

Factors that influence the use of digital payments as ease of transactions in the digital era

Alya Aulia Nurdin ^{1*}, Agus Bayu Pamungkas ², Alfina Nur Kholifah ³

^{1,2,3} Information System Study Program, Universitas Negeri Semarang, Indonesia

*Corresponding Author: alyaaulianurdin@students.unnes.ac.id

Abstract: Many things in the line of life are already shifting towards digital. The use of financial technology in the digital era is one of the new choices that are in great demand as a tool for transactions in society. The use of fintech payment services can further maximize banking product services so that the payment system in buying and selling transactions becomes more effective and efficient. This study aims to find out how massive the use of financial technology services is in digital payment transactions in the community and find out what factors influence people to use digital payment services so that they can facilitate their activities in transactions in their daily lives. The method used in this study is quantitative in the form of a survey. The questionnaire survey was distributed via Google Form to 102 respondents from the age range of 14-30 years. After that, the data was analyzed using the partial least square-structural equation model (PLS-SEM). The results showed that the proposed model is moderately accurate with an R-square value of 0.561. In this study, effort expectancy and performance expectancy significantly influence the intention to use digital payment. Meanwhile, culture, perceived security, and social factors did not have a significant influence. The conclusion is that the intention to use digital payment will get stronger if the service related to performance expectancy and effort expectancy are simultaneously improved.

Keywords: digital payment, fintech, services, transaction

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Introduction

In increasingly modern times, many technological innovations can help and facilitate human work. One of them is fintech (financial technology) digital payment or what is often referred to as digital payment services. These services can help make it easier for us to make payment transactions, purchases, and others in an online era [1]. Fintech is one of the innovations in the financial field that refers to modern technology [2]. According to Clayton, the innovation aims to introduce practicality, ease of access, convenience, and economical costs [3]. An NDRC research institute (The National Digital Research Centre) mentioned that Fintech is a term for innovation in financial services, where technology is the key.

Nowadays, internet technology is rapidly evolving and has extended to every corner of the globe [4], in the era of the industrial revolution 4.0 which leads to society 5.0, humans need to be more adapted to the existence of technology. Many things in the line of life are already shifting towards digital. The use of information technology currently plays an important role [5]. The development of information technology and telecommunications greatly impacts the business sector [6]. The industrial revolution that has brought significant changes to the sustainability of life applies the concept of automation. In its application, the majority is done by machines without the need for human labor intervention. The digital payment services that have been conveyed above also apply the concept of automation/digitization. However, due to uneven economic development [7], this fintech can be a solution for remote communities because it can use technology-based services without being hindered by distance. The use of fintech digital payment services can further maximize banking product services so that the payment system in buying and selling transactions becomes more effective and efficient [1].

According to [1], the fintech industry in Indonesia showed rapid development throughout 2018. In the Fintech Report 2018 of the Financial Services Authority (OJK), for e-money, Go-Pay is still ranked first, followed by OVO in the second position. In addition, it is also reported that the public is increasingly aware of the importance of fintech regulation. Therefore, the government must respond by providing regulations that provide more certainty for the industry, up to a better level of financial literacy [1]. Through the things mentioned above, the existence of financial technology, especially digital payment services, is one of the important innovations and needs to be developed as an effort to facilitate transactions in the digital era.

The massive use of digital payment services has made a few researchers conduct research related to the use of these services. As done by researchers from UIN Walisongo. In his research in 2019, [1] surveyed UIN Walisongo students to find out how significant the development of digital payment fintech services among its students is. The research conducted with the survey through the google form received mixed responses from survey respondents, in this case, students. From that result, most students use digital payment services for the last one to two years and on average they use digital payment services because they are influenced by the existence of social media.

In another study conducted by [8], the results obtained from ten speakers, including millennials, said that they already knew about fintech digital payment services and they had used this payment method for the past two to four years. The digital payment services they use include OVO, Dana, and Go-Pay where these transaction tools are most widely used. Another research conducted by [9] on the analysis of consumer preferences of online transportation users on digital payment systems (a case study of Gojek users in Malang City). It concluded that the ease of accessing digital payment systems will increase the desire of consumers who use online transportation to use digital payment services. So that when consumers consider it easier and less difficult to understand a payment system to apply, the higher the consumer's desire to choose to use digital payment services on online transportation will be.

