the impact and relations, several factors are added on this research based on the development of intention method such as UTAUT (Venkatesh et al., 2003a) that on this research social factors are added and related to the previous main TAM factors. Financial literacy also adds to this research to see how knowledge of financials drives a person to use digital payments. This research also highlights the effect of security to see are people feel safe when transacting with digital payment methods, especially around privacy issues that concerned nowadays. This research also involves government support as the variable. We think that government should help the development of digital financial ecosystem, especially in payment scope in the form of regulations (Setiawan et al., 2021).

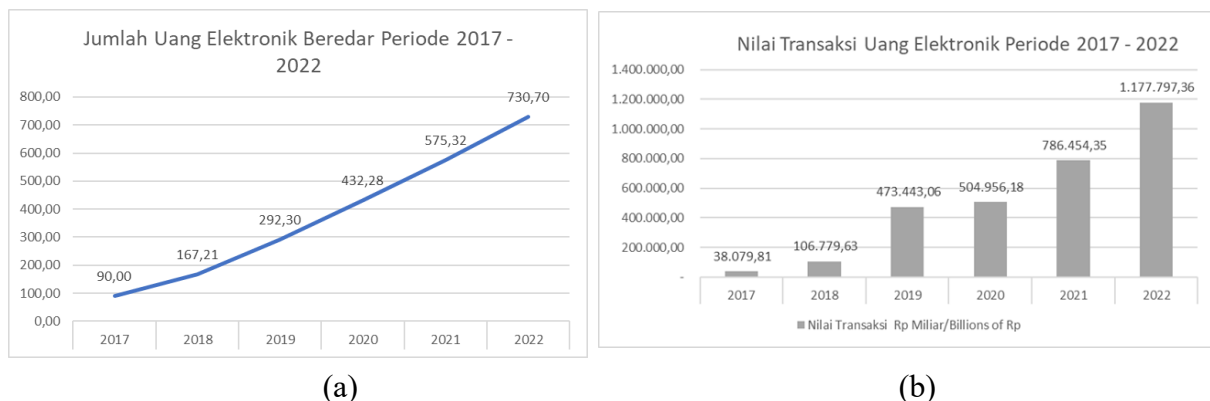


Figure 1. Graph of (a) number of digital payment system and (b) number of transactions of digital payment in Indonesia 2017 – 2022

(Sources: Bank Indonesia (2023))

Based on the purposes of this research that is to seek the adoption of digital payment system among Indonesian who is classified as millennials and generation “z”, thus gap for this study used are Indonesians whose age range between 16 and 45 years old. We choose this range of age because people in between those ages are known for their digital usage and update with the newest trends related to information technology, in line with some previous research (Balakrishnan & Shuib, 2021; Hu et al., 2019; Setiawan et al., 2021). With this research gap, we also exclude the age below 16 and above 45, so the research will be more specific to generation “z” and millennials. Another gap that used

for this research is the digital payment product itself, mainly that used often by Indonesians to conduct transactions and payments.

Some previous studies are used as the references and base for this research based on the purposes, especially the usage of new technology adoption theory (TAM and UTAUT). Daragmeh et al (2021) use TAM approach to observe the adoption of digital payment systems among “generation X” in Hungary during pandemic period. This study concludes that perceived usefulness and subjective norm are the drivers of digital payment systems adoption among “generation X”. Same view also used by Gupta et al (2023); Le (2021); and Nugraha et al (2022) that both perceived usefulness and ease of use are the main drivers of digital payments adoption. Setiawan et al (2021) gave perspective that adoption of digital payments is driven by user innovativeness and attitude toward behavior. Some studies have security and government factors to gain trust when people want to adopt digital payments, especially for the studies that use UTAUT or TAM with additional factors (Al Nawayseh, 2020; Bajunaied et al., 2023; Kurniasari et al., 2022; Yan et al., 2021).

Thus, this paper wants to seek the intention behavioral adoption of digital payment systems among millennials in Indonesia based on the technology, financial literacy, and social influences. Based on this objective, this research has a novelty to analyze how does the impact of adoption of digital payments and its usage, especially after pandemic period, so we assume that this method will be an alternative beside traditional payment which already exist. As a part of digitalization, electronic/digital payment systems can drive innovation for its users or the developers. Users can choose payment products that are suitable for their needs. Digital developers and banks improve their business to make digital payment applications that suit the needs of their customers. This research can be considerations for government to build up an efficient ecosystems and regulation relates to digital payment and transactions, so users can transact safer, and developer can improve their system properly. Moreover, this research aims to see how far the adoption of digital payment systems and electronic financial transactions in Indonesia is based on the factors used in the theory acceptance model (TAM) method, such as perceived usefulness and perceived ease of use.

