



Influence of Easy, Speed and Security of Transactions on Decision to Use BRI EDC Machine in Indonesia

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Abstract

Technological developments that have occurred to date have led to the birth of payment system innovation in economic transactions. The payment system is no longer done in cash but non-cash. Types of non-cash payments in Indonesia such as phone banking, e-wallet and e-money, internet banking, and payment by credit card and debit card or / ATM card. One method of using a debit card is an EDC machine. Many banks have made EDC machine innovations, one of which is a merchant-specific EDC machine by BRI. The purpose of this study is to determine the influence of the variables of ease of use, transaction speed, and transaction security on the decision to use the EDC machine of BRI merchants in Indonesia. The data used in this study are primary data obtained from the results of respondents' answers collected with the help of questionnaires. The number of samples in this study was 140 respondents. The sample collection method uses purposive sampling, which is a technique used to determine samples with criteria determined by the researcher. The analytical methods used in this study are validity test, reliability test, partial test (T-test), simultaneous test (F test), and coefficient of determination (R²). Then the analysis stage uses multiple linear regression analysis with the help of the SPSS 26 application. The results of this study show that ease of use and security have a significant effect on usage decisions but transaction speed does not have a significant effect on usage decisions.

Keywords: Ease of Use, Speed of Transactions, Security of Transactions, Usage Decisions, EDC Merchant Machine BRI

Introduction

In tandem with the rapid evolution of technology, the lifestyles of communities and economic transaction systems continue to undergo innovation. Information Technology (IT) encompasses all forms of technology used to process and transmit information in electronic form (Chainma et al., 2021). The Indonesian government, through Bank Indonesia (BI),

initiated the National Non-Cash Movement (GNNT) on August 14, 2014 (Bank Indonesia, 2014). GNNT aims to enhance public awareness, encourage businesses, and government agencies to utilize non-cash payment instruments for financial transactions, ensuring ease, safety, and efficiency. The objective is to foster a cashless society where electronic-based payments are prevalent, a concept that has seen gradual adoption due to relatively low usage rates among the populace. Therefore, Bank Indonesia and banking institutions, as key providers of payment services, share a common vision and commitment to promoting non-cash transactions to realize the Cashless Society Movement.

Since the 1990s, there has been a trend among Indonesian consumers towards utilizing electronic forms of payment such as internet banking, debit cards, and Automatic Teller Machine (ATM) cards (Usman, 2017). These non-cash electronic payment methods are directly linked to users' bank accounts, facilitating transactions through various technological platforms like electronic wallets, internet banking, and credit or debit cards. Banking institutions serve as vital intermediaries between fund holders and users, playing a crucial role in national economic development through financial support. Hence, Indonesian banks are rigorously regulated and supervised by the government to operate effectively, efficiently, and remain competitive globally. Innovation in banking is seen as the transformation of technology from conceptualization to commercialization (Guderian et al., 2021). In the era of globalization, banks are compelled to demonstrate improved performance and service delivery. The deregulation of Indonesia's banking sector since its inception has intensified competition, necessitating healthy competition to enhance production efficiency, financial product quality, and innovation (Li & Li, 2021).

One prominent innovation in banking is the widespread adoption of Electronic Data Capture (EDC) machines. EDC facilitates non-cash transactions using wireless technology connected via GPRS (General Packet Radio Service). Initially used predominantly for credit card transactions, EDC machines now accommodate debit cards and electronic money (e-money) transactions. The industry standard for EDC usage is ISO 853, ensuring formatted data transmission to connect EDC machines with banking centers. Among Indonesian banks, Bank Rakyat Indonesia (BRI) stands out for its extensive network and customer base across the archipelago. BRI's deployment of EDC machines spans various retail outlets, supermarkets, malls, hotels, and more, catering to widespread economic activities. The number of BRI's EDC machines fluctuated between 2018 and 2022, affected notably by the economic crisis triggered by the COVID-19 pandemic. Despite setbacks, BRI's EDC deployment rebounded post-pandemic, reaching 250,267 machines across Indonesia by 2022 (BRI.co.id, 2023).

