The Application of Technology-Organization-Environment Framework to Analyze SME Readiness in Using Digital Payment Applications

Dendy K. Pramudito[1✉], Sayed Achmady[2], Dominica Maria Ratna Tungga Dewa[3], Tedi Pitri[4], Diwahana Mutiara Candrasari Hermanto[5]

[1]Universitas Pelita Bangsa
[2]Universitas Jabal Ghafur
[3]Universitas Atma Jaya Yogyakarta
[4]STIE PASIM Sukabumi
[5]Sekolah Tinggi Ilmu Komputer Yos Sudarso

doktor.haji.dendy@pelitabangsa.ac.id

Abstract

The purpose of this study is to identify the variables that affect SMEs' preparedness to use e-wallets. This study employed a quantitative methodology. This method falls under the experimental research category. Questionnaires were used as the instrument of choice for gathering data. The study's target population consists of SMEs who have made payments using e-wallets. Purposive sampling was the method employed, and 200 samples total were collected. SmartPLS software was used in the data analysis for this study. At this point, the outer model and the inner model were the subjects of two analyses. SMEs are prepared to use e-wallets as a payment method, which is influenced by organizational, technological, and environmental factors, according to the discussion's findings. The most dominant factor influencing SMEs' intentions to use e-wallets is technology. This is followed by organization and the environment. Of the six hypotheses proposed, one was rejected, and the other five were accepted with a significant positive relationship. The hypothesis that is rejected is that environment affects organization. This is because the organizational structure is not yet perfect, causing existing organizational factors not to be determined by competitive pressure or the influence of service providers and partners. The hypothesis that has the greatest influence is that the environment influences technology. The higher the level of perceived pressure from competitors and support from service providers and partners, the higher the organization's intention to use technology.

Keywords: User Readiness, E-Wallets, SME, Organization, Technology.
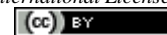
1. Introduction

In the current economic climate, information has developed very quickly, along with changes in people's lifestyles. The development of information in this economic sector also improves the technology in it, which continuously makes market users think more creatively so that their businesses advance. Market users also take advantage of information exchange tools such as the internet in an effort to increase their business opportunities. In exchanging information, the internet since 1990 has provided many new opportunities, especially in business operations as a means of exchanging information [1]. Email, e-shop, e-procurement, crowdsourcing, e-marketplace, and many more applications allow you to exchange information over the internet at any time and from any location. There is no denying that a company must use information technology (IT) in its management, and the more competitive the business world becomes, the more effective and efficient company management is required to be prepared to embrace the use of technology [2]. Businesses can leverage IT to improve management strategies in a number of areas, including communication, information sharing, decision-making, data management, and knowledge management. Small and medium-sized businesses (SMEs) are the main economic players in Indonesia with the ability to support and impact the country's economy [3]. SMEs have contributed 60% of gross domestic product (GDP) and have a labor absorption rate of around 90% of the entire national workforce. The government believes that developing SMEs can increase export opportunities with the unique characteristics of products from their respective regions so that they no longer depend on imports. The role of IT in the SME world is also very large to support the marketing process and work efficiency so that it can increase competitiveness [4].

Until now, SMEs have not been able to beat the position of large-scale businesses in industrial competition due to the implementation of the ASEAN-China Free Trade Area (ACFT), which makes them increasingly threatened by competition from imported goods [5]. So in this creative economy era, SMEs are advised to adopt IT, which can provide the ability to serve better and have high competitiveness. The growth of SMEs in Indonesia has increased

by 6% per year, driven by the government and other private institutions. However, this growth was not accompanied by the introduction of IT to business actors. Most business people are still reluctant to get to know IT, which can actually increase competitiveness. Lack of knowledge about this also causes business actors to not know how to make products using IT [6]. Only 30% of the 57 million SMEs in Indonesia have knowledge of IT. It is very important for SMEs to understand IT to increase company effectiveness and efficiency. In recent years, there has been much attention paid to the empowerment and development of SMEs in Indonesia. There are many things that can be done to increase IT adoption among SMEs, one of which is digital payments [7]. Digital payment is a payment system where transactions are carried out using digital techniques using electronic media, so there is no need to use cash in this payment system [8]. Debit and credit cards, online banking, mobile banking, e-wallets, mobile payments, e-checks, and online value storage are just a few examples of the different types of e-payment systems [9].