Research Methods

This research is based on the theory of acceptance model (Davis, 1989) with perceived usefulness and ease of use as the main factors that drives intention to adopt digital payment systems among millennials in Indonesia. To strengthen the analysis, author adds another factor based on the model that proposed by Daragmeh et al (2021); Lu et al (2005); Nugraha et al (2022); and Setiawan et al (2021) that modified TAM with several factors such as social influences, financial literacy, security and privacy, and government support (figure 2).

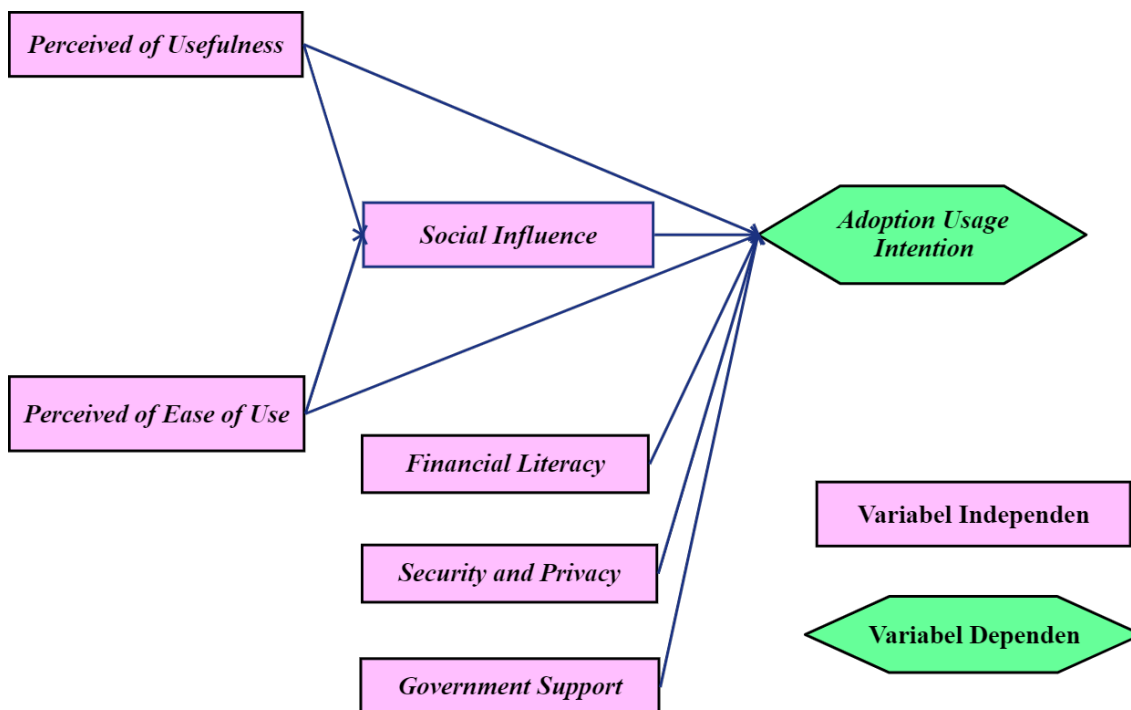


Figure 2. Research Diagram
(Source: Self-processed)

The population of this research are Indonesian youngsters that categorized as productive age ranges which are between 15 to 64 years old, as is stated by Indonesian Statistic Center in 2022 in a percentage of 69,25% of population or 190,98 million peoples. For samples, this research takes people from the age of 16 to 45 years old which are picked by non-random sampling method using questionnaire. The number of samples that are used for data analysis are 267 samples based on the ten times rule of thumb to calculates amount of minimum sample uses. The questionnaire consists of two parts: a) respondent demography; and b) variable-related question. For the variable-related questions this research uses likert scale with the choice of answers in the range of 1 (strongly disagree) to 5 (strongly agree). Questionnaire is distributed with google form and all the responses are analyzed using Microsoft Excel and SEMPLS 3

