

Analysis of Customer Retention Determinant Factors on Generation Z Digital Wallet Services in Indonesia

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Abstract

This study aims to identify the factors influencing customer retention in Generation Z's use of digital wallet services in Indonesia. The research uses PLS-SEM through SmartPLS 4.1.0. A total of 334 respondents from various cities in Indonesia participated in the survey. The analysis employs outer model evaluation and inner model evaluation to examine the relationships between brand image, attention to safety, consumer satisfaction, and customer retention. The findings indicate that brand image does not have a direct effect on customer retention but exerts a significant indirect effect through consumer satisfaction. Consumer satisfaction fully mediates the relationship between brand image and retention, while it partially mediates the relationship between attention to safety and retention. The strength of the mediation effect was confirmed using the bootstrapping method. These results provide valuable insights for digital wallet service providers in developing strategies to retain Generation Z users by enhancing both brand image and security features, ultimately improving consumer satisfaction.

Keywords: Brand Image; Customer Retention; Digital Wallet; Generation Z; Security Concerns

INTRODUCTION

Generation Z later abbreviated Gen-Z, born between the mid-1990s and early 2010s (Niezurawska, Kycia, & Niemczynowicz, 2023) represents a group that has grown in an era marked by unprecedented technological advances. This generation, also often referred to as digital natives (Ameen & Anand, 2020) is a generation that has plunged into digital technology since birth, thus profoundly shaping their behavior and preferences. Gen-Z digital habits cover a range of activities facilitated by technology (Alruthaya, 2021). Mobile devices serve as their primary means of accessing the digital world, offering connectivity and on-the-go convenience, from communicating with each other to making online transactions (Kahawandala, Peter, & Niwunhella, 2020).

One essential aspect of Gen-Z's digital habits is their preference for digital payment methods (Fadhilah & Aruan, 2023), with the highest preference for digital wallets (Raharjo, 2023). Digital wallets (Anshari, Arine, Nurhidayah, Aziyah, & Salleh, 2021) allow for the safe storage of payment information and transactions using smartphones or other connected devices. Gen-Z revealed that digital wallets offer convenience, speed, and flexibility in managing financial transactions (Louis et al., 2023; Moghavvemi, Mei, Phoong, & Phoong, 2021) whether buying items online, paying bills, or making payments in stores. Digital wallets provide a smooth payment experience without needing a physical card tailored to their digital lifestyle. This desire reflects the comfort of Gen-Z with technology and the desire for efficient solutions (Anshari et al., 2021; Hariguna, Adiandari, & Ruangkanjanases, 2020; Saragih, Widjaja, & Marchia, 2023; Widjaya, Michael, & Gui, 2024).

Although a significant study has taken digital wallets as a core topic, research on this topic is limited to predicting intentions or intensity to use electronic wallets (Baxi, Patel, Patel, Patel, & Acharya, 2023). So, there needs to be more research topics that need to be studied in greater depth about how to maintain the use of digital wallets by testing factors that can affect consumer retention in the context of e-wallets in Indonesia (Bagla & Sancheti, 2018; Soegoto & Sumantri, 2020). This study uses two independent variables predicted to affect consumer retention, with consumer satisfaction as a mediation variable.

The first independent variable in this study is a brand image variable; in some previous studies, brand image has been shown to have an influence on consumer retention mediated by consumer content (Hamzah, Ramli, & Shaw, 2023; Mohlala & Bankole, 2022). A strong and positive brand image attracts new consumers and plays an important role in joining existing consumers (Huang, Wang, Chen, Deng, & Huang, 2020). In digital wallet services, the brand image reflects the trust, reliability, and added value consumers perceive (Komba & Razak, 2021). When consumers feel satisfied with their experience based on a positive brand perception, they tend to be more loyal and continue to use the service (Blom, Lange, & Hess, 2017). Therefore, building a positive brand image is vital for digital wallet service providers to increase consumer satisfaction, ultimately driving long-term consumer retention (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019).