At the moment, payments made via mobile devices are beginning to show signs of utilizing the e-payment system in Indonesian SMEs. Indonesia's first mobile payment system, TCash, debuted in 2007 and was powered by Telkomsel. Then came XL Axiata and Indosat. In 2012, the banking sector and application developers began implementing mobile payments [10]. Three payment platforms are used by the majority of mobile payments that are emerging in Indonesia: one-time password (OTP), near-field communication (NFC), and quick response (QR). In order to facilitate digital payments, the seller will either generate a QR code or present an NFC tag with details about the transaction, including the bill number and amount, when a customer wants to make a digital payment. After that, the client uses a companion app to send the QR code. Until 2018, the mobile payment in Indonesia with the highest usage was GoPay with 79.3% and its competitor, OVO, with 58% from 900 respondents. In expanding the use of cashless transactions in SMEs, GoPay and OVO are now competing. The high level of several types of mobile payments is because users feel that the services provided have quite broad coverage. In its implementation, e-wallet first collaborated with UKM in March 2018 in the Jabodetabek areas [11]. This e-wallet for accommodating SMEs also collaborates with BNI, and currently GoFood has collaborated with more than 125,000 merchants, of which 70% are SMEs. There are 300 UKMs that have used e-wallets for payments in the Jabodetabek area [12].

Even though e-wallets are easy to find in SMEs, many traders (SMEs) are still confused about implementing mobile payments with e-wallets, especially SMEs such as food stalls on the side of the road and mobile traders using carts [13]. They still have difficulty using mobile payment technology provided by e-wallets. Based on my daily experience, most people tend to prepare cash when making transactions with SMEs. This is because prospective buyers are not yet aware of the e-wallet payment system used by the seller, even though a notification banner has been installed on the e-wallet itself. Sellers sometimes don't offer e-wallet payment systems because they don't understand the system [14]. Even buyers who were initially interested in using mobile payments actually gave up their intention to pay digitally because traders did not understand this system when asked. Buyers prefer to use the e-wallet payment system at restaurants and eateries that already have a brand because the cashiers who serve payments have mastered the system [15]. If the buyer does not master the e-wallet payment system, the cashier will teach the payment steps. However, in SMEs, it was found that they did not know its implementation because this system was managed by their superiors, and they were not given further explanation about this system. Based on these problems, many factors may be the cause of the problem. The Technology-Organization-Environment (TOE) Framework serves as the foundation for research conducted by scholars. This decision was made due to the strong correlation between the adoption of IT within an organization and the uptake of mobile commerce or mobile payments [16]. The TOE Framework is a set of factors that forecasts the degree of organizational preparedness for IT adoption, which is a hindrance to IT use. The TOE Framework demonstrates how the organization, environment, and technology all have an impact on IT adoption. Within the context of technology, discussions revolve around the state of development, degree of difficulty, and effectiveness of IT adoption [17]. Meanwhile, the organizational context discusses the organization's attitude towards using IT, and the environmental context discusses the environment that can influence IT use [18].

The variables used in this research are relative advantage, compatibility, and complexity in the context of technology. Relative advantage is the degree of advantage that an IT adoption has over prior adoptions or activities; the higher the relative advantage perceived by users, the faster they will adopt IT. Since compatibility fits into the lifestyle of IT users, it can encourage their use, which makes it a crucial component of IT adoption. The degree to which IT use is regarded as complicated or not is known as complexity. According to the explanation given above, technology is thought to have a positive effect on users' adoption of IT because users tend to use IT more quickly when they perceive greater benefits. Technology can have a positive impact on an organization and also serve as a gauge for how much adoption is thought to be consistent with the organization's pre-existing values, beliefs, habits, and experiences [19]. Three influencing factors are identified in the context of the organization: organizational competence, support from top management, and training and education. Organizational competence refers to the managerial abilities of upper, middle, and lower management, as well as supervisory ranks, which are positions where managers interact directly with operational staff. Support from the top ranks of the organization is

crucial to transforming it to accommodate employees. Prior studies have demonstrated that the level of user confidence in utilizing IT to enhance performance is influenced by top management support. Training and education is an organizational action where employees are directed to prepare their performance in order to meet specified requirements. One of the causes of decreased employee performance is the employee's inability to complete their work. Previous research has proven that training and education influence employee performance, so training and education must be implemented in accordance with organizational needs. Thus, it can be concluded that organization is an action in managing an organization to explore the organization's needs so that it can keep up with developments in technology and science so that its performance increases [20].