Table 1. Summary of Variables That Relates to Research

Name	Explanation	Sources
Independent Variables		
Perceived Usefulness	How far new technology that will be adopted useful and beneficial	(Davis, 1989)
Perceived Ease of Use	How far new technology that will be adopted is efficient and easy to use by people	(Davis, 1989)
Social Influences	Individual and/or other people perceptions within technology, social	(Venkatesh et al., 2003)

Name	Explanation	Sources
	culture, and image that will be formed after adopting the new technology	
Financial Literacy	Individual knowledge about basic financial concepts, financial managements, and its products related to digital payment systems	(Pratiwi & Saefullah, 2022; Kurniasari et al., 2022; OECD, 2018)
Security and Privacy	Knowledge about the technological risk of digital payment system and its mitigation related to cyber security and data protections	(Agustina et al., 2019; Johnson et al., 2018; Kang, 2018; Kurniasari et al., 2022)
Government Supports	Supports by regulations and ecosystem development related to digital payment systems.	(Kurniasari et al., 2022; Muthukannan et al., 2021; Nugraha et al., 2022; Ozili, 2021; Setiawan et al., 2021)
Dependent Variable		
Behavioral Intention of Adoption	To measure how people will adopt digital payment system as an alternative payment method and become a new payment behavior besides conventional payments	(Daragmeh et al., 2021; Davis, 1989; Pratiwi & Saefullah, 2022; Nugraha et al., 2022; Setiawan et al., 2021)

(Sources: Self-proceed with sources explained)

This research uses SEM-PLS method as the main data analysis to seek the relation between variables, which categorized as independent and dependent (table 1). Based on (Hair et al., 2017), this method consists of two subtest part which are indicator testing (outer testing) and model structure testing (inner model). Both models with the indicator are summarized on table 2. To analyze SEM-PLS model, this research uses SmartPLS 3 which is powerful and comprehensive software for SEM-PLS data analysis.

Table 2. Summary of Indicators Use in SEM-PLS Analysis

Test Name	Explanation	Minimum Values
Outer Model Testing		
Indicator Reliability	To measure similarity between indicators and its constructs	$IR \geq 0,7$
Consistency Reliability	To measure intercorrelation between variables and its validity by Cronbach's Alpha and composite reliability	<ul style="list-style-type: none"> • $\alpha < 0,7$ CR $< 0,7$
Convergency Validity	To measure correlation between indicator and its construct, especially how variables can explain half of its indicators	<ul style="list-style-type: none"> • AVE $> 0,5$

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Test Name	Explanation	Minimum Values
Discriminant Validity	To ensure that the indicators or variables aren't different each other to prevent multicollinearity	<ul style="list-style-type: none"> • Highest value of cross loading • Correlation mustn't more than 1 for Heterotrait Monotrait Rasio
Inner Model Testing		
Collinearity Testing	To indicate multicollinearity between indicators	<ul style="list-style-type: none"> • VIF < 5
R-square Testing	To measure that all exogeneous variables can explain the endogenous variable	<ul style="list-style-type: none"> • Range between 0 and 1, if the value approach the highest limit, so that exogenous variables can explain endogenous variable
Path Coefficient Testing	To measure relations between variables.	<ul style="list-style-type: none"> • $p > 0,05$ and β approach 1, the relations will be significant. • $p < 0,05$ and β are approaching 0 or in the range of -1 to 0, the relations will be not significant.

(Sources: Hair et al (2017))

Results and Discussion

Table 3. Respondent Demography Result

Criterion	n	%
Gender		
Men	83	31%
Women	184	69%
Age Ranges		
16 – 25	127	48%
Criterion		
26 – 35	72	27%
36 – 45	68	25%
Last Education Taken		
High school	73	27%
Associate's degree (D3)	11	4%
Bachelor's degree (S1)	134	50%
Master's degree (S2)	49	18%
Income Ranges		
< Rp 3,000,000.00	104	39%
Rp 3,000,000.00 - Rp 6,000,000.00	40	15%
Rp 7,000,000.00 - Rp 10,000,000.00	36	13%
> Rp 10,000,000.00	87	33%
Intensy To Use Digital Payment Systems		
Sometimes	20	7%
Often	170	64%
Always	77	29%
Kind Of Digital Payment Systems Product Used		
Mobile banking (contoh: BNI M-Banking, Mandiri Livin, BCA Mobile)	234	34%
E-wallet (contoh: OVO, GOPAY, DANA, ShopeePay)	234	34%
Electronic money / prepaid card (contoh: Flazz, TapCash, Mandiri E-Money, Brizzi)	153	23%
Digital bank (contoh: Allobank, Bank Jago, Jenius, SEABank)	59	9%