EDC machines provided by BRI serve as assets allocated to business units and Brilink agents partnering with BRI. These machines enable sellers to read card information, validate transactions, and send transaction data for payment authorization. BRI offers various EDC types, including Merchant EDC at retail outlets and Brilink EDC, extending banking services through partnered agents who share transaction fees. The research aims to investigate the impact of user-friendliness, transaction speed, and security on the decision to use BRI's merchant Electronic Data Capture (EDC) machines in Indonesia. The study focuses on determining whether ease of use influences the decision-making process of BRI EDC machine

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users, assessing if transaction speed plays a significant role in user decisions, and evaluating the importance of transaction security in shaping user preferences. By addressing these questions, the research seeks to contribute academically by clarifying the effects of these factors on user behavior, benefiting practitioners by informing PT. Bank Rakyat Indonesia's marketing strategies, particularly in optimizing EDC merchant services, and serving as an academic achievement towards fulfilling the requirements for a Bachelor's degree.

Literature Review

Marketing Management

Marketing encompasses various activities within the marketing system and is crucial for business survival, growth, and profitability. According to the American Marketing Association (AMA) as cited in Kotler and Keller (2016), marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers, as well as managing customer relationships in ways that benefit the organization and its stakeholders. This definition underscores that marketing involves actions taken by companies to achieve their goals and generate profits (Kotler & Keller, 2016).

Marketing management, as described by Kotler and Keller (2016), involves the art and science of selecting target markets and acquiring, retaining, and enhancing customer relationships through creating, delivering, and communicating superior customer value. Additionally, Kotler and Armstrong (2014) define it as building profitable relationships with chosen target markets, while Saladin and Buchory (2010) elaborate that marketing management includes analysis, planning, implementation, and control of programs designed to create, build, and maintain beneficial exchanges with target markets to achieve organizational objectives.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis et al. (1989), provides a theoretical framework for studying and understanding user behavior in adopting and utilizing information systems. Derived from the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975), TAM aims to predict individuals' attitudes and acceptance towards technology, offering fundamental insights into the driving factors behind these behaviors (Lee et al., 2010). TAM emphasizes the relationship between beliefs, attitudes, intentions, and actual usage of information systems, focusing on perceived usefulness and ease of use as key determinants of user acceptance. It is renowned for its ability to explain and predict technology adoption behaviors, addressing the concerns surrounding failed technology implementations due to users' lack of intention to use them (Fatmawati, 2015).

Ease of Use

Ease of Use (EOU) in technology, according to Jogiyanto (2007) cited in Sari (2019), refers to an individual's belief that using a particular technology will be effortless. This

perception directly influences behavior; the higher the perceived ease of use, the greater the likelihood of technology adoption and utilization (Iqbaria, 2000, as cited in Amijaya, 2010). Matheison adds that ease of use is characterized by users' expectation that a system will be straightforward to use and operate. Chau and Lai emphasize that perceived ease of use relates to users' confidence that a technology can be understood and used without difficulty, reflecting in frequent and intuitive interactions with the system.

Transaction Speed

Transaction speed is a critical requirement in the payment industry, essential for enhancing user adoption of mobile payment services, as emphasized by H. H. Chen & Chen (2009). They highlight the importance of mobile payment services offering distinct advantages, particularly in transaction speed, to drive higher user engagement. Speed of transaction is highly valued today, where consumers prioritize minimizing wait times to efficiently allocate their time. In e-banking, transaction speed attracts users due to its efficiency and convenience (Agustina et al., 2022). Key indicators for measuring transaction speed's impact on the decision to use the BRI merchant EDC machine include system accessibility speed, efficiency in transaction processing times, and prompt deduction of transaction amounts from the balance. These factors are crucial in influencing user preference and adoption of electronic payment methods.

Transaction Security

Security in transactions is crucial to prevent fraud and ensure data integrity, as defined by various experts. Bambang (2005) emphasizes security as the prevention or detection of fraud within an information-based system, crucial for safeguarding information assets against potential threats (Santi, 2016). Effective security measures, such as administrative controls, are necessary to protect consumer assets from breaches and theft (Liu, 2015). Park and Kim (2006) stress the importance of data security and confidentiality in building consumer trust and reducing concerns over misuse of personal and transactional data (Mulyana, 2016).