Two factors competitive pressure and trading partner support that can affect decisions are identified in the environmental context. A context pertaining to service providers or trading partners is trading partner support. Previous studies have demonstrated that trading partner support can affect IT use because consumers and distributors feel that using IT is mutually beneficial [21]. Customers will stay faithful because they believe that the services they receive from employing IT are superior and more effective than they were in the past. Distributors will benefit from devoted customers who understand the interdependence of organizational functions. The amount of pressure an organization experiences from its workforce is known as competitive pressure. Competitive pressure has been shown in earlier studies to be a powerful organizational motivator [22]. IT is used for marketing. Thus, it can be concluded that if an organization can influence the role and use of IT in an organization and provide pressure that an organization feels from its competitors, which can influence the use of IT so that it can compete with its competitors to better serve consumers [23]. Adoption intention is a measure of a person's possibility of using a system. Adoption intention is defined as a measure of the strength with which a person desires to carry out a certain behavior. Adoption intention is a person's subjective probability that he will carry out some behavior.

2. Research Methods

In this research, a quantitative approach is used because the research carries out numerical measurements and statistical calculations, so the significance of group differences or the significance of the relationship between variables will be obtained. This quantitative approach is categorized as experimental research. Data collection was carried out using an instrument in the form of a questionnaire, which was distributed to SMEs that already use e-wallets as a payment method. Then data analysis was carried out statistically using Microsoft Word for writing reports, Microsoft Excel for processing demographic data, Microsoft Visio for creating images that support writing, SmartPLS for processing data resulting from distributing questionnaires, and Mendeley Desktop version 1.19.3 for writing references that researchers use as references in writing reports. The population in this research is SMEs in the Jakarta and Tangerang areas that have used e-wallets as a payment method. The sampling technique used was purposive sampling, and the number of samples was 200. Data analysis in this research was divided into two categories: demographic analysis and inferential statistical analysis. In the analysis using SmartPLS software, there are two analyses carried out at this stage, namely, the outer model and the inner model. After that, the interpretation of the research results was explained by the results of the demographic analysis of respondents with the current conditions, and the results of the model analysis were translated into quantitative statistics by comparing a number of previous related pieces of literature.

3. Results and Discussion

According to the respondents' use of the internet over time (39%) used it the most in the 5–8-year range (35%) in the 1–4-year range. In 8 years (16%), and the respondents who used the internet the least amount of time (10%). Respondents who have used e-wallets: all respondents have used e-wallets as a payment method in their businesses. Seventh, looking at the time span of using e-wallets as a payment method, the most respondents were in the 2–5-month time span (44%), followed by the 6–12-month time span (40.57%), and a time span of less than one month (8%). The fewest respondents used e-wallets as a payment method for a period of more than 12 months (7.43%). Eighth, judging from the readiness of respondents in using e-wallets, the majority of respondents answered ready with 35%, very ready (19.2%), and quite ready (8.5%). Then as many as 32.5% were not ready, and as many as 5%, were very unprepared.

At every testing stage, the findings of the measurement model analysis of the research model employed in this study can be deemed to be compliant with current regulations. Since each step already has positive qualities, testing can move on to the next one, which is testing the structural model. Because the outer loading value was less than 0.5–0.6, 10 indicators OR09, OR11, OR12, TE01, TE02, and TE10 were eliminated from the research model. Then OR02 and OR06, which have inappropriate cross-loading values, and OR03, because the Fornell-Lacker Criterion values are still not appropriate. Researchers assume that the deletion of these indicators was due to the editorial selection of questions on the questionnaire that respondents still did not understand, which caused differences in meaning. Filling out questionnaires by respondents who do not pay attention to the actual situation, so that respondents answer the questions incorrectly. Based on this, it is necessary to review and carry out further developments regarding the instruments used in this research, especially the indicators that were removed. Even

though researchers have tried their best, there are still many things in the field that are beyond the researchers' control during implementation. The t-test shows that H1a is accepted, which means technology has an influence on organizations. This is supported by a path coefficient value of 0.7, which means the hypothesis linking technology and organization has a significant positive influence. If you look at the values of f2 and q2, this hypothesis has a medium influence. The hypothesis's findings are consistent with the findings of other academics' studies, which determined that technology has an impact on companies. This suggests that using technology can help organizations perform better in their day-to-day operations.