(Sources: Self-proceed)

Results are conducted in two sections based on the method used. First, this research examines the result of respondent characteristics or respondent demographic. As explained in the previous section, this research uses 267 samples based on the number of respondents taken and the ten times rule of thumb. Result shown that women are dominant on this research at the percentage of 69%, while men are at the percentage of 31%. This research also shows the dominance of people at the range of age 16 to 25 with college degree as the last education taken. Based on the income, people with amount of income below Rp 3,000,000. 00 and above Rp 10,000,000.00 are dominant in this research. Last on the demographic section, this research also examined the intensity and product of digital payment system used and the result shows that people are often conducted financial transactions and payments by using digital payment systems with electronic wallet (*e-wallet*) and mobile banking are the most popular applications used by respondents (table 4).

Table 4. Validity and Reliability Results

	FL	VIF	CA	ρA	CR	AVE
Perceived Usefulness			0,812	0,829	0,877	0,642
PU1	0,712	1,459				
PU2	0,878	2,323				
PU3	0,760	1,509				
PU4	0,844	2,118				
Perceived Ease of Use			0,844	0,851	0,895	0,682
PEOU1	0,848	2,033				
PEOU2	0,870	2,317				
PEOU3	0,747	1,628				
PEOU5	0,833	1,931				
Social Influences			1,000	1,000	1,000	1,000
SI2	1,000	1,000				
Financial Literacy			0,871	0,884	0,920	0,793
FL1	0,907	3,185				
FL2	0,895	3,168				
FL3	0,869	1,785				
Security and Privacy			0,856	0,869	0,892	0,581
SP1	0,750	1,734				
SP2	0,718	1,769				
SP3	0,731	1,593				
SP4	0,709	1,612				
SP5	0,815	2,178				
SP6	0,840	2,439				
Government Support			0,806	0,819	0,885	0,720
GS1	0,851	1,727				
GS2	0,795	1,671				
GS3	0,898	2,208				
Behavioral Intention			0,789	0,794	0,877	0,704
BI1	0,813	1,584				
BI2	0,861	1,740				
BI3	0,842	1,678				

(Sources: Self-proceed)

Second, this research examines the result of SEM-PLS analysis. As already mentioned in the previous section, outer model testing is the first part of the analysis. Results show that based on the indicator reliability test, there are few indicators that were taken out from the test such as PEOU4, SI1, SI4, FL4, and FL5. This happened because the indicators have reliability results below 0,7. Reliability and validity tests are conducted after indicator loadings evaluation based on Cronbach's alpha, composite reliability, and average variance extracted (AVE) values. As shown on table 4, all the construct variables are adequate to all the criterion explained on table 3 above. Each indicator is related to each construct variable based on cross-loading validity (table 5) and HTMT ratio shows that all construct variables are valid (table 6).

Table 5. Cross-Loading Validity Value

	BI	FL	GS	PEOU	PU	SI	SP
BI1	0,813	0,296	0,480	0,507	0,464	0,307	0,366
BI2	0,861	0,308	0,389	0,553	0,616	0,538	0,394
BI3	0,842	0,241	0,368	0,621	0,503	0,401	0,350
FL1	0,295	0,907	0,289	0,253	0,305	0,160	0,339
FL2	0,250	0,895	0,303	0,216	0,251	0,160	0,398
FL3	0,337	0,869	0,412	0,356	0,356	0,273	0,434
GS1	0,447	0,290	0,851	0,459	0,437	0,310	0,452
GS2	0,350	0,296	0,795	0,346	0,304	0,150	0,442
GS3	0,436	0,385	0,898	0,385	0,345	0,217	0,466
PEOU1	0,570	0,290	0,370	0,848	0,633	0,525	0,472
PEOU2	0,562	0,263	0,400	0,870	0,590	0,484	0,383
PEOU3	0,482	0,228	0,384	0,747	0,435	0,394	0,362
PEOU5	0,586	0,263	0,404	0,833	0,617	0,511	0,509
PU1	0,416	0,217	0,260	0,495	0,712	0,367	0,325
PU2	0,583	0,284	0,427	0,640	0,878	0,525	0,405
PU3	0,457	0,321	0,248	0,437	0,760	0,462	0,365
PU4	0,550	0,289	0,417	0,638	0,844	0,453	0,366
SI2	0,501	0,228	0,272	0,583	0,568	1,000	0,315
SP1	0,374	0,379	0,441	0,492	0,385	0,244	0,750
SP2	0,250	0,309	0,323	0,336	0,262	0,232	0,718
SP3	0,325	0,347	0,387	0,389	0,319	0,266	0,731
SP4	0,254	0,288	0,354	0,257	0,283	0,207	0,709
SP5	0,403	0,269	0,477	0,442	0,406	0,227	0,815
SP6	0,364	0,418	0,420	0,435	0,393	0,266	0,840