Indicators of transaction security include robust security guarantees provided by banks, confidentiality of data, and protection of financial information (Raman Arasu & Viswanathan A., 2021). These measures ensure accountability, authentication, confidentiality, integrity, authorization, availability, and non-repudiation in transactions, essential for fostering consumer trust and loyalty (Isaac & Zaedally). Overall, security measures are imperative for businesses to enhance consumer trust, loyalty, and ultimately, sales performance (Pratama, 2015).

Usage Decisions

Usage decision refers to the conclusive action taken by consumers in selecting and employing products or services to address their needs and desires. Ghazali (2016) defines decision as the culmination of a thought process aimed at solving a problem or addressing a dilemma by opting for a specific alternative (Wulansari, 2020). Consumer behavior, as defined by Kotler and Keller (2016), involves how individuals and groups choose, purchase, use, and dispose of goods, services, ideas, or experiences to fulfill their needs (Santi, 2016). This

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decision-making process reflects consumer engagement in evaluating, acquiring, using, and determining products and services to meet their preferences and requirements (Kotler & Armstrong, 2014). Regarding indicators of usage decision, Kotler (2001) identifies stability with a product, habitual use, and recommending it to others as key factors influencing consumer behavior (Kotler, 2001). These indicators underscore the pivotal role of consumer decisions in product adoption and ongoing usage practices.

Research Method

The study employs a Descriptive-Verificative research design. According to Arikunto (2010), Descriptive research aims to investigate the state, condition, or other mentioned aspects, with findings presented in a research report. Verificative research, as defined by Arikunto (2010), seeks to establish causal relationships between variables through hypothesis testing.

Data sources in research are categorized into two types: primary data and secondary data. Primary data is obtained directly from the original source through respondents' answers to questionnaires (Indriantoro, 2002). On the other hand, secondary data refers to information that has been processed by others and published in various forms (Silalahi, 2006). The data collection method employed is the questionnaire, utilizing a Likert scale for measurement, where respondents provide responses based on predefined answer categories (Jogiyanto, 2015). Additionally, a literature review is conducted to gather relevant materials from scholarly journals, literature, and other publications pertinent to the research (Jogiyanto, 2015).

The population for this study comprises users of BRI's EDC merchant machines across Indonesia (Sugiyono, 2007). Sampling will be conducted using non-probability purposive sampling, targeting Indonesian citizens aged 17 and above, BRI customers with ATM cards, and familiarity with EDC merchant transaction procedures (Sugiyono, 2018). The sample size of 140 respondents is determined using Hair's formula due to the large and diverse population size (Hair, 2010).

In the context of data analysis methods for this research, descriptive analysis, according to Sugiyono (2018), involves describing gathered data as it is, without making generalized conclusions. Quantitative analysis, on the other hand, focuses on numeric data to measure the influence of variables using statistical methods, often utilizing IBM SPSS 26 software for ease and accuracy (Sugiyono, 2018). Multiple linear regression analysis is employed to assess the causal relationship between ease of use, transaction speed, security (independent variables), and user decision (dependent variable) through a defined model equation (Sugiyono, 2018). Furthermore, coefficient of determination (R^2) evaluates how well independent variables explain the dependent variable, while t-tests examine individual variable impacts, and ANOVA tests their combined significance (Ghozali, 2018).

Result

Description of Customer Characteristics

In this study, the population consists of BRI customers using BRI's EDC merchant machines for payment transactions, with a sample size of 140 respondents. The demographic characteristics of these customers were analyzed across several categories. According to the data, 75.00% of the sample comprises female customers, totaling 105 individuals, while male customers account for 25.00%, totaling 35 individuals. This dominance of female customers is attributed to their frequent shopping activities in shopping centers and public places where BRI's EDC merchant machines are commonly installed, compared to their male counterparts. According to the occupation, it shows that homemakers constitute the largest group at 27.10%, totaling 38 individuals. This demographic trend reflects homemakers' role as household financial managers, contributing to their higher frequency of using BRI's EDC merchant machines for payment transactions in various public settings. The age distribution of the respondents, reveals that the majority fall within the 17-25 and 26-35 age brackets, each accounting for 32.10% of the sample, with 45 individuals in each group. This demographic pattern is influenced by the productive age group and individuals managing household finances within the 25-35 age range, motivating their frequent visits to shopping centers and other venues equipped with BRI's EDC merchant machines for payment transactions.