Another research related to users' intention to use fintech digital payment was carried out by [10] with the condition of the respondents are Gen Z and [11] condition of respondents are young adults. Although there is still debate about the range of birth years of this generation, in general, Gen Z is those born between 1995-2010 who are capable of technology. In the study [10], there five factors measured whether it affected the intensity of using digital payments. These factors include culture, perceived security, performance expectations, business expectations, and social influence. And the result is only performance expectations, effort expectations, and social influences that show a significant influence on Gen Z's intention to use these FinTech services ($\text{sig} < 0.05$). Meanwhile, [11] used the technology acceptance model (TAM) dan the partial least square-structural equation model (PLS-SEM) to find out the factors that influence the use of e-wallets. By applying a two-step approach for instance, a measurement model for indicator loadings, convergent validity, reliability, and structural model for path analysis the findings from this study reveal that perceived usefulness, perceived ease of use, and privacy and security have a positive and significant relationship with behavioral intention to use an e-wallet. Several other researchers used TAM and the unified theory of acceptance and use of technology (UTAUT) to research the use of digital payments from a user perspective [12]-[16]. UTAUT is used to identify motivation use of technology developed by Venkatesh. UTAUT theory was developed through a comprehensive synthesis and an integration of the theory of reasoned action (TRA), the Technology Acceptance Model (TAM), motivational models (MM), the theory of planned behavior (TPB), combined TAM and TPB (C-TAM-TPB), the model of the PC utilization (MPCU), innovation diffusion theory (IDT) and social cognitive theory (SCT) [17].

Innovations developed by researchers and experts do not always run smoothly by getting a positive response from the public. In an invention/innovation, there are certainly a handful of people and even several people who don't know about it. Regarding the financial technology of digital payment services, many people already know about it, but the assumption is, some people also have never used it and don't even know it. In this study, an issue will be raised whether the use of fintech digital payment services is evenly distributed and whether this service can help ease transactions in the digital era. In addition, in this study, an issue will also be raised related to what are the factors that affect the community and make people interested in using digital payment services using the extended UTAUT model with several variables namely Culture, Perceived Security, Performance Expectancy, Effort Expectancy, Social Influence, and Intention

to Use [17]. These variables are used because the variable UTAUT explains as much as 70 percent of the variance in intention, we may be approaching the practical limits of our ability to explain individual acceptance and usage decisions in organizations [18].

Methodology

In this study, the method used was a quantitative method by distributing a questionnaire survey online through Google Form. The research conducted uses a quantitative approach because it is adjusted to the purpose of the study, which is to determine the factors that influence the use of digital payments, whereas quantitative research represents positivism [19]. Research by disseminating questionnaires can characterize the knowledge, attitudes, and behaviors of a large group of people through the study of a subset of them [20]. After that, the data is analyzed using PLS-SEM with the SmartPLS tool. Furthermore, this study uses a Likert scale of 1–5, which consists of strongly disagree, disagree, neutral, agree, and strongly agree [12]. The data obtained were 102 respondents from the age range of 14-30 years with a purposive sampling technique. The criteria for this respondent are set on the basis that someone of that age can evaluate fintech application products according to their perceived experience. In addition, in the age range above there is also an age range of students that can also represent online consumers, as online consumers are more educated and younger than traditional consumers. Further reasons for choosing those respondents include their understanding of e-services, their familiarity with electronic media, and their usage of e-services for communication and commercial transactions [21]. In determining the number of samples according to [22], 100-200 samples are categorized as good for calculating model paths in SEM. As for the research model, this study refers to the research model from [10], [17] which is an extending model of UTAUT that is shown in Figure 1.