(Source: Self-proceed)

Table 6. Heterotrait -Monotrait Ratio Value

	BI	FL	GS	PEOU	PU	SI	SP
BI							
FL	0,398						
GS	0,611	0,448					
PEOU	0,816	0,359	0,568				
PU	0,779	0,405	0,517	0,827			
SI	0,557	0,237	0,296	0,632	0,627		
SP	0,524	0,506	0,634	0,601	0,537	0,341	

(Source: Self-proceed)

Second part of SEM-PLS analysis, inner model testing is conducted to analyze relations between variables which on this research consist of collinearity, R-square, and path coefficient testing. First, collinearity testing is examined as the result seen at table 4, which all variables have variance inflation factor (VIF) value below five. This result indicates that all variables don't have any multicollinearity. Second, R-square testing shows that all exogeneous variables can explain the endogenous variables. At this point the endogenous variables are intention to adopt (BI) and social influence (SI). All exogenous variables which related to BI can explain 53.6%, likewise variables that related to SI (PU and PEOU) which can explain 39,1% (table 7). Third subtest is path coefficient which consist of two kinds of effects: direct and indirect effects. For the direct effect as summarized in table 8 below shows that there are six relations that are significant based on the p-values, in other hand three relations aren't significant. This happens because three relations have p-values above 0,01. Table 9 shows the indirect relations, which both of relations also aren't significant. This path coefficient uses significant value at 0.05 with two-tailed test are conducted.

Table 7. R-Square Value

	R Square	R Square Adjusted
BI	0,536	0,526
SI	0,391	0,387

(Source: Self-proceed)

Table 8. Path Coefficient Result for Direct Variable Relations

	<i>Original (β)</i>	<i>t-statistics</i>	<i>p-values</i>	Significance
FL -> BI	0,051819	1,172470	0,241567	Insignificant
GS -> BI	0,174135	3,093420	0,002089	Significant
PEOU -> BI	0,376663	4,044410	0,000061	Significant
PEOU -> SI	0,364376	4,512519	0,000008	Significant
PU -> BI	0,275981	3,203170	0,001446	Significant
PU -> SI	0,314902	4,656962	0,000004	Significant
SI -> BI	0,105000	1,415837	0,157446	Insignificant
SP -> BI	0,003211	0,057333	0,954303	Insignificant

(Source: Self-proceed)

Table 9. Path Coefficient Result for Indirect Variable Relations

	<i>Original</i>	<i>t-statistics</i>	<i>p-values</i>	Significance
PEOU -> SI -> BI	0,038260	1,292522	0,196773	Insignificant
PU -> SI -> BI	0,033065	1,351783	0,177056	Insignificant

(Source: Self-proceed)

The results from all analysis that are conducted on this research gives some discussion points. First, from the demographic analysis as calculated and proceed using

Microsoft Excel 365 we seek dominance of millennials and generation “z” whose often use digital payment system as their payment and transaction method. Most of them are high school graduates and have bachelor’s degrees. These findings in line with the survey that were conducted by IPSOS (2022) and Kadence International (2021) that digital payment services are often use by youngsters, because they are assessed to be more capable to use technology and know about its update better than older generation which tend to have more effort to know the technology, especially how to maintain the technological risk (Daragmeh et al., 2021; Setiawan et al., 2021). IPSOS (2022) also stated that middle-low economic level people drive the usage of digital payment system which is reflected also from this research. Based on the intensity, respondents are often using digital payment system because they still use this method as an alternative, because not all the offline merchant or shops use digital payment as their main transaction method, they still use conventional method with physical money or debit cards, generally on traditional markets. This research finds dominance of e-wallet and mobile banking application as the product that people often use to conduct payments. As mentioned in “Digital Competitiveness Index 2023” by East Ventures (2023), in line with this research finding that e-wallets give contribution and drive financial inclusions among Indonesian people.