Description of Customer Answers

The findings from the customer responses regarding the variable Ease of Use (X1) reveal positive sentiments across five predefined indicators. For instance, the statement "I find it easy to learn to use the BRI EDC merchant machine" garnered agreement from 71 customers, with an average score of 4.14 and a percentage of 82.80%, indicating a favorable perception of the machine's user-friendliness. Similarly, responses to other statements like the ability to control the transaction process (average score 4.24) and the clarity of understanding in using the machine (average score 4.34) further emphasize customers' confidence and comfort with the BRI EDC merchant machines. These results underscore the significance of user-friendly interfaces and clear operational processes in enhancing customer satisfaction and adoption of payment technologies.

Moving to the Speed of Transaction (X2), the data highlights that customers perceive BRI EDC merchant machines as efficient and quick. For example, the statement "I do not need a long time to access payment transactions through the BRI EDC merchant machine" received positive responses from 73 customers, averaging a score of 4.26 and a percentage of 85.20%. Similarly, the statement regarding the swift deduction of balances post-transaction (average score 4.32) indicates customers' satisfaction with the seamless and immediate processing facilitated by the machines. These findings underscore the role of transactional efficiency in influencing customer perceptions and preferences towards using BRI EDC merchant machines for their payment needs, reflecting positively on user experience and convenience.

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Multiple Linear Regression Test Results

Table 1. Multiple Linear Regression Test Results

		Coefisients			
Model	<i>Unstandardized</i>	<i>Coefficients</i>	<i>Standarized</i>	<i>Coefficients</i>	
	B	<i>Std.Error</i>		T	Sig.
Constant	1.006	1.144		.880	.380
Kemudahan	.350	.075	.486	4.644	<.001
Kecepatan	0.079	.116	.072	.679	.498
Keamanan	.216	.103	.173	2.103	.037
<i>Dependent Variable: Keputusan Penggunaan</i>					

The table above presents the results of the multiple linear regression analysis, showing the coefficients for the variables. The constant value is 1.006, with Ease of Use (X1) having a coefficient of 0.350, Transaction Speed (X2) at 0.079, and Transaction Security (X3) at 0.216. These coefficients lead to the regression equation: $Y = 1.006 + 0.350X_1 + 0.079X_2 + 0.216X_3$. The significance levels indicate that Ease of Use ($p < 0.001$) and Transaction Security ($p = 0.037$) have a statistically significant impact on the Decision to Use, while Transaction Speed ($p = 0.498$) does not significantly influence the decision. This equation illustrates the relationship between the independent variables and the dependent variable, emphasizing the notable impact of Ease of Use and Transaction Security on customer decisions.

T Test Results

Table 2. T Test Results

No.	Hypothesis	t T _{count}	T _{Table}	Result
1.	Ease of use influences the decision to use BRI merchant EDC machines in Indonesia	4.644	1.9775	Accepted
2.	Transaction speed influences the decision to use BRI merchant EDC machines in Indonesia	0.0679	1.9775	Rejected
3.	Transaction security influences the decision to use BRI merchant EDC machines in Indonesia	2.103	1.9775	Accepted

Present the results of your work. Use graphs and tables if appropriate, but also summarize your main findings in the text. Do NOT discuss the results or speculate as to why something happened; that goes in the Discussion.

F Test Results (Anova)

Table 3. F Test Results

Model		<i>Sum Of Square</i>	<i>Df</i>	<i>Mean Square</i>	F	Sig
1	Regression	261.717	3	87.239	35.368	0.001 ^b
	Residual	335.455	136	2.467		
	Total	597.171	139			

Based on the analysis table, the obtained F-value (35.368) exceeds the critical F-value (2.67), with a significance level (sig) of less than 0.001 ($p < 0.001$), indicating a significant simultaneous effect of variables X1, X2, and X3 on Y.

Determinant Coefficient Results (R2)

According to the table, the correlation coefficient R Square (R2) of 0.438 indicates that 43.8% of the variance in the decision to use the BRI EDC merchant machine in Indonesia is explained by ease of use, transaction speed, and transaction security. The remaining 56.2% is influenced by other variables not included in this study.

