



GREEN ECONOMIC: ADOPTION OF NON-CASH PAYMENT SYSTEMS IN BUSINESS TRANSACTIONS

Fenty Fauziah¹, Sri Aisyiyati Sitti Noor Adhadianawaty², Fitriansyah³, Mursidah Nurfadhillah⁴, Nur Hanisfatin Rushami Zien⁵

^{1,2,3,4}Universitas Muhammadiyah Kalimantan Timur, Indonesia

⁵Universiti Utara Malaysia, Malaysia

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ABSTRACT

Technological developments encourage MSMEs to adopt non-cash payments to improve competitiveness and consumer experience. This study analyzes the influence of technological, organizational, and environmental factors on the adoption of non-cash payment systems in MSMEs in Samarinda City. The research method used a sample of 130 MSME actors selected by random sampling. The results of the analysis show that all three factors have a positive effect on the adoption of non-cash payments. This finding emphasizes the importance of technological support, internal readiness of MSMEs, and external pressure in encouraging the transition to a cashless system. The practical implication is that MSMEs need to adapt to digital payment systems to improve business efficiency and support sustainability (paperless). Theoretically, this study strengthens the understanding of the determinants of digital innovation adoption in the MSME sector, while providing recommendations for business actors, government, and fintech providers in expanding the use of non-cash payments.

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Corresponding Author:

Fenty Fauziah
Universitas Muhammadiyah Kalimantan Timur, Indonesia
Email: ff230@umkt.ac.id

1. INTRODUCTION

Digitalization has grown very rapidly, with increasingly advanced technological developments, payments have become easier. People tend to have a new lifestyle that is completely inseparable from electronic devices. The development of technology that supports cashless payments consciously and unconsciously encourages people to do so (Hasti and Syam, 2023). The transaction process becomes faster when people switch from conventional to digital payments, protected by different passwords, non-cash payment systems can be used to buy anything, from small groceries to computers, plane tickets,

luxury goods, etc. (Karim et al., 2020). The rapid development of information technology makes it easier by providing unique payment system characteristics. Due to the increasing number of electronic payment systems, business actors and consumers are switching from cash-based to non-cash (Yaokumah, et al., 2017). With the development of payment systems among the community, from cash to non-cash payments, it becomes a new challenge for business actors in Samarinda City. This makes business actors participate in providing a cashless payment system in order to remain competitive and develop in an increasingly digital world. Business actors in various fields need to utilize the potential of non-cash payments effectively to improve consumer experience, increase revenue, reduce administrative burdens related to cash management, and reduce operational costs.

Various benefits that business actors can obtain when providing a non-cash payment system include making it easier for consumers to make transactions and business actors do not have difficulty finding change for customers (Laywilla, et al., 2020). Micro, Small and Medium Enterprises (MSMEs) play a major role in most economies, not only in developing countries but also in developed countries and both at the local and national levels. MSMEs in Indonesia itself are defined as productive business entities owned by individuals or individual business units that do not include subsidiaries or branch offices that are directly or indirectly owned and/or controlled by or are part of a larger company.

Companies that are owned and/or are foreign investments are not considered MSMEs regardless of meeting the specified criteria (Law No. 20 of 2008). In this dynamic era of globalization, small and medium enterprises (MSMEs) play an important role in the development of a country. However, they face many challenges when competing internationally with large companies and multinational organizations, MSMEs are known to have greater ability to adapt due to entrepreneurial dynamism, when compared to large companies MSMEs have advantages in the process of making strategic decisions quickly and flexibly (Paul et al., 2017).

The Indonesian economy has experienced many rapid and essential movements, which have increased economic stability in the global recession. Indonesia has also experienced similar experiences. The 1998 monetary crisis and the COVID-19 pandemic, which also contributed to the economic progress at that time, namely micro, small and medium enterprises. MSMEs have a major influence on the welfare of society. This can be seen through the role they play in the Indonesian economy, namely promoting equality, fighting poverty, and generating income for Indonesia (Triagita et al., 2024). In today's digital era, the digitalization of non-cash transactions has driven the growth of MSMEs, with the digitalization of the payment system it is hoped that digital innovation will be able to provide access to business actors, as seen in Figure 1.1.