Second, this research discussed the relation of all variables based on the SEM-PLS testing result. As seen on table 8, perceived usefulness (PU) and ease of use (PEOU) are significantly related to intention to adopt (BI). As explained by IPSOS (2022), usefulness and ease of use are shown by how people are comfortable using digital payment systems. This also in line with the main theories, both TAM and UTAUT that usefulness and ease of use are driven by benefits, effectivity, and easiness that people get while adopt the new technology (Davis, 1989; Venkatesh et al., 2003). Some research has same findings to this research that usefulness and ease of use are the factors that give people benefits and effectiveness to use digital payment system (Al Nawayseh, 2020; Daragmeh et al., 2021; Pratiwi & Saefullah, 2022; Setiawan et al., 2021).

Another factor that has significant relation to intention to adopt is government support. Reflecting from the findings, people have already known that government supports and strengthens the development of digital payment ecosystem by its regulation and established facility. This finding is unique, mainly people aren’t aware about role of government on developing digital ecosystem for payments and financial transactions (Setiawan et al., 2021), on the other side platform developers are had knowledge and information about the government rules and development in digital payment systems (Nugraha et al., 2022). So, this research finds that respondents have already know about the regulation and the facilities of digital payment ecosystem. For a simple way, the usage of QRIS (Quick Response Indonesia Standard) are the best known oof how government supports the development of digital payment ecosystems with *Bank Indonesia* as the promotor and Indonesian Financial Services Authorization (OJK) as the regulator.

There are three factors which are not significant to intention to adopt digital payment system such as social influences (SI), financial literacy (FL), and security (SP).

Findings shows that social influence factors are influenced by individual desire to use digital payment system which is not in line with the theory that shown other influences like family, organizations, and brand images (Bajunaied et al., 2023; Daragmeh et al., 2021; Setiawan et al., 2021). For financial literacy, majority of respondents are already known about basics of finance terms and digital payment products, but several people do not understand about financial management in terms of usage of digital payment. Nugraha et al (2022) stated that people are not driven by financial literacy when they adopt digital payment system, so developers are needed to socialize about financial literacy while using their product. Related to financial literacy, people also do not know about the risk while using digital payment systems, but they know how the products gives security systems such as PIN, transaction passwords, and biometric systems to authorize the users (Al Nawayseh, 2020; Bajunaied et al., 2023; Yan et al., 2021).

This research also finds that both usefulness (PU) and ease of use (PEOU) have significant relation to social influences (SI). As mentioned by (Daragmeh et al., 2021) that social influences drives people to adopt digital payment system based on their experiences with the benefits and effectivity on their daily life, this finding is in line to this research. But the indirect relation that forms between usefulness and ease of use to social influences and intention to adopt have insignificant relations. These findings indicate that people need bigger social influences that drive the adoption of digital payment systems.

Conclusion

As the purpose is to seek the intention to adopt digital payment systems in Indonesia especially for millennials and generation z, this research concludes that TAM theory is still relevant to seek the adoption of new technology. Usefulness and ease of use are two basic factors that an individual or community wants to use new technology in their daily basic. Second, influences from other people and social environment should be drivers to adopt digital payment systems, not only from individual desire. Third, government has roles to build and develop effective and efficient digital payment and transactions ecosystem with helps by financial institutions, start-ups, and e-commerce. This can be done by making regulations related to its operational and user data protection. Financial institutions, collaborating with government has role to socialize people about financial literacy and technological risk when choose digital payment system.

This research gives some implication relates to the conclusion above, especially in terms of managerial purposes. Managers who work in the company that develop digital payment systems or financial institution can make digital payment products that have effective and efficient systems with simpler design (UI/UX). Managers also have roles to understand digital risk and its prevention when user choose digital payment system. Other things that are important for managers are they have role to educate people about financial literacy and digital risk with their product as a facility.