Discussion

The Influence of Ease of Use on Decisions to Use BRI Merchant EDC Machines in Indonesia

The first hypothesis of this study concludes that ease of use significantly influences the decision to use BRI's EDC merchant machines in Indonesia. Empirical findings indicate that a smoother user experience with these machines increases the likelihood of users deciding to utilize them. This result aligns with previous research by Denny Indra Prastiawan, Siti Aisyah, and Rofiaty (2021), which found that ease of use influences usage decisions, and studies by Frans Sudirjo et al. (2023), showing a positive impact of ease of use on digital shoppee usage decisions. Research by Rasida Azahra, Anriz Witi Nasution, and Asmalidar (2021) also concluded that ease of use affects the decision to use E-Money at Politeknik Negeri Medan. Additionally, Dian Mulyaningtyas and Surya Lul Ihsan's study (2023) demonstrated that perceived ease of use positively influences the decision to use e-wallets. Therefore, these findings are consistent with previous research indicating that ease of use influences consumer decisions regarding product or service usage.

The Influence of Transaction Speed on Decisions to Use BRI Merchant EDC Machines in Indonesia

The second hypothesis of this study, "Transaction speed influences usage decisions," is rejected. Research findings indicate that transaction speed with BRI's EDC merchant machines does not significantly affect usage decisions. This suggests that improving transaction speed on these machines would not necessarily increase user decisions to use them. This result is

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supported by previous empirical studies showing no significant relationship between transaction speed and usage decisions for BRI's EDC merchant machines. Theoretical considerations highlight the era of technological advancements where alternative bank EDC machines like BCA's and Mandiri's also offer competitive transaction speeds, minimizing the impact of speed perception on user decisions. This finding aligns with research by Sally Lau and Mochammad Nugraha Reza Pradana (2021), indicating that transaction speed does not significantly influence mobile cvpayment usage. Similarly, studies by Kamarudin et al. (2023) on fintech OVO and Andi Dewi Mentari (2018) on m-banking BRI concluded no significant positive impact of transaction speed on usage decisions. Additionally, Almakassari et al. (2022) found that transaction speed did not significantly affect usage decisions for fintech OVO.

The Influence of Transaction Security on Decisions to Use BRI Merchant EDC Machines in Indonesia

The third hypothesis of this study, "Transaction security influences usage decisions," is accepted. Research findings indicate that security in transactions (X3) significantly affects usage decisions for BRI's EDC merchant machines in Indonesia. This implies that improvements in transaction security, including reduced risks of transaction fraud and data breaches, would lead to increased usage decisions among users of BRI's EDC merchant machines nationwide. This result is supported by empirical evidence showing a significant relationship between security and usage decisions in previous studies. Theoretical perspectives suggest that perceptions of security and comfort are internal consumer behaviors that influence usage decisions, as effective and efficient usage encourages consumer adoption of products and services. This finding aligns with research by Sally Lau and Mochammad Nugraha Reza Pradana (2021), indicating that security and comfort significantly influence mobile payment usage. Similarly, studies by Dian Mulyanigtyas and Surya Lul Ihsan (2023) on e-wallets, Rasida Azahra, Anriza Witi Nasution, and Asmalidar (2021) on e-money usage among students, and Amit Shankar and Charles Jebarajakirthy (2019) on e-banking usage concluded that security positively impacts usage decisions.

Conclusion

Based on the research findings and data analysis conducted on 140 samples of BRI merchant EDC users in Indonesia, several conclusions can be drawn. Firstly, the ease of use significantly impacts usage decisions, indicating that easier access to BRI merchant EDC machines increases their usage. However, transaction speed does not significantly affect usage decisions, likely due to competitive alternatives like BCA and Mandiri EDC machines that offer comparable transaction speeds. Lastly, transaction security significantly influences usage decisions, suggesting that enhanced security measures by BRI contribute to increased usage. Based on these findings, recommendations include expanding the availability of BRI merchant EDC machines, improving transaction speed, and maintaining robust security measures to foster greater user adoption. For future research, it is advised to incorporate additional variables to further explore factors influencing usage decisions of BRI merchant EDC machines.

Researchers are encouraged to employ different methodologies and techniques to validate these findings comprehensively, particularly focusing on re-evaluating the non-significant impact of transaction speed on usage decisions and exploring its underlying causes.

Declaration of conflicting interest

The authors declare that there is no conflict of interest in this work.

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