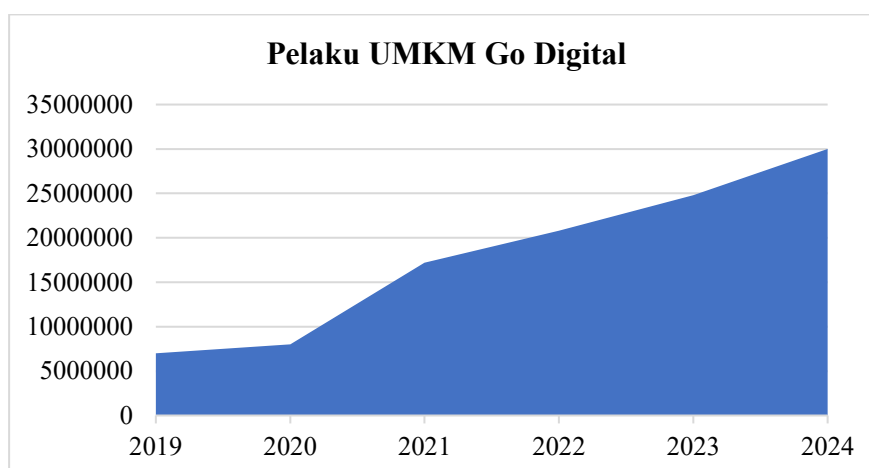


Figure 1.1 MSME actors go digital

The Coordinating Ministry for Economic Affairs is optimistic and encouraging the achievement of 30 million MSMEs to go digital by 2024. Meanwhile, the realization has currently reached 27 million MSMEs. Therefore, the government continues to strengthen cooperation with various e-commerce platforms to financial technology companies (fintech) in order to achieve this target. The collaboration is directed to increase the competitiveness of MSMEs in entering the digital ecosystem and international markets.

The Industry, Trade, Cooperatives (Disperindagkop) and MSME Service of East Kalimantan Province has the responsibility to accommodate and assist MSMEs in East Kalimantan, so that the dissemination of digital payments is one of the strategies of the Disperindagkop and MSME of East Kalimantan Province. The non-cash payment system has quite profitable developments and advantages for MSME actors. Of the total number of MSME actors in Samarinda City which reached 97,659 actors, only 45,733 or around 47 percent of MSME actors in Samarinda City have implemented a digital payment system. In addition, there is still a lack of public understanding regarding the use of digital payments. The majority of Samarinda City residents still use direct cash in their transactions, which can be assessed as a lack of efforts by the East Kalimantan Provincial Trade, Industry and SME Office in socializing the implementation of digital payments to the people of Samarinda City. In fact, Samarinda City is recorded as one of the cities in Kalimantan with the highest implementation of financial inclusion in the field of payments with a digital/non-cash system (Apriani et al., 2024).

There are many factors that influence the non-cash payment system and towards MSMEs going digital, in the form of technological factors, organizational factors and environmental factors. The growth prospects of the digital payment system in this case are electronic money and obstacles to financial access and inclusive financial efforts for MSMEs, so it is important to further explore the existence of digital finance as a breakthrough in MSME development efforts (Niken and Khusaini, 2022). In addition, environmental factors can also increase the competitiveness of MSMEs, namely the implementation of non-cash transactions. Consumers are increasingly accustomed to non-cash transactions and choose more practical payment methods in today's digital era. This can meet customer needs to have a competitive advantage (Triagita et al., 2024). And organizational factors also greatly influence the implementation of non-cash payments

can encourage MSMEs to adopt business innovations. For example, by using a digital wallet or payment application, MSMEs can provide technology-based services, such as online ordering, rewards or cashback, or special promotions for customers who use non-cash transactions. This kind of innovation can help MSMEs compete in an increasingly competitive market (Paul, et al., 2017). Based on the background described, there are several research gaps that need to be explored further to determine the interaction of technological, organizational, and environmental factors in driving the adoption of digital payments in Samarinda city.

Based on research related to the title and research variables, the researcher took relevant previous research as reference material in this study. The results of the study showed that technological factors have a higher significant relationship to the implementation of non-cash payment systems, organizational factors are significantly related to the implementation of non-cash payment systems, while environmental factors are not related to the implementation of non-cash payment systems (Rahman et al., 2022) Research (Liébana et al., 2014) and (Deligianni et al., 2019) state that technological factors influence the use of non-cash payments. While the study (Niken and Khusaini, 2022) states that technological factors do not affect the use of non-cash payments. Research by Aslam, et al., (2017); Soewarno, et al., (2020); Oktafani et al., (2020) states that environmental factors influence non-cash payments, while Wang et al., (2016) states that technological and organizational factors influence non-cash payment systems. Research by Lutfi, et al., (2017) and Zahra et al., (2023) organizational factors, technological factors and environmental factors influence digital payments. Technological factors and environmental factors influence digital payments, but organizational factors do not influence digital payments (Aryanto, et al., 2023). Meanwhile, research from (Thuan et al., 2022) technological factors and environmental factors do not influence digital payments, but organizational factors influence digital payments.