BIBLIOGRAPHY

- Agustina, L., Nelloh, M., Santoso, A. S., & Wiguna, M. (2019). ScienceDirect ScienceDirect Will Users Keep Using Mobile Payment ? It Depends on Trust and Cognitive Perspectives Will Users Keep Using Mobile Payment ? It Depends on Trust and. *Procedia Computer Science*, *161*, 1156–1164. <https://doi.org/10.1016/j.procs.2019.11.228>
- Al Nawayseh, M. K. (2020). Fintech in COVID-19 and beyond: What factors are affecting customers' choice of fintech applications? *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 1–15. <https://doi.org/10.3390/joitmc6040153>
- Bajunaied, K., Hussin, N., & Kamarudin, S. (2023). Behavioral intention to adopt FinTech services: An extension of unified theory of acceptance and use of technology. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(1), 100010. <https://doi.org/10.1016/j.joitmc.2023.100010>
- Balakrishnan, V., & Shuib, N. L. M. (2021). Drivers and inhibitors for digital payment adoption using the Cashless Society Readiness-Adoption model in Malaysia. *Technology in Society*, *65*. <https://doi.org/10.1016/j.techsoc.2021.101554>
- Bank Indonesia. (2023). Statistik Sistem Pembayaran dan Infrastruktur Pasar Keuangan Juli 2023. August 30, 2023. <https://www.bi.go.id/id/statistik/ekonomi-keuangan/spip/Pages/SPIP-Juli-2023.aspx>
- Bollaert, H., Lopez-de-silanes, F., & Schvienbacher, A. (2021). Fintech and access to finance. *Journal of Corporate Finance*, *68*(December 2020), 101941. <https://doi.org/10.1016/j.jcorpfin.2021.101941>
- Daragmeh, A., Lentner, C., & Sági, J. (2021). Journal of Behavioral and Experimental Finance FinTech payments in the era of COVID-19: Factors influencing behavioral intentions of ““ Generation X ”” in Hungary to use mobile payment. *Journal of Behavioral and Experimental Finance*, *32*, 100574. <https://doi.org/10.1016/j.jbef.2021.100574>
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. In *Quarterly* (Vol. 13, Issue 3).
- East Ventures. (2023). Digital Competitiveness Index 2023. October 31, 2023. https://east.vc/reports/east-ventures-digital-competitiveness-index-2023/#report_download
- Estisia Pratiwi, R., & Saefullah, K. (2022). The Use of Payment Technology Through Financial Literacy. *Journal of Digital Innovation Studies*, 42–51. <https://doi.org/10.24198/digits.v1i1.38516>
- Gai, K., Qiu, M., & Sun, X. (2018). A survey on FinTech. *Journal of Network and Computer Applications*, *103*, 262–273. <https://doi.org/10.1016/j.jnca.2017.10.011>
- Gupta, K., Wajid, A., & Gaur, D. (2023). Determinants of continuous intention to use FinTech services: the moderating role of COVID-19. *Journal of Financial Services Marketing*. <https://doi.org/10.1057/s41264-023-00221-z>