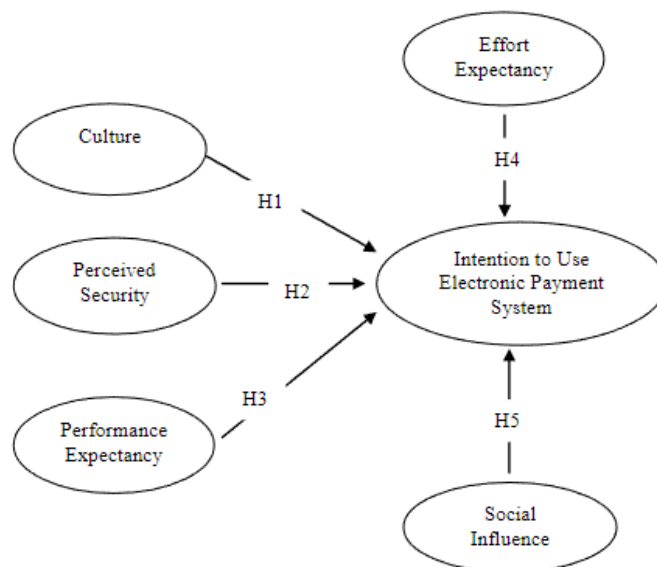


Figure 1. A model of factors influencing consumer's intention to use the e-payment system [17]

From Figure 1 above, there are a few hypotheses in this research, according to [17]. The research hypotheses to support the model of factors influencing consumers' intention to use the e-payment system or digital payment system, consists of H1, H2, H3, H4, and H5. H1 is culture has a positive effect on the intention to use electronic payment systems. H2 is that perceived security has a positive effect on the intention to use electronic payment systems. Culture and perceived security were included in this study because they are both important factors. The culture of one region to another might have differences. Consisting of several cultural factors that affect things such as knowledge of computers, internet access, use of the Internet, mobile phones, region of residence, and travel habits [17]. Meanwhile, security relates to how the electronic payment system can protect consumer transactions [23]. In addition, security is also associated with regulatory and legal protection perceived by consumers [24]. H3 is performance

expectancy has a positive effect on the intention to use electronic payment systems. In this study, performance expectancy was added because performance expectancy refers to how consumers feel that the use of electronic payment systems will help and give an advantage in conducting online transactions such as in terms of speed, security, and convenience of transacting [18], [25]. H4 is effort expectancy has a positive effect on the intention to use electronic payment systems. Effort expectancy relates to a system that is easy to understand and use without any particular skill [18], [25]. H5 is social influence has a positive effect on the intention to use electronic payment systems. Social influence is included in this study because it is the perceived influence of important others who encourage consumers to use electronic payment systems in the transaction. The important Others are intended for families, couples, and organizations [18], [25].

After collecting the data, validity and reliability test are conducted to measure whether a questionnaire is valid or not from a statement that can reveal something that will be measured from the questionnaire and to calculate the reliability of the data [26]. In PLS-SEM, validity and reliability are assessed in the measurement model. To evaluate internal consistency reliability and convergent validity, the value of both composite reliability and Cronbach’s alpha are suggested to be higher than 0.7 [11]. Additionally, average variance extracted (AVE) values should be greater than 0.5. Then, the good discriminant validity as it illustrates the square AVE of each factor is larger than any of its correlations with the other factors [27]. After measuring the measurement model, the researcher conducts an assessment of the structural model. The structural model reflects the relationship between the constructs or the latent variables that were hypothesized in this study [11]. According to [27], R-square (R²) values of 0.75, 0.50, and 0.25 describe substantial, moderate, and weak levels of predictive accuracy. The t-value > 1.96 is significant at p-value < 0.05.

Results and Discussions

This study was adapted from the extended UTAUT model [17]. This study uses six variables consisting Culture (CU), Perceived Security (PS), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Intention to Use (IU). From the data collection that has been carried out, the sample illustrates that digital payment users are dominated by 71.6% of users of female, and another 28.4% are male. For Gopay payment services, it produced the highest rating used by respondents, which was 61.8%. Then followed by OVO with a percentage of 52.9%. Meanwhile, DANA obtained the third highest rating results after Gopay and OVO, which was 42.2% for the presentation of LinkAja, Jenius, PayTren, and other payment services. The demographic data of respondents are summarized in Table 1.

