Analysis of Shopee Pay Digital Payment Adoption in Jakarta with Innovation Diffusion Theory

Ricky Aditya*[1], Rahmad Rivaldi[2], Rama Al Mizan[3], Ismi Amalia Romadhon[4], Muhammad Ilham Nofitra[5]

[1,2,3,4,5] Universitas Pembangunan Nasional Veteran Jakarta

E-mail: rickyaditya0603@gmail.com

Article Info	Abstract
	The increase in internet users has significantly impacted people's behaviour patterns in making payment transactions from offline to online. One of the dominating online or digital payment systems with a large number of e-wallet users and frequency is Shopee Pay. The dominance of this application, which quickly outperforms its competitors, is inseparable from its users' good acceptance of something new. Technological diffusion theory explained how an innovation is adopted over time by examining the decision to adopt the process. Therefore, this research aimed to determine the factors affecting Shopee Pay services adoption in Jakarta. Data were collected from 100 Shopee Pay users in Jakarta. The descriptive statistics and statistical data analysis using Smart PLS software were carried out for outer and inner model analysis and hypothesis testing. The results showed that Relative Advantage, Observability and Perceived Risk significantly affect adoption. In contrast, Compatibility, Complexity, and Trialability have an insignificant effect on adoption. Number of respondent, coverage area of the survey and period of research. Future research is expected to be able to use other models besides the Diffusion of Innovation Theory to better identify other additional factors capable of affecting the adoption of Shopee Pay digital payment services and Shopee Pay digital payment is recommended to offer services that are more compatible with various lifestyle needs and beliefs to meet the expectations of current users. This survey has difference with previous research because of adoption level of digital payment specifically focus on Shopee Pay then using Innovation Diffusion Theory as model of research.

INTRODUCTION

Every year, internet users continue to increase worldwide, with 196.71 million recorded at the end of the second quarter of 2019 in Indonesia (APJII, 2021). The increasing number of internet users also significantly impacts people's behaviour in making payment transactions from offline to online. One form of digital payment in Indonesia is the e-wallet. According to (Williandry, 2021), data on the number of e-wallet users in March 2021 for Shopee Pay, GOPAY, OVO, Dana, and LinkAja are 76%, 57%, 54%, 49%, and 21%, respectively. Apart from the data on the largest number of e-wallet users, the frequency of use in the last three months for Shopee Pay, OVO, Dana, GOPAY and LinkAja were 10.7x, 7.3x, 7.2x, and 7.1x, respectively. Shopee Pay managed to excel in terms of total users and frequency of use even though it was officially launched in November 2018. It is relatively new compared to other earlier e-wallets, such as GOPAY, OVO, and Dana.

The dominance of Shopee Pay, which quickly outperforms its competitors, is inseparable from its users' good acceptance of something new. Technological diffusion theory explained how innovation is adopted over time by examining decisions that affect its adoption among members of a social system (Rogers, 2003). Moreover, the technology adoption model and innovation diffusion theory are suitable for predicting user demand to adopt new technology (Zarmpou et al., 2012). Roger (2003) further stated that the decision to adopt an innovation can be affected by relative advantage, compatibility, complexity, trialability, and observability. Besides these five attributes, perceived risk in mobile banking research needs to be added due to the potential for doubts that users feel when using new

technology (Al-Jabri & Sohail, 2012). According to Ram and Sheth (1989), perceived risk is an attribute that refers to the level of risk in using innovation.

Kusdibyo et al. (2017) stated that relative advantage, compatibility, and observability had a positive and significant effect, while complexity had an insignificant effect on e-learning adoption. Intani and Brady (2020) stated that relative advantage, complexity, compatibility, observability, trialability and perceived risk affect mobile payment adoption. Meanwhile, Sukma and Endang (2019) stated that relative advantage, compatibility, trialability and observability affect technology adoption, as opposed to complexity. There is still little research related to mobile payments, specifically those using the theory of innovation diffusion for various types of technology, one of which is a financial technology (Intani & Brady, 2020). This research aims to analyze the factors that significantly affect the adoption level of Shopee Pay digital payment services in Jakarta by using the five innovation characteristics in the innovation diffusion theory model and adding the perceived risk variable.

Literature Review
Digital Payment

According to Saputra (2019), digital payment is a financial system that uses electronic media, such as SMS, internet, mobile, and e-wallet banking. Therefore, all these activities can be carried out only with the help of electronic devices, namely smartphones. In making payment transactions using digital payments, the following are some of the several advantages obtained: a). Transactions are easier and more practical. b). Safer transactions. c.) Convenience in transacting. d). Transaction speed. e). Can be used for various services

E-Wallet

An e-wallet or electronic wallet is a digital payment instrument that uses server-based electronic media. Currently, it is a server-based application with the use process requiring a connection with the publisher first (Mulyana & Wijaya, 2018). It can also be defined as a digital currency, which provides convenience in shopping without the need to carry physical money (Megadewandanu *et al.*, 2016). Some examples of e-wallet are Go-Pay, OVO, DANA, LinkAja, Shopee Pay, etc.

Innovation Diffusion

Diffusion is a process in which an innovation can be communicated, adopted and utilized by a particular community (Basri, 2014). Solomon (2017) stated that innovation is an idea, exercise, or product developed by producers to attract certain consumers or groups and add value to their needs. The result of the innovation-decision process by Rogers (2003) was a process in which individuals move from first knowledge of an innovation to forming attitudes toward the innovation, to a decision to adopt or reject an innovation. Daryanto (2014) explained that the innovation diffusion process consists of four stages, namely:
1. Knowledge: individual awareness of the innovation's existence and function;
2. Persuasion: individual's attitude in accepting or rejecting the innovation;
3. Decision: the role of the individual in determining the choice to adopt or reject an innovation;
4. Confirmation: the role of the individual in seeking flexible opinions that strengthen decisions when the innovation's messages are contradictory to one another.

Basic Theory of Innovation Diffusion

Innovation diffusion in the form of science, technology, and members of a particular social system can adopt the community development field. The social system can be individuals, informal groups, organizations or communities (Sukma & Endang, 2019). According to Wani & Ali (2015), the Innovation Diffusion Theory explained how innovation can be adopted over time by examining the results of the process and decisions that affect adoption among the social system members. Roger (2003) stated that adopting innovation is affected by relative advantage, compatibility, complexity, trialability, and observability.

Relative Advantage

This process discusses the extent to which users feel the benefits related to the use of technology. The relative advantage is the degree to which an innovation is perceived to be better than an idea replaced

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

by a particular group of users. The greater the perceived benefits of innovation, the faster its adoption level.

Compatibility

This is the process of evaluating the extent to which the new technology will be consistent with the needs and lifestyle of the user. Compatibility can also be defined as how consistent an innovation is with values, experiences, and potential needs. Ideas incompatible with the values, norms or practices will not be adopted as quickly as compatible innovations.

Complexity

This is the process of how users perceive the difficulty of new technology. Simplicity and ease of use are the degrees to which an innovation is considered difficult to understand and use. New ideas that are easier to understand and use will be adopted more quickly than innovations that require adopters to develop new skills and understandings.

Trialability

This is the process by which a user tests innovation on a limited basis to understand it better. An innovation that can be piloted carries less risk to the individual.

Observability

This is the process of evaluating an innovation for people to visualize the results easily (Rogers, 1983). Moreover, the visible results reduce uncertainty and stimulate peer discussion on a new idea because people around the adopter often ask for the associated information.

Perceived Risk

Perceived risk (Ram & Sheth, 1989) is an attribute that refers to the level of risk when using an innovation (Al Jabri & Sohail, 2012). Its importance has been demonstrated in several research related to technology adoption to develop new technologies or services (Gewald et al., 2006; Ndubisi and Sinti, 2006; in Al-Jabri & Sohail, 2012). The perception of risk makes some users afraid of taking risks regarding the security of their data, therefore, when a new technology is considered to have a high risk, it will negatively impact the process of adopting technological innovations (Akmalia & Brady, 2020). Moreover, perceptions of risk make some users afraid of the security of their data, thereby disrupting banking service credit. This indicates that when a new technology is deemed to have a high risk, it tends to impact the process of adopting technological innovations negatively.

Technology Adoption

Adoption is the process of applying ideas, actions, or items that are considered new by individuals (Rogers & Schoemakers, 1971). According to Rogers (1983), it is a series of activities carried out by individuals during innovation by recognizing the process, taking an interest, and assessing the implementation. The Innovation Diffusion Theory has been used successfully in various fields, including information technology. It is also suitable for predicting user interest in adopting new technology (Intani & Brady, 2020). Presently, most instructional technologists do not understand why the public is not adopting their products. Therefore, by understanding the factors that affect innovation adoption, they can explain, predict, and consider the factors that hinder and facilitate the diffusion of their products (Basri, 2014).

Relationship Between Variable

The innovation diffusion theory (Rogers, 1983) can be considered one of the earliest techniques to determine the factors influencing a person to adopt an innovation or new technology. The characteristics of the theory are as follows:
1. Relative Advantage, where innovation can provide more benefits.
2. Compatibility, innovation can be accepted when it is appropriate to existing values, experiences, and needs.
3. Complexity, the simpler an innovation, the easier it will be accepted by the community.
4. Trialability (can be tested), the process of allowing people to try an innovation before it is generally implemented.
5. Observability (can be observed), the easier it is for someone to determine the results of an innovation, the greater its possibility of being accepted by the community.

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

Al-Jabri & Sohail (2012) determined the factors influencing the adoption of mobile banking innovation using an innovation diffusion theory approach. Based on the research, the characteristics of this innovation diffusion theory included relative advantage, complexity, compatibility, trialability, observability, and perceived risk as independent variables. Meanwhile, for the dependent variable, mobile banking adoption was utilized.
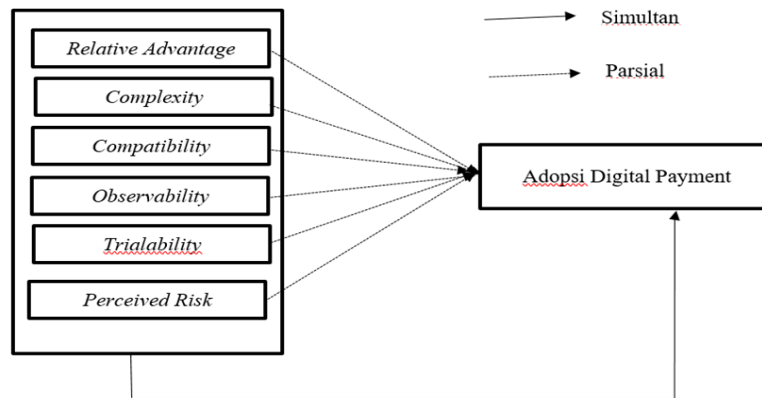
Research Framework

Figure 1. Theoretical Framework
Research Model, Adopted from Al-Jabri & Sohail (2012)

Research Hypothesis
Based on the background, the problem formulation, and the framework developed for this research, the proposed hypotheses are as follows:
H_1: Relative advantage, complexity, compatibility, observability, trialability, and perceived risk have a significant effect on the adoption of Shopee Pay digital payments.
H_2: Relative advantage affects the adoption of Shopee Pay digital payment.
H_3: Complexity significantly affects the adoption of Shopee Pay digital payment.
H_4: Compatibility significantly affects the adoption of Shopee Pay digital payment.
H_5: Observability significantly affects the adoption of Shopee Pay digital payment.
H_6: Trialability significantly affects the adoption of Shopee Pay digital payment.
H_7: Perceived risk significantly affects the adoption of Shopee Pay digital payment.

METHODS
A. Research Design

Table 1. Research Design

No.	Research Design Elements	Research Design Framework
1	Purpose Statement	Casual research
2	Techniques	Deductive
3	Methodology	Quantitative research
4	Research Strategy	Survey
5	Unit Analysis	Individual
6	Research involvement	Non intervene and manipulation
7	Research correlation	Non contrived settings
8	Timeline	Cross sectional

B. Population and Sample
The research respondents were selected from a population of Shopee Pay digital payment users in Jakarta City. The convenience method of non-probability sampling technique was used to determine the number of samples using the Cochran equation, which totalled 100.

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

C. Data Collection

The data collection technique used was a questionnaire. Data were collected from primary and secondary sources by distributing online and offline questionnaires from 30th May to 5th June 2022. The questionnaire questions use a Likert scale of 1 to 5.

D. Data Analysis

The descriptive statistical and data analyses using Smart PLS software were used for data analysis. This process was carried out in some stages, including outer and inner model analysis as well as hypothesis testing.

RESULTS AND DISCUSSION
A. Result
Respondents' Characteristics

In this research, the respondents were users of Shopee Pay digital payment services in Jakarta. Their characteristics were divided based on domicile, gender, age, last education, occupation, monthly income, and the year they started using Jenius. The sample comprises 100 respondents with the majority 41%, 74%, 63%, 41%, 51%, 36% and 72% indicating domiciled in the East Jakarta Region, female, aged 17-25 years, have an undergraduate education, private employees, monthly income of IDR 1,000,000 – IDR 3,000,000, and used Shopee Pay since 2020, respectively.

Descriptive Statistical Analysis

Descriptive analysis in this research is used to determine the percentage of respondents' answers regarding the effect of relative advantage, compatibility, complexity, trialability, observability, and perceived risk on the adoption level of Shopee Pay digital payment services in Jakarta.

Table 2. Descriptive Analysis

No	Variable	Total Score	Ideal Score	Percentage	Category
1.	Relative Advantage	1.682	2.000	84%	Very Good
2.	Compatibility	1.485	2.000	75%	Average
3.	Complexity	1.734	2.000	87%	Very Good
4.	Trialability	1.241	2.000	83%	Good
5.	Observability	1.663	2.000	83%	Good
6.	Perceived Risk	1.473	2.000	74%	Average
7.	Adoption	1.647	2.000	82%	Good

Relative Advantage and Complexity result were very good which Complexity is highest percentage 87% compare to Relative Advantage. Compatibility and Perceived Risk result were good which Perceived Risk is lowest percentage 74% compare to overall variables.

Convergent Validity Test

Convergent validity is met when the AVE and communality values are more significant than 0.5 and the outer loading value is above 0.7, which aligns with this research (Hartono & Abdillah, 2011). This indicates that convergent validity has been met. However, according to Hair et al. (2006), the variable is removed, assuming it has an outer loading value below 0.5.

Table 3. AVE Output Results

Construct	AVE	Communality
Relative Advantage	0.666	0.666
Compatibility	0.604	0.604
Complexity	0.680	0.680
Trialability	0.709	0.709
Observability	0.666	0.666
Perceived Risk	0.612	0.612
Adoption	0.725	0.725

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

Discriminant Validity Test

Discriminant validity is met when the cross-loading value of each indicator is more than 0.7, which was indicated in this research (Hartono and Abdillah, 2011). Therefore, it can be concluded that the discriminant validity has been met.

Reliability Test

Reliability was measured using Cronbach's alpha and composite parameters. It is reliable when the value of Cronbach's alpha and composite is more than 0.6, which is in accordance with this research (Hartono and Abdillah, 2011). Therefore, the research instrument is reliable.

Table 4. Reliability Test Results

Construct	cronbach's alpha	composite reliability
Relative Advantage	0.827	0.887
Compatibility	0.783	0.859
Complexity	0.843	0.895
Trialability	0.794	0.879
Observability	0.833	0.888
Perceived Risk	0.790	0.863
Adoption	0.870	0.913

Inner Model

R-square with Smart PLS tools is used in the inner model analysis stage to determine the coefficient of the endogenous construct. R-square has strong, moderate and weak effects when its values are 0.67, 0.33, and 0.19, respectively.
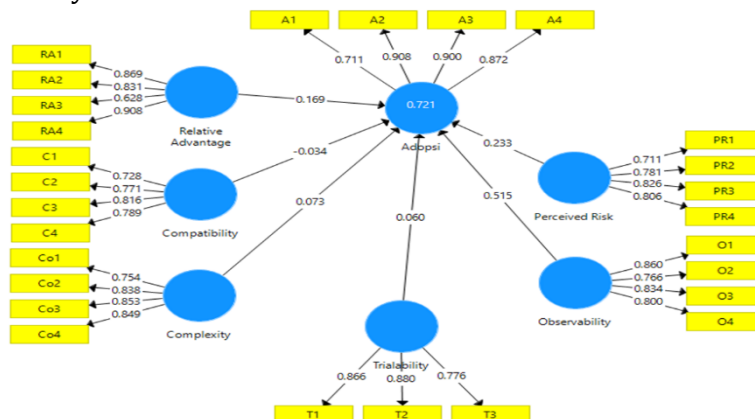

Figure 2. Inner Model Test Results

The hypothesis testing results can be seen from the p-value and Path Coefficient. When the p-value <0.05, this indicates that the results are significant, therefore, the previously formulated hypothesis is accepted. The following results are hypothesis testing that has been carried out with Smart PLS to determine the inner model, which has the meaning of the research variable relationship pattern.

Evaluation of the structural model can be carried out by observing the coefficients between variables with the determination (R^2). When the value of R^2 is close to 1, then the criteria for limiting the value are classified into three parts, namely substantial (0.67), moderate (0.33) weak (0.19). The following is the R^2 table from this research.

Table 5. R-Square Result

Variable	R-Square
Adoption	0.721

The table shows the R-square of the latent variable adoption, which has a value of 0.721, interpreted as 72.1%. This means relative advantage, complexity, compatibility, observability, and trialability affect

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

adoption by 72.1%. Furthermore, the remaining percentage is affected by other factors outside the variables mentioned.

Table 6. The results of the Coefficient and T-Statistic Path Obtained

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-Value
C -> A	-0.034	-0.031	0.070	0.484	**0.629**
Co -> A	0.073	0.074	0.069	1,056	**0.291**
O -> A	0.515	0.518	0.101	5,096	**0.000**
PR -> A	0.233	0.240	0.069	3,356	**0.001**
RA -> A	0.169	0.168	0.072	2,362	**0.019**
T -> A	0.060	0.050	0.099	0.606	**0.545**

Based on the calculation of the hypothesis testing, the path coefficient results showed a p-value <0.05. This indicates that the variable is significant and accepted. In contrast, when the p-value is >0.05, the variable is insignificant and rejected.

Effect of Relative Advantage, Compatibility, Complexity, Trialability, Observability and Perceived Risk on Adoption Level

The relative advantage, compatibility, complexity, trialability, observability and perceived risk simultaneously affect the adoption level of digital payment services. Shopee Pay in Jakarta with F Square is 38.266 > F table 2.43, indicating it has been good at offering services that suit the various needs of current users and the trust to meet customer expectations well. Therefore, Shopee Pay good digital payment support and the provision of more useful services for users have increased their adoption level.

B. Discussion
Effect of Relative Advantage on Adoption Level

The results of the Relative Advantage variable's partial test (t-statistics) on the level of digital payment service adoption of Shopee Pay showed p-value of 0.019 < 0.05 and t-statistic of 0.484 < 1.66. Therefore, it can be concluded that Relative Advantage significantly affects the adoption level of Shopee Pay. These results are consistent with Khalifah & Shen (2008), Nor & Pearson (2007), Wang et al. (2011), Al-Jabri & Sohail (2012). The results showed that people feel that using this digital payment has many advantages over other digital payment options and physical cash. The more people can obtain relative benefits from using Shopee Pay, the faster it will be adopted.

Effect of Compatibility on Adoption Level

The partial test (t-statistic) results of the Compatibility variable on the adoption level of Shopee Pay digital payment services is a p-value of 0.629 > 0.05. Therefore, it can be concluded that compatibility insignificantly affects the adoption level of Shopee Pay. These results are consistent with Harun & Ardianto (2012).

The results further showed that the perceived level of innovation is consistent with existing values, past experience, and suitability with the potential needs of people as adopters. Shopee Pay is a digital payment that only emerged in November 2018 compared to its predecessors. Therefore, OVO and GOPAY are not appropriate to the habits of those who have used the two predecessor applications for a long time.

Effect of Complexity on Adoption Level

The partial test of the Complexity variable on the adoption level of Shopee Pay digital payment services reported p-value of 0.291 > 0.05, indicating it is insignificant. The results are consistent with Shantika et al. (2022), Sukma & Endang (2018), and Sholahuddin (2017). These results also showed that people have no difficulty using Shopee Pay due to the ease of understanding the features. Moreover, the educational background of most respondents is a Bachelor's degree and private employees who tend to understand technology have no difficulty using it as a digital payment method.

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

Effect of Trialability on Adoption Level

The results of the partial test of the Trialability variable on the adoption level of Shopee Pay digital payment services indicated p-value of 0.545 > 0.05. Therefore, it can be concluded that Trialability has an insignificant effect on the adoption level. The results are consistent with Al Jabri & Sohail (2012) and Wu & Ge (2012), which indicated people using Shopee Pay do not need a trial due to the already existing ones such as GOPAY, OVO, and links.

Effect of Observability on Adoption Level

The partial test of the Observability variable on the adoption level of Shopee Pay digital payment services showed p-value of 0.000 <0.05. Therefore, it is concluded that observability significantly affects the adoption level of Shopee Pay. The results are in line with Al-Jabari & Sohail (2012) and Nazari *et al*. (2013). The results also indicated that people are interested in trying Shopee Pay due to increasing awareness of usage for daily transactions. This digital payment can show excellence in features and usability because the greater the advantages of innovation, the faster the adoption process.

Effect of Perceived Risk on Adoption Level

The partial test of the Perceived Risk variable on the adoption level of Shopee Pay digital payment services had p-value of 0.001 < 0.05. Therefore, it is concluded that Perceived Risk significantly affects the adoption level of Shopee Pay. The results are in line with Al-Jabari & Sohail (2012) and Chen (2008), stating that people still have concerns about security code that allows it to be lost and transferred to an irresponsible party, therefore, they can know the history of the transactions used.

CONCLUSIONS AND SUGGESTIONS

A. Conclusion

In conclusion, on the analysis results, this research has six variables evaluated to determine the factors that affect the adoption of Shopee Pay digital payment services in Jakarta. The Diffusion of Innovation Theory is used with factors comprising relative advantage, complexity, compatibility, trialability, and observability. This is in addition to perceived risk to help the theory explain the situation in more depth. The following conclusions can be drawn:

1. The simultaneous testing (F Square) concluded that the relative advantage, complexity, compatibility, trialability, observability and perceived risk proved to significantly affect the adoption level of Shopee Pay digital payment services in Jakarta City.
2. The partial test showed that perceived risk, relative advantage, and observability significantly affect adoption intentions. Meanwhile, complexity, trialability and compatibility were found to have an insignificant effect on the adoption level of Shopee Pay digital payment services in Jakarta City.

B. Suggestion

The following suggestions were given based on the analysis, discussion, and conclusions:

Theoretical Aspect

1. Future research is expected to be able to use other models besides the Diffusion of Innovation Theory to better identify other additional factors capable of affecting the adoption of Shopee Pay digital payment services.
2. Subsequent research is expected to be able to add other variables to improve understanding ability and estimate the intention to adopt Shopee Pay digital payment service.
3. Other questionnaire items for each variable, specifically those that do not have a significant effect, including complexity, compatibility and trialability, need to be conducted in further research. This is carried out to minimize misinterpretations and respondents' understanding of the intent of the questionnaire items.

Practical Aspect

1. Shopee Pay digital payment is recommended to offer services that are more compatible with various lifestyle needs and beliefs to meet the expectations of current users.

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

2. Shopee Pay digital payment is needed to determine perceived risk factors by offering special guarantees to protect users and respond to their complaints.
3. Shopee Pay digital payments are advised to focus on communicating information that emphasizes the relative advantages of Shopee Pay compared to other digital payments. Therefore, users must find it useful in managing financial transactions efficiently and effectively.

REFERENCES

Akmalia dan Brady. (2020). *Analisis. Tingkat Adopsi Layanan Perbankan Digital Menggunakan Teori Difusi Inovasi*. Bandung: Universitas Telkom Bandung.

Al-Jabri, I., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. *Journal of electronic commerce research*, *13*(4), 379-391.

Asosiasi Penyelenggara Jasa Internet Indonesia. (2021). *Profil Pengguna Internet Indonesia*. Jakarta: Asosiasi Penyelenggara Jasa Internet Indonesia.

Basri, H. (2014). Peningkatan Kualitas Pembelajaran Melalui Adopsi Dan Implementasi Teknologi Instruksional. *Jurnal Mudarrisuna: Media Kajian Pendidikan Agama Islam*, *4*(2), 228-248.

Chen, L. D. (2008). A model of consumer acceptance of mobile payment. *International Journal of Mobile Communications*, *6*(1), 32-52.

Daryanto. (2014). *Inovasi Pembelajaran Efektif*. Bandung: Yrama Widya.

Gerrard, P., & Barton Cunningham, J. (2003). The diffusion of internet banking among Singapore consumers. *International journal of bank marketing*, *21*(1), 16-28.

Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate data analysis*. New York: Prentice Hall.

Hartono & Abdillah. (2011). *Konsep dan Aplikasi PLS untuk penelitian empiris*. Yogyakarta: BPFE

Harun & Ardianto. (2012). *Komunikasi Pembangunan & Perubahan Sosial: Perspektif Dominan, Kaji Ulang, dan Teori Kritis*. Jakarta: Rajawali Pers.

Intani & Brady. (2020). *Penerapan Teori Difusi Inovasi dalam Adopsi Mobile Payment di Provinsi Jawa Barat (Studi Kasus: Gopay, OVO, Dana, Link Aja dan Jenius)*, Bandung: Universitas Telkom Bandung.

Khalifa, M., & Ning Shen, K. (2008). Explaining the adoption of transactional B2C mobile commerce. *Journal of enterprise information management*, *21*(2), 110-124.

Kusdibyo, L., Perera, H. L. K., & Leo, G. (2019). Technology adoption in education-based business services. *International Journal of Applied Business Research*, 124-139.

Megadewandanu, S. (2016, October). Exploring mobile wallet adoption in Indonesia using UTAUT2: An approach from consumer perspective. In *2016 2nd International Conference on Science and Technology-Computer (ICST)* (pp. 11-16). IEEE.

Mulyana, A., & Wijaya, H. (2018). Perancangan e-payment system pada e-wallet menggunakan kode QR berbasis Android. *Komputika: Jurnal Sistem Komputer, 7*(2), 63–69.

Nazari, F., Khosravi, F., & Babalhavaeji, F. (2013). Applying Rogers' Diffusion of Innovation theory to the acceptance of online databases at University Zone of Iran. *Malaysian Journal of Library and Information Science*, *18*(3), 25-38.

Ndubisi, N. O. & Q. Sinti, "Consumer attitudes, system's characteristics and internet banking adoption in Malaysia," Management Research News, Vol. 29, No. 1/2: 16-27, 2006.

Noor & Pearson. 2007. The Influence od Trust on Internet Banking Acceptance. Journal of Internet Md Nor, K., & Pearson, J. M. (2007). The influence of trust on internet banking acceptance. *Journal of Internet Banking and Commerce*, *12*(2).

Oly Ndubisi, N., & Sinti, Q. (2006). Consumer attitudes, system's characteristics and internet banking adoption in Malaysia. *Management research news*, *29*(1/2), 16-27.

Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: the marketing problem and its solutions. *Journal of consumer marketing*, *6*(2), 5-14.

Rogers E M & Shoemaker F F. (1971). *Conintunication of innovations: a cross-cultural approach*. New York: Free Press.

Rogers, Everett, M. (1983). *Diffusions of Innovations*. Simon & Schuster Publisher.

Rogers, Everett, M. (2003). *Diffusions of Innovations; Fifth Edition*. Simon & Schuster Publisher.

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra

Saputra, Irfan Pramayoga. (2019). *Analisis Efektivitas Penggunaan Digital Payment pada Mahasiswa Institut Informatika dan Bisnis Darmajaya*. Bandar Lampung: Institut Informatika dan Bisnis Darmajaya.

Shantika, N. R., Ardiatama, A. L., Purwaningrum, O., Putra, Y. Y., & Syafira, A. O. (2022). Analisis Adopsi Inovasi Teknologi Informasi Dompet Digital DANA Menggunakan Innovation-Diffusion Theory (IDT). *Journal Of Information System And Artificial Intelligence*, *2*(2), 110-117.

Sholahuddin. (2017). *Pengaruh Karakteristik Inovasi Terhadap Niat Mengadopsi Solopos e-paper*. Surakarta: Universitas Muhammadiyah Surakarta,.

Solomon. (2017). *Consumer Behavior: Buying, Having and Being (Edition 12th).* England: Pearson Education Limited.

Sukma & Endang. (2018). *Analisis Adopsi Uang Elektronik Dengan Pendekatan Teori Difusi Inovasi (Studi Pada Pengguna Uang Elektronik OVO di Kota Malang).* Malang: Universitas Brawijaya.

Wang, Y. M., Wang, Y. S., & Yang, Y. F. (2010). Understanding the determinants of RFID adoption in the manufacturing industry. *Technological forecasting and social change*, *77*(5), 803-815.

Wani, T. A., & Ali, S. W. (2015). Innovation diffusion theory. *Journal of general management research*, *3*(2), 101-118.

Williandry, Astrid. (2021). *Survei Snapcart: ShopeePay tetap tumbuh pesat selama kuartal I 2021*. https://keuangan.kontan.co.id/news/survei-snapcart-shopeepay-tetap-tumbuh-pesat-selama-kuartal-i-2021

Wu, B., Xu, W., & Ge, J. (2012). Innovation research in e-learning. *Physics Procedia*, *24*, 2059-2066.

Zarmpou, T., Saprikis, V., Markos, A., & Vlachopoulou, M. (2012). Modeling users' acceptance of mobile services. *Electronic Commerce Research*, *12*, 225-248.

Ricky Aditya, Rahmad Rivaldi, Rama Al Mizan, Ismi Amalia Romadhon, Muhammad Ilham Nofitra