The second independent variable developed in this study is the Attention to Safety variable. The security concerns variable is a critical factor affecting consumer retention in digital wallets, with consumer satisfaction as a mediation variable (Rusdianti & Fajar, 2023; Widjaya, Michael, & Gui, 2024). Security has become a significant concern for consumers when using digital wallet services, as it involves sensitive personal data and financial transactions (Soodan & Rana, 2020). When service providers work with governments and can guarantee high security, protecting consumers from potential threats such as fraud and data leakage (Lin, Lin, & Ding, 2020), it increases consumer security and confidence. Such security then contributes to higher satisfaction (Rusdianti & Fajar, 2023) because consumers feel protected and confident that their services are reliable. As a result, this increased consumer satisfaction acts as a mediator that will strengthen consumer retention and encourage users to remain loyal and continue to use the digital

wallet service in the long term (Bankuoru Egala, Boateng, & Aboagye Mensah, 2021; Muhtasim, Tan, Hassan, Pavel, & Susmit, 2022).

Customer satisfaction assesses consumer purchasing and consuming experiences with products, services, brands, or companies. It significantly influences recurrent purchasing decisions and increases company revenue (Yi & Nataraajan, 2018) when consumers feel satisfied with the service they receive, they tend to develop a stronger emotional bond with the brand, increase confidence, and strengthen their loyalty (Bagla & Sancheti, 2018). High satisfaction makes it more likely for consumers to continue using the service and recommend it to others (Khoa, 2020). Thus, customer satisfaction mediates the relationship between determining factors and consumer retention (Larsson & Broström, 2020). It is a crucial indicator of service providers' success in retaining their consumer base in a competitive digital wallet market (Moghavvemi et al., 2021).

Based on the background described above, the study aims to respond to the urgency of research to identify consumer retention factors about Gen-Z demographic growth opportunities in Indonesia. This study addresses this gap by focusing on two key factors: brand image and attention to safety, with consumer satisfaction acting as a mediating variable. A positive brand image has been shown to enhance customer loyalty by fostering trust and perceived value, which in turn leads to greater retention (Huang et al., 2020). Similarly, security concerns are a critical determinant of retention, particularly in digital financial services where users are highly sensitive to issues such as fraud and data breaches (Rusdianti & Fajar, 2023).

In this context, the present study aims to investigate how these factors—brand image and attention to safety—influence customer retention among Generation Z users of digital wallet services in Indonesia, with consumer satisfaction serving as a mediator. By focusing on a developing economy, this research contributes to the existing literature by providing insights into retention strategies for digital wallets, an area that remains underexplored in such contexts. The findings will offer practical recommendations for service providers aiming to enhance retention by improving brand image, security features, and overall customer satisfaction.

LITERATURE REVIEW

The growth of financial digitalization has significantly transformed how people transact, with Generation Z showing a marked preference for digital wallets (Raharjo, 2023). Digital wallets offer users the ability to conduct payments, money transfers, and other financial transactions quickly and securely (Louis et al., 2023). Previous studies have identified several factors influencing the adoption of digital wallets, such as ease of use, reliability, security, and service quality (Bagla & Sancheti, 2018; Baxi et al., 2023; Malik, Suresh, & Sharma, 2019). In Indonesia, where Generation Z is characterized as tech-savvy and reliant on fast, efficient, and innovative services, these factors are critical in determining both adoption and retention of digital wallets (Ameen & Anand, 2020).

Despite the increasing popularity of digital wallets, research on consumer retention, particularly in developing economies like Indonesia, remains limited. Existing

studies primarily focus on adoption rather than long-term usage, which is essential for the sustainable growth of digital wallet providers (Chawla & Joshi, 2023; Komba & Razak, 2021). Gen-Z represents a substantial and growing consumer market segment using digital payments, especially digital wallets (Kahawandala et al., 2020). Generation Z represents a key consumer