Table 1. Demographic data

Measure	Items	Percentage
Gender	Male	28.4%
	Female	71.6%
Know digital payment	Yes	99%
	No	1%
Use digital payment	Yes	95.1%
	No	4.9%
Digital payment used	Gopay	61.8%
	OVO	52.9%
	DANA	42.2%
	LinkAja	15.7%
	Jenius	3.9%
	PayTren	1%
	Others	27.5%

Then, convergent validity, discriminant validity, and internal consistency reliability were conducted to assess the measurement model. The result of internal consistency reliability and convergent validity are shown in Table 2. Table 2 shows good indicators and constructs in convergent validity and internal consistency reliability. All values of both composite reliability and

Cronbach's alpha are higher than 0.7 and average variance extracted (AVE) values greater than 0.5. Meanwhile, [Table 3](#) shows good discriminant validity as it illustrates the square AVE of each factor is larger than any of its correlations with the other factors.

Table 2. Internal consistency reliability and convergent validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Culture	0.803	0.832	0.909	0.834
Effort Expectancy	0.789	0.794	0.904	0.825
Intention to Use	0.793	0.812	0.878	0.706
Perceived Security	0.852	0.894	0.910	0.772
Performance Expectancy	0.827	0.829	0.897	0.743
Social Influence	0.861	0.892	0.914	0.779

Table 3. Discriminant validity

	Culture	Effort Expectancy	Intention to Use	Perceived of Security	Performance Expectancy	Social Influence
Culture	0.913					
Effort Expectancy	0.625	0.908				
Intention to Use	0.597	0.654	0.840			
Perceived Security	0.718	0.441	0.567	0.879		
Performance Expectancy	0.651	0.742	0.683	0.640	0.862	
Social Influence	0.436	0.499	0.448	0.372	0.357	0.883

Based on [Table 2](#) and [Table 3](#) above, it can be seen that all items and constructs in this research are valid and reliable. Then, the next assessment was conducted, namely the assessment of the structural model. The result of the structural model is shown in [Figure 2](#) and [Table 4](#). The structural model examined the hypotheses, and whether they can be supported or rejected. It was assessed with R-square, Path Coefficient, p-value, and t-value. The path Coefficient assesses whether all indicators positively or negatively affect the variables. [Figure 2](#) shows an R-square value of 0.561 or 56.1% for IU, which means that predictive accuracy for this model is moderate. The R-square value ranges from 0 to 1, with higher levels indicating higher levels of predictive accuracy, R-square values of 0.75, 0.50, or 0.25 for endogenous latent variables can, as a rule of thumb, be respectively described as substantial, moderate, or weak [\[27\]](#).