2. RESEARCH METHOD

The population of this study is MSME entrepreneurs in Samarinda City. This study uses an explanatory quantitative approach to analyze the influence of technological, organizational, and environmental factors on the adoption of non-cash payment systems in MSMEs in Samarinda City. The study population includes all MSME actors who have implemented digital payments. The sampling technique used Cluster Proportional Random Sampling to ensure even geographic representation, combined with accidental sampling. A sample of 130 respondents was selected based on the inclusion criteria, namely MSMEs that actively use at least one non-cash payment method. Data were collected through a closed questionnaire based on a 1-5 Likert scale, distributed directly and online (Google Forms) during March 2023–October 2024. The research instrument was tested for validity and reliability. The statistical tool used is SmartPLS 4.0. The variables used in this study are presented in table 1

Table 1. Variable Description

Variable	Indicator	Statement
Technology Factors (X1)	Compatibility	1. Changes made by the non-cash payment system are in line with changes in my business

			<ol style="list-style-type: none"> The non-cash payment system is compatible with my business technology Changes introduced to the non-cash payment system are in accordance with my business operating policies.
Organizational Factors (X2)	Management Support		<ol style="list-style-type: none"> Entrepreneurs are likely to invest in businesses that implement non-cash payment systems. Entrepreneurs are willing to take risks in implementing a non-cash payment system. Entrepreneurs want to implement a non-cash payment system so they can compete to gain profits.
	Firm Size		<ol style="list-style-type: none"> My business capital is relatively high compared to similar businesses. My business income is relatively high compared to similar businesses. The number of employees in my business is more than in similar businesses.
Environmental Factors (X3)	Technological Competence		<ol style="list-style-type: none"> Non-cash payment system applications can be implemented easily without spending a lot of time. My business is committed to ensuring employees understand non-cash payment technology My employees demonstrate a high level of knowledge about non-cash payment system applications.
	Competitive Pressure		<ol style="list-style-type: none"> My business is facing competitive pressure to implement a non-cash payment system. Competitors who have implemented non-cash payment systems since the beginning have gained a competitive advantage. I might lose customers if I don't implement a non-cash payment system
Adoption of Non-Cash Payment Systems (Y)	Critical Mass		<ol style="list-style-type: none"> Most of my customers use mobile phones Most of my customers have applications related to non-cash payment systems via mobile phones. My business uses a non-cash payment system because of customer wishes.

Technology Factors (X1)	Information Intensity	<ol style="list-style-type: none"> 1. Customers generally need a lot of information before purchasing a product. 2. The products in my business are complicated and difficult to understand. 3. The ordering process in my business is difficult to understand
Organizational Factors (X2)	Compatibility	<ol style="list-style-type: none"> 1. I hope that the non-cash payment system can help increase market share. 2. I hope that the non-cash payment system can help speed up the transaction process. 3. I hope that the non-cash payment system can help reduce costs. 4. I hope that the non-cash payment system can help improve interaction with third parties. 5. I hope that the non-cash payment system can increase business profits.

3. RESULTS AND ANALYSIS

RESULTS

Micro, Small, and Medium Enterprises (MSMEs) are a form of productive economic business carried out by individuals or individual business entities that meet the criteria of Micro, Small, and Medium Enterprises (Fadilah et al., 2021). MSMEs are the type of economic activity most widely carried out by the Indonesian people as a mainstay in obtaining income for their survival, the role of MSMEs in the Indonesian economy is not only as a labor absorber because the percentage reaches 90% when compared to large businesses, but also able to introduce various local products to the international world (Suyadi et al., 2018). This study used 130 MSME actors in the city of Samarinda. Respondents were categorized based on type of business, age range of business, monthly income range and using a non-cash payment system.

Table 2. Respondent Characteristics

Criteria	Jumlah	Percentage
Type of Business:		
Culinary	65	6 %
Crafts	8	50 %
Clothing	11	35 %
And others	46	9 %
Business Range:		
< 3 years	46	35 %
3-6 years	34	26 %
> 6 years	50	39 %
Monthly Income Range:		
< Rp 10.000.000	78	60 %
Rp 10.000.000 – Rp 50.000.000	34	26 %
Rp. 50.000.000 – Rp. 100.000.000	10	8 %
> Rp. 100.000.000	8	6 %

Source: Primary data, 2024

The validity and reliability of the model are assessed by using an external model; in this case, reflective indicators are used.