According to the findings of the t-test's structural analysis of the model, H1b is accepted, indicating that adoption intention is influenced by technology. Aside from that, the path coefficient value of 0.3 shows that, when examining the f2 and q2 values, the technological hypothesis including AI has a tiny influence but a substantial association. To put it another way, a person's readiness to adopt new technology is influenced by it. A person or organization is more likely to accept technology to facilitate their work if it is more sophisticated and user-friendly. This hypothesis's findings are consistent with earlier studies. According to researchers, this occurs because e-wallets are the first mobile payment methods that have been used by SMEs. This is also consistent with the government of Indonesia's goal to encourage the shift to a cashless society and encourage small and medium-sized enterprises to adopt mobile payment systems. Aside from that, the simplicity and ease of use of the e-wallet system attract a lot of small and medium-sized enterprises (SMEs) as a payment option. The t-test shows that H2 is accepted, which means organizations have an influence on AI. Apart from that, the path coefficient value of 0.396 indicates that the organization hypothesis with AI has a significant relationship and has medium f2 and q2 values. The more prepared an organization is to use technology, the higher the organization's intention is to adopt it. Similarly, the more top management supports employees' use of technology, the more likely it is that those employees will intend to use technology in their work. Regular training and education offered by an organization will also help staff members understand the use of technology and increase their intention to use it. The hypothesis's findings are consistent with earlier studies' findings that adoption intention is influenced by organization.

The findings of the structural model analysis in the t-test indicate that, should H3a be accepted, there is a connection between the environment and technology. Apart from that, the path coefficient value of 0.8 shows that the environment hypothesis and technology have a significant relationship, and the values of f2 and q2 show a large influence. The higher the pressure an organization feels from its competitors, the greater the organization's efforts in using technology. Aside from that, the organization feels comfortable utilizing technology that it believes has the potential to be profitable because of reliable service providers and business partners. The hypothesis's findings are consistent with earlier studies' findings that technology is influenced by its surroundings. The t-test shows that H3b is rejected, which means the environment has no influence on the organization. Meanwhile, the path coefficient value is 0.1, which means that the environment and organization hypothesis have a significant influence. However, if you look at the values of f2 and q2, these two values show results that have no effect. In SMEs, the existing organizational structure is still not perfectly structured. This is what causes SMEs not to pay attention to existing organizational factors. While in the field, researchers also found that most SMEs still prefer cash payments. Consequently, as organizations, SMEs do not give priority to external factors like the pressure from competitors and the assistance of partners and service providers. This hypothesis is in line with previous research, which concluded that the environment has no influence on the organization. The t-test shows that H3c is accepted, which means that the environment has an influence on adoption intention. Apart from that, the path coefficient value of 0.2 shows that the environmental path with adoption intention has a significant relationship, and based on the f2 and q2 values, it shows a small value. The more competitors use technology, the more an organization's intention is to adopt technology. Support from service providers and convincing partners makes organizations more likely to adopt a technology. This theory is consistent with earlier studies that found adoption intention is influenced by the environment.

4. Conclusion

According to the discussion's findings, SMEs are prepared to use e-wallets as a payment method, which depends on technology, organization, and environmental factors. The most dominant factor influencing SMEs' intentions to use e-wallet mobile payments is technology. This is followed by organization and environment. Of the six hypotheses proposed, one was rejected, and the other five were accepted with a significant positive relationship. The hypothesis that is rejected is that the environment affects organizations. This is because the organizational structure is not yet perfect, causing existing organizational factors not to be determined by competitive pressures or influence from service providers and partners. The hypothesis that has the greatest influence is that the environment influences technology. The higher the level of perceived pressure from competitors and support from service providers and partners, the higher the organization's intention to use technology. Drawing from the conducted research, the following recommendations could be suitably taken into account for additional studies and associated organizations: It is best for academics and aspiring researchers to think about and enhance the following,

especially for researchers who are similar to them: based on study findings, particularly those from questionnaire testing. Reviewing the intended indicators is the best course of action.