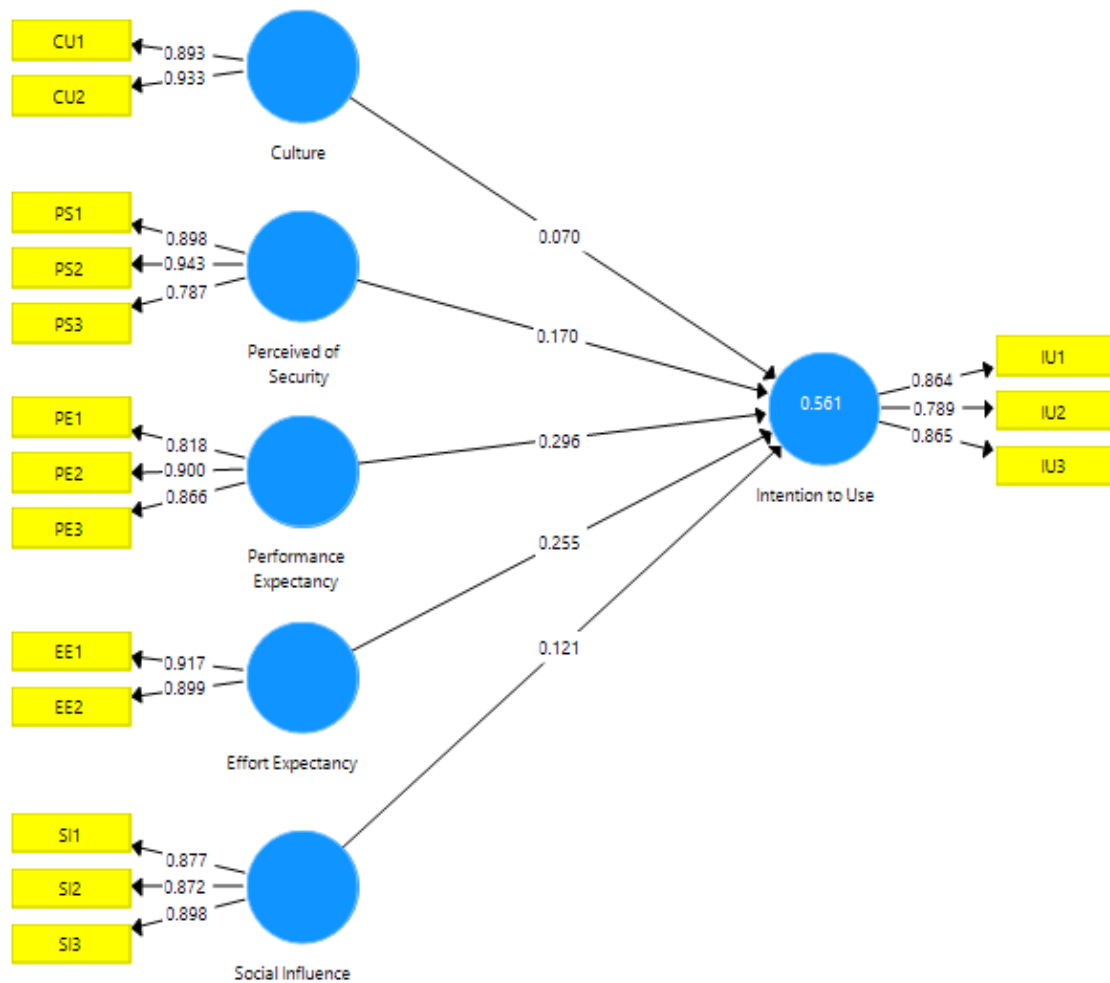


Figure 2. Path analysis, outer loadings, and R-square

Based on the analysis, two hypotheses are supported, and three other hypotheses are rejected. From [Table 4](#), H1 ($\beta = 0.070, t = 0.553, p = 0.580$) is rejected, and culture (CU) does not have a positive effect on the intention to use digital payment. H2 ($\beta = 0.170, t = 1.387, p = 0.166$) is rejected, and perceived security (PS) does not have a positive effect on the intention to use digital payment. H3 ($\beta = 0.296, t = 2.634, p = 0.009$) is supported, performance expectancy (PE) has a positive effect on the intention to use digital payment, and it indicates the path between performance expectancy and intention to use digital payment is significant. H4 ($\beta = 0.255, t = 2.187, p = 0.029$) is supported, effort expectancy (EE) has a positive effect on the intention to use digital payment, and it indicates the path between effort expectancy and intention to use digital payment is significant. H5 ($\beta = 0.121, t = 1.077, p = 0.282$) is rejected, social influence (SI) has not a positive effect on the intention to use digital payment.

Performance expectancy and effort expectancy have a positive effect on the intention to use digital payment. That is because performance expectancy is related to how the consumer feels about the use of digital payment will provide benefits in online transactions. Besides that, effort expectancy is also related to the convenience felt by customers when using digital payment services [\[17\]](#). Meanwhile, culture and perceived security did not affect the intention to use digital payment. This current study is in line with the prior research [\[10\]](#). In other words, the intention to use digital payment will get stronger if the service related to performance expectancy and effort expectancy are simultaneously improved. Digital payment providers need to improve productivity, convenience, speed of transactions, ease of use, transaction flexibility, and ease of learning about digital payment services.