Table 3. Outer Loading

Notation	Technology Factors	Organization factors	Environment factors	Adoption of Non-Cash Payment System	Information
TF.1	0.878				Valid
TF.2	0.951				Valid
TF.3	0.956				Valid
OF 1.1		0.886			Valid
OF 1.2		0.832			Valid
OF 1.3		0.860			Valid
OF 2.2		0.725			Valid
OF 3.1		0.778			Valid
OF 3.2		0.884			Valid
OF 3.3		0.903			Valid
EF 1.1			0.798		Valid
EF 1.2			0.837		Valid
EF 1.3			0.831		Valid
EF 2.3			0.849		Valid
EF 3.1			0.794		Valid
ACP1				0.920	Valid
ACP 2				0.982	Valid
ACP 3				0.872	Valid
ACP 4				0.906	Valid
ACP 5				0.913	Valid

Source: Primary data, 2024

Based on table 3, it shows that the outer loading on each indicator in each research variable has a value > 0.7, so the outer loading in this study is considered valid.

Table 4. Discriminant Validation

Notation	Technology Factors	Organization factors	Environment factors	Adoption of Non-Cash Payment System
TF	0.929			
OF	0.880	0.868		
EF	0.790	0.839	0.834	
ACP	0.825	0.854	0.822	0.901

Source: Primary data, 2024

In table 4, the test results of discriminant validity have good values or all items used are valid, because each item has the highest value for each variable.

Table 5. Reliability Test

Variable	Cronbach alpha	Composite Reliability	Information
Technology Factors	0.739	0.760	Reliably
Organization Factors	0.745	0.755	Reliably
Environment Factors	0.711	0.733	Reliably
Adoption of Non-Cash Payment System	0.754	0.764	Reliably

Source: Primary data, 2024

From the data in the table above, the Composite Reliability and Cronbach alpha values of each variable are more than 0.7, so this shows that the four variables in the study can be said to be reliable or have a high level of reliability.

Table 6. Structural Model Testing (R2)

Dependen Variable	R Square Coefficient Value
Adoption of Non-Cash Payment System	0.782

Based on table 6, it shows that the value of R-square on the variable of adoption of non-cash payment system is 0.782, the dependent variable can be influenced by the independent variable with the magnitude of the predictive power of the model, namely 78.2%, the remaining 21.8% is influenced by other variables not used in this study.

Table 7. Hypothesis Test Results

hypothesis	Variable Relationship	Original Sample	P-Values	Inf.
H1	Technology Factors -> Adoption of Non-Cash Payment Systems	0.282	0.004	Influential
H2	Organizational Factors -> Adoption of Non-Cash Payment Systems	0.304	0.008	Influential
H3	Environmental Factors -> Adoption of Non-Cash Payment Systems	0.347	0.000	Influential

The results of the hypothesis testing can be explained that all original sample values are positive and P value <0.05 so that all relationships between independent variables (technology factors, organizational factors, environmental factors) have a significant positive effect on the adoption of non-cash payment systems.

ANALYSIS

Technology Factors and Adoption of Non-Cash Payment Systems

This study shows that technological factors influence the adoption of non-cash payment systems, currently technological advances have changed the world to be very easy in various ways, one of which is in the non-cash payment system (Arif et al., 2016). Significant technological advances and Government Regulation No. 8 / 26 / PSHM / Humas show that Indonesia is entering an era of forming a cashless society. Bank Indonesia uses the term "Less cash society" to refer to a non-cash society, which is a group of people who usually use non-cash payment instruments, especially in economic activities. Non-cash payments based on cards, electronics, and paper are no longer the main transaction tools

(Aslam et al., 2017). The changes in the non-cash payment system allow Bank Indonesia to create a society with less money. This should not only happen to people as consumers, as business actors should also be able to implement non-cash payments in their business transaction activities, because the circulation of counterfeit money and technological advances that encourage people to carry out consumption fulfillment activities, such as payments using digitalization or electronic money, people in general are increasingly aware of the potential for fraud and crime. This is an opportunity for MSMEs to increase profits by providing a non-cash payment system as a business transaction, because if MSMEs do not follow the flow of technological changes and digitalization of payments, it is certain that customers will move to other business actors who are able to facilitate digital payment transactions, because the community is now starting to move to the category of a cashless society (Diny and Vanomy, 2022).