Expert feedback and recommendations ought to be taken into account when strengthening indicators to lower the frequency of indicator deletions. In addition, more variables and indicators are required in order to fully investigate the system through research. Researchers should be very careful when drafting questionnaire questions to make sure that there are no miscommunications between them and respondents. increasing the population by integrating e-wallet users from other demographics into a larger SME context outside of Jabodetabek. It is believed that there are still issues with the TOE Framework model's application in this study. Future studies are hoped to investigate the model more thoroughly and incorporate it with other models, including TAM, DoI, TPB, and others. In order to encourage more SMEs to adopt e-wallets as a payment method, GOJEK Indonesia can keep developing and resolving issues with e-wallet mobile payments for SMEs. The use of technology within an organization can be increased and maintained by SMEs that have chosen to use e-wallet mobile payment as their preferred payment method in order to maintain high levels of competitiveness and receive guarantees from the service provider directly. According to study findings, the technological environment has a big impact on how people use technology.

References

[1]   Gangwar, H., & Date, H. (2015). Understanding determinants of cloud computing adoption using an integrated TAM-TOE model. *Journal of Enterprise Information Management Article information*. https://doi.org/10.1108/JEIM-08-2013-0065

[2]   Pramudito, D. K., Nuryana, A., Assery, S., Purnomo, H., & Ady Bakri, A. (2023). "Application of Unified Theory of Acceptance, Use of Technology Model and Delone & Mclean Success Model to Analyze Use Behavior in Mobile Commerce Applications". Jurnal Informasi Dan Teknologi, 5(3), 1-6. https://doi.org/10.60083/jidt.v5i3.382

[3]   Pramudito, D.K., Nurdiani, T.W., Winardi, B., Rukmana, A.Y., Kraugusteeliana. (2023). "Website User Interface Design Using Data Mining Task Centered System Design Method At National Private Humanitarian Institutions". Indonesian Journal of Artificial Intelligence and Data Mining , 6(2), 281-289. http://dx.doi.org/10.24014/ijaidm.v6i2.25814

[4]   Rahayu, R., & Day, J. (2015). Determinant Factors of E Commerce Adoption SMEs in Developing Country: Evidence from Indonesia. *Procedia- Social and Behavioural Science*, 195, 145–150. https://doi.org/10.1016fj.sbspro.2015.06.423

[5]   Mulatsari, W. E., Candrasari, D. M., & Suyudi, S. (2023). Sistem Informasi Pelayanan Administrasi Kependudukan Kelurahan Kenteng Berbasis Website dengan Uji Kualitas Sistem Menggunakan Metode Mccall Software Quality. *Joined Journal (Journal of Informatics Education)*, 6(1), 22-36.

[6]   Candrasari, D. M., Prihatmajaya, P. S., Fransiska, C. A., & Pernada, E. (2022). Pemanfaatan RFID (Radio Frequency Identification) Tag Sebagai Alternatif Efektifitas Pemantauan Kehadiran Warga Sekolah di SMK Swagaya 2 Purwokerto Berbasis Website dengan Menggunakan Metode Uji Kualitas Mccall's Quality. *Joined Journal (Journal of Informatics Education)*, 5(2), 1-14.

[7]   Lumingkewas, C. S., Nimran, U., Raharjo, K., & Utami, H. N. (2019). Effect of Job Insecurity to Organizational Commitment and Intention to Leave. *Wacana Journal of Social and Humanity Studies*, 22(4).

[8]   Lumingkewas, C. S. (2016). Analisis Yuridis Pemaknaan Konsep Dalam Pasal 16 Undang-Undang Rumah Susun Bagi Masyarakat Berpenghasilan Rendah. *Arena Hukum*, 9(3), 421-441.

[9]   Sukmawati, E., ST, S., Keb, M., Fitriadi, H., Pradana, Y., Dumiyati, M. P., ... & Kasmanto Rinaldi, S. H. (2022). *Digitalisasi sebagai pengembangan model pembelajaran*. Cendikia Mulia Mandiri.