Table 4. Result of the proposed model

Hypothesis	Path	Path coefficient (β)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
H1	CU -> IU	0.070	0.126	0.553	0.580	Rejected
H2	PS -> IU	0.170	0.123	1.387	0.166	Rejected
H3	PE -> IU	0.296	0.112	2.634	0.009	Supported*
H4	EE -> IU	0.255	0.117	2.187	0.029	Supported*
H5	SI -> IU	0.121	0.112	1.077	0.282	Rejected

Significant at $P^* < 0.05$.

Conclusion

From this study, it can be concluded that customers' intention to use digital payment (IU) is influenced by effort expectancy (EE) and performance expectancy (PE) based on the extended UTAUT model. These two factors are significant in influencing the customer's intention to use digital payment. Meanwhile, other three factors namely culture, perceived security, and social influence are not influencing customers' intention to use digital payment. This model is moderately accurate with an R-square value of 0.561. Based on the results of this study, digital payment provider must consider improving productivity, convenience, speed of transactions, ease of use, transaction flexibility, and ease of learning about digital payment services so that the customer's intention to use digital payment get stronger. Apart from all that, it should be noted that this finding has a few limitations because this research only focuses on factors influencing the use of fintech derived from the UTAUT framework. It is advisable to conduct further research by increasing the number of samples and including more variables such as trust, business, or other variables because fintech can support the improvement of community financial inclusion, namely community involvement in economic and business transactions, ranging from buying and selling, payments/contributions, to savings and loans. With fintech technology, it can bridge various economic transactions to increase financial inclusion.

References

- [1] R. D. Pambudi, "Perkembangan fintech di kalangan mahasiswa Uin Walisongo," *Harmony*, vol. 4, no. 2, pp. 74–81, 2019.
- [2] I. Adhitya Wulanata, "Analisis SWOT implementasi teknologi finansial terhadap kualitas layanan perbankan di Indonesia," *J. Ekon. dan Bisnis*, vol. 20, no. 1, pp. 133–144, 2017.
- [3] M. D. Hadad, "Financial Technology (FinTech) di Indonesia," *Otori*, vol. 45, no. 2, pp. 176–177, 2017.
- [4] Gunawan and R. Hardi, "E-Learning course design and implementation in fuzzy logic," *Matrix J. Manaj. Teknol. dan Inform.*, vol. 12, no. 1, pp. 31–37, 2022, doi: 10.31940/matrix.v12i1.31-37.
- [5] R. Hammad, A. C. Nurcahyo, A. Z. Amrullah, P. Irfan, and K. A. Latif, "Optimization of data integration using schema matching of linguistic-based and constraint-based in the university database," *Matrix J. Manaj. Teknol. dan Inform.*, vol. 11, no. 3, pp. 119–129, 2021, doi: 10.31940/matrix.v3i11.119-129.
- [6] I. M. Fauzan, A. Ihsan, F. A. Mahmudi, A. R. Mubarak, and C. Apriono, "Business transformation from connectivity to digital: case study 'PT. MNO Indonesia,'" *MATRIX J. Manaj. Teknol. dan Inform.*, vol. 12, no. 2, pp. 79–90, 2022, doi: 10.31940/matrix.v12i2.79-90.
- [7] A. Miswan, "Perkembangan dan dampak Financial Technology (Fintech) terhadap industri keuangan syariah di Jawa Tengah," *Wahana Islam. J. Stud. Keislam.*, vol. 5, no. 1, p. 38, 2019.
- [8] D. D. Houston, "Adopsi penerimaan digital payment pada kalangan milenial," *Medium*, vol. 7, no. 2, pp. 55–67, 2020, doi: 10.25299/medium.2019.vol7(2).4094.
- [9] S. Krisdiana, "Analisis preferensi konsumen pengguna transportasi online pada sistem pembayaran digital (studi kasus pengguna gojek di Kota Malang)," *J. Ilm. Mhs. FEB*, vol. 6, no. 2, pp. 1–16, 2018.