Samarinda City MSME actors in implementing digital payments have been implemented but not optimally, although in its implementation there have been achievements in the form of an increase in the number of MSME actors using QRIS or digital payments. In 2021, only 45,733 Samarinda City MSMEs or around 40 percent used digital payments, then in 2023 it increased by 30 percent where Samarinda City MSME actors using digital payments reached 91,466 MSMEs or around 70 percent (Ri'fat and Apriani, 2024).

By implementing non-cash payments in MSMEs, it will actually be able to encourage MSMEs to be more productive because the payment process will be more practical, safe, and convenient for customers (Oktafani et al., 2020). In addition, it will be able to detect cash flow easily, so that business actors do not need to worry about receiving counterfeit money transactions or money that is no longer valuable. MSMEs have the ability to encourage the Indonesian economy as a whole to move and develop well (Karim et al., 2020).

Organizational Factors and Adoption of Non-Cash Payment Systems

This study shows that organizational factors influence the adoption of non-cash payment systems, because organizational readiness is to see whether the company has sufficient technical resources and readiness to use new technology, organizational factors include company characteristics that influence the implementation of digital payment technology (Aryanto et al., 2023). Often, small and medium enterprises (MSMEs) do not have the support needed to implement information technology in their businesses, and they also do not know how to use the technology, especially if the technology is complex, therefore the organization plays a very important role in advancing a business in competing between MSME actors, This is related to the company's policy in managing the resources it has to be able to implement technology in its business. The more ready a business is to implement technology, the more interested MSME actors will be in implementing technology in managing their business (Lutfi, et al., 2017).

The commitment of an organization is very important to encourage its business to adopt information technology, if a business owner has a positive attitude towards change, the implementation of technological innovation by his business will be influenced (Aryanto, et al., 2023). The commitment of business actors is very important to be able to direct the implementation of information technology and realize the business value of the

implementation of information technology (Cooper and Molla, 2014). When MSME owners are more committed to digitalization, they are more likely to implement it in business management because they believe that adopting technology will provide greater benefits than risks (Thuan et al., 2022). Fintech service providers and the government need to organize socialization and training programs that not only present the benefits of technology but also build a positive mindset towards digitalization among MSME actors.

Environmental Factors and Adoption of Non-Cash Payment Systems

This study shows that environmental factors influence the adoption of non-cash payment systems, due to the competitive pressure felt by business actors to be able to imitate the behavior of their competitors. One of the environmental factors that greatly influences the implementation of technological innovation is the level of pressure felt by MSMEs from competitors in the industry (Lutfi et al., 2017). Competitive pressure as a driving factor in the implementation of innovative technology because by using new technology, business actors are able to outperform their competitors. Pressure is felt by a business when many other businesses excel in using technology, so they feel the need to use it too in order to remain competitive (Aryanto et al., 2023). shows that the higher the pressure from competitors, the higher the interest of MSMEs in implementing digital payment system technology in managing their businesses. The more competitors excel in utilizing technology, the more business actors will feel pressured and the more interested they will be in implementing technology to remain competitive (Cooper and Molla, 2014). Financial service providers can take advantage of these findings by developing education and incentive programs that target MSME clusters that are still lagging behind in adopting technology. On the policy side, the government can strengthen regulations that encourage healthy competition while providing supporting infrastructure to accelerate digital transformation in the MSME sector.

4. CONCLUSION

This study proves that the adoption of non-cash payments among Samarinda MSMEs is positively influenced by technological, organizational, and environmental factors. These findings have significant practical and policy implications. For MSMEs, capacity building is needed through technical training on the use of digital applications and collaboration with fintech providers for affordable payment solutions. Fintech service providers need to develop user-friendly platforms and provide incentives to encourage adoption.

From a policy perspective, local governments must expand the MSME Go Digital program with specific non-cash payment modules, provide digital equipment subsidies, and strengthen supporting infrastructure. Bank Indonesia and OJK need to simplify digital merchant registration regulations while increasing the socialization of transaction security standards. MSME associations can act as facilitators by establishing consultation centers and multi-stakeholder discussion forums.

The transformation to digital payments not only increases the efficiency of MSME businesses but also supports the green economy by reducing the use of cash and less paper transactions. To accelerate adoption, synergy is needed between MSMEs, technology providers, the government, and regulators in building an inclusive and sustainable digital

payment ecosystem. This strategic step will position MSMEs as key players in driving environmentally friendly digital economic growth

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