- Hair, J., Hult, T., Ringle, C., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Second Edition* (2e ed.).
- Hu, Z., Ding, S., Li, S., Chen, L., & Yang, S. (2019). Adoption intention of fintech services for bank users: An empirical examination with an extended technology acceptance model. *Symmetry*, *11*(3). <https://doi.org/10.3390/sym11030340>
- IPSOS. (2022). *Evolusi Industri Dompot Digital: Strategi Menang Tanpa Bakar Uang*. October 23, 2023. https://www.ipsos.com/sites/default/files/ct/news/documents/2020-02/ipsos_media_conferencc_e-wallet_-_id_0.pdf
- Johnson, V. L., Kiser, A., Washington, R., & Torres, R. (2018). Computers in Human Behavior Limitations to the rapid adoption of M-payment services : Understanding the impact of privacy risk on M-Payment services. *Computers in Human Behavior*, *79*, 111–122. <https://doi.org/10.1016/j.chb.2017.10.035>
- Kadence International. (2021). *Digital Payment and Financial Services Usage and Behavior in Indonesia*. October 31, 2023. <https://kadence.com/office/indonesia/>
- Kang, J. (2018). Mobile payment in Fintech environment: trends, security challenges, and services. *Human-Centric Computing and Information Sciences*, *8*(1). <https://doi.org/10.1186/s13673-018-0155-4>
- Kurniasari, F., Tajul Urus, S., Utomo, P., Abd Hamid, N., Jimmy, S. Y., & Othman, I. W. (2022). Determinant Factors of Adoption of Fintech Payment Services in Indonesia using the UTAUT Approach. *Asia-Pacific Management Accounting Journal*, *17*(1).
- Le, M. T. H. (2021). Examining factors that boost intention and loyalty to use Fintech post-COVID-19 lockdown as a new normal behavior. *Heliyon*, *7*(8). <https://doi.org/10.1016/j.heliyon.2021.e07821>
- Lestari, D. (2019). Measuring e-commerce adoption behaviour among gen-Z in Jakarta, Indonesia. *Economic Analysis and Policy*, *64*, 103–115. <https://doi.org/10.1016/j.eap.2019.08.004>
- Lu, J., Yao, J. E., & Yu, C. S. (2005). Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. *Journal of Strategic Information Systems*, *14*(3), 245–268. <https://doi.org/10.1016/j.jsis.2005.07.003>
- Muthukannan, P., Tan, B., Ter, F., Tan, C., & Leong, C. (2021). International Journal of Information Management Novel mechanisms of scalability of financial services in an emerging market context : Insights from Indonesian Fintech Ecosystem. *International Journal of Information Management*, *61*(June 2020), 102403. <https://doi.org/10.1016/j.ijinfomgt.2021.102403>
- Nugraha, D. P., Setiawan, B., Nathan, R. J., & Fekete-Farkas, M. (2022). Fintech Adoption Drivers for Innovation for SMEs in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4). <https://doi.org/10.3390/joitmc8040208>
- OECD. (2018). *G20/OECD INFE Policy Guidance Digitalisation and Financial Literacy*. www.oecd.org/going-digital.

- Ozili, P. K. (2018). Borsa _ Istanbul Review Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, 18(4), 329–340. <https://doi.org/10.1016/j.bir.2017.12.003>
- Ozili, P. K. (2021). Financial inclusion research around the world: A review. *Forum for Social Economics*, 50(4), 457–479. <https://doi.org/10.1080/07360932.2020.1715238>
- Setiawan, B., Nugraha, D. P., Irawan, A., Nathan, R. J., & Zoltan, Z. (2021). User innovativeness and fintech adoption in indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(3). <https://doi.org/10.3390/joitmc7030188>
- Susilo, A. Z., Prabowo, M. I., Taman, A., Pustikaningsih, A., Susilo, A. Z., Ahmad, M. I., Taman, A., Pustikaningsih, A., & Samlawi, A. (2019). ScienceDirect ScienceDirect A Comparative Study of Factors Affecting User Acceptance of GO- A Comparative Study of Factors Affecting User Acceptance of GO- PAY and OVO As a Feature of Fintech Application PAY and OVO As a Feature of Fintech Application. *Procedia Computer Science*, 161, 876–884. <https://doi.org/10.1016/j.procs.2019.11.195>
- Venkatesh, V., Morris, M. G., Davis, G. B., Davis, F. D., Smith, R. H., & Walton, S. M. (2003a). User Acceptance of Information Technology: Toward a Unified View Quarterly User Acceptance Of Information Technology: Toward A Unified View1. *Quarterly*, 27(3), 425.
- Venkatesh, V., Morris, M. G., Davis, G. B., Davis, F. D., Smith, R. H., & Walton, S. M. (2003b). User Acceptance of Information Technology: Toward a Unified View Quarterly USER ACCEPTANCE OF INFORMATION TECHNOLOGY: TOWARD A UNIFIED VIEW1. In *Quarterly* (Vol. 27, Issue 3).
- Villanthenkodath, M. A., Ansari, M. A., Kumar, P., & Raju, Y. N. (2022). Effect of information and communication technology on the environmental sustainability: An empirical assessment for South Africa. *Telematics and Informatics Reports*, 7, 100013. <https://doi.org/10.1016/j.teler.2022.100013>
- Yan, C., Siddik, A. B., Akter, N., & Dong, Q. (2021). Factors influencing the adoption intention of using mobile financial service during the COVID-19 pandemic: the role of FinTech. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-021-17437-y>

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