- [10] A. C. Aseng, "Factors influencing generation Z intention in using fintech digital payment services," *Cogito Smart J.*, vol. 6, no. 2, pp. 155–166, 2020.
- [11] M. W. Karim, A. Haque, M. A. Ulfy, M. A. Hossain, and M. Z. Anis, "Factors influencing the use of e-wallet as a payment method among Malaysian young adults," *J. Int. Bus. Manag.*, vol. 3, no. 2, pp. 01–12, 2020, doi: 10.37227/jibm-2020-2-21/.
- [12] M. Musyaffi, A. Sari, and D. Respati, "Understanding of digital payment usage during covid-19 pandemic: A Study of UTAUT Extension Model in Indonesia," *J. Asian Financ.*, vol. 8, no. 6, pp. 475–0482, 2021, doi: 10.13106/jafeb.2021.vol8.no6.0475.
- [13] T. Nur and R. R. Panggabean, "Factors influencing the adoption of mobile payment method among generation Z: the Extended UTAUT Approach," *J. Account. Res. Organ. Econ.*, vol. 4, no. 1, pp. 14–28, 2021, doi: 10.24815/jaroe.v4i1.19644.
- [14] I. W. E. Arimbawa, I. Ita, and N. M. Estiyanti, "Analysis of factors affecting interest in using digital payment methods in e-wallet in Denpasar City," pp. 23151–23160, 1966.
- [15] Indrawati and D. A. Putri, "Analyzing factors influencing continuance intention of E-payment adoption using modified UTAUT 2 Model: (A case study of Go-Pay from Indonesia)," *2018 6th Int. Conf. Inf. Commun. Technol. ICoICT 2018*, vol. 0, no. c, pp. 167–173, 2018, doi: 10.1109/ICoICT.2018.8528748.
- [16] M. Najib and F. Fahma, "Investigating the adoption of digital payment system through an extended technology acceptance model: An insight from the Indonesian small and medium enterprises," *Int. J. Adv. Sci. Eng. Inf. Technol.*, vol. 10, no. 4, pp. 1702–1708, 2020, doi: 10.18517/ijaseit.10.4.11616.
- [17] Junadi and Sfenrianto, "A model of factors influencing consumer's intention to use e-payment system in Indonesia," *Procedia Comput. Sci.*, vol. 59, no. Iccsci, pp. 214–220, 2015, doi: 10.1016/j.procs.2015.07.557.
- [18] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User acceptance of information technology: Toward a unified view," *MIS Q.*, vol. 27, no. 3, pp. 425–478, 2003.
- [19] M. Mulyadi, "Penelitian kuantitatif dan kualitatif serta pemikiran dasar menggabungkannya," *J. Stud. Komun. dan Media*, vol. 15, no. 1, pp. 127–138, 2011, doi: 10.31445/jskm.2011.150106.
- [20] M. Kasunic, *Designing an effective survey*, no. 9. US: Carnegie Mellon University. 2005.
- [21] C. Wen and J. Fang, "The role of E-quality within the consumer decision-making process," *International Journal of Operations & Production Management*, vol. 34, no. 12. 2014.
- [22] K. K.-K. Wong, "Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS," *Mark. Bull.*, vol. 24, no. January 2013, pp. 1–32, 2013, [Online]. Available: <http://marketing-bulletin.massey.ac.nz>.
- [23] M. V Avvari, "Evidence of Firms' Perception s Toward Electronic Payment Systems (EPS) in Malaysia," no. January 2011, 2015.
- [24] K. Bohle, "Electronic Payment Systems Observatory (ePSO)," 2002.
- [25] R. Gholami, A. Ogun, E. Koh, and J. Lim, "Factors affecting e-payment adoption in Nigeria," *J. Electron. Commer. Organ.*, vol. 8, no. 4, pp. 51–67, 2010, doi: 10.4018/jeco.2010100104.
- [26] K. J. Tute, M. A. Londa, and A. Mude, "Delone and McLean Models for measuring the success of Flores University e-learning information system," *MATRIX J. Manaj. Teknol. dan Inform.*, vol. 12, no. 2, pp. 68–78, 2022, doi: 10.31940/matrix.v12i2.68-78.
- [27] J. F. Hair Jr, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A primer on partial least squares structural equation modeling (PLS-SEM)*, Second. Sage, 2017.