[10] Arta, D. N. C., Tannady, H., Fitriadi, H., Supriatna, D., & Yuniwati, I. (2023). Analisis Pengaruh Pelatihan Kerja Dan Rekrutmen Terhadap Kinerja Karyawan Di Perguruan Tinggi. *Management Studies and Entrepreneurship Journal (MSEJ)*, 4(1), 587-596.

[11] Fitriadi, H. (2021). Pengaruh Suasana Resto Dan Kualitas Pelayanan Terhadap Kepuasan Pelanggan Pada Lan's Resto Dan Cafe Lahat. *Jurnal Teknik Ibnu Sina (JT-IBSI)*, 6(02), 88-103.

[12] Fachrurazi, H., MM, S. A., Cahyadi, N., S ST, M. M., Fitriadi, H., Rianda Hanis, S. E. I., ... & Ak, M. (2022). *Dasar dan Konsep Manajemen Organisasi*. CV Rey Media Grafika.

[13] Sudyana, I. N., Kurniawati, H., Susanto, R., Dulame, I. M., & Vanchapo, A. R. (2023). The Effectiveness Analysis of Using Angle Puzzle Tools on the Achievement of Students' Learning Outcomes. *Journal on Education*, 6(1), 1743-1748.

[14] Fadlilah, S., Setiawan, D. I., Muflih, M., Amigo, T. A. E., Susanto, R., & Pujianto, A. (2022). Factors Associated with Adverse Events Following the First Dose of COVID-19 Immunization in Indonesia. *Korean Journal of Adult Nursing*, 34(3), 249-257.

[15] Fadlilah, S., Setiawan, D. I., Murdhiono, W. R., Wiyani, C., Mindarsih, E., Lustiyati, E. D., & Susanto, R. (2022). The Anxiety Facing the 1st Dose of Covid-19 Vaccination and Related Factors. *International Medical Journal*, 29(1).

[16] Astuti, E. D., Susanto, R., Cahyono, D., Sudirman, S., & Astuti, M. T. (2023). The Effect of Problem Based Learning Work Sheet Usage on Student Learning Outcomes. *Mudir: Jurnal Manajemen Pendidikan*, 5(2), 404-408.

[17] Pramudito, D. K., Arijanti, S., Rukmana, A. Y., Oetomo, D. S., & Kraugusteeliana, K. (2023). The Implementation of End User Computing Satisfaction and Delone & Mclean Model to Analyze User Satisfaction of M. TIX Application. *Jurnal Informasi dan Teknologi*, 5(3), 7-12.

[18] Pramudito, D. K., Mursitama, T., Abdinagoro, S. B., & Tanuraharjo, H. H. (2021). THE INFLUENCE OF BIG DATA RECOMMENDATION: AN APPROACH ON E-LOYALTY OF E-GROCERY BUSINESS. *Psychology and Education*, 58(2), 3550-3564.

[19] Pramudito, D. (2021). The Moderation Effect of e-Trust and Big Data Quality in e-Grocery: An Empirical Research from Outside of Java Island. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(10), 6445-6459.

[20] Pramudito, D. K., Nuryana, A., Assery, S., Purnomo, H., & Bakri, A. A. (2023). Application of Unified Theory of Acceptance, Use of Technology Model and Delone & Mclean Success Model to Analyze Use Behavior in Mobile Commerce Applications. *Jurnal Informasi Dan Teknologi*, 5(3), 1-6.

[21] Pramudito, D. K. (2022). Data Mining Implementation On Java North Coast Weather Forecast Dataset Using C4. 5 Algorithm. *Jurnal SIGMA*, 13(3), 139-148.

[22] Tsou, H., & Hsu, S. H. (2015). Performance effects of technology – organization – environment openness , service co-production , and digital-resource readiness : The case of the IT industry. *International Journal of Information Management*, 35(1), 1–14. https://doi.org/10.1016/j.ijinfomgt.2014.09.001

[23] Yang, S. et al. (2022). Mobile Payment services adoption across time: An empirical study of the effect of behavioral beliefs, social influences, and personal traits. *Computer in Human Behavior*, 29(8), 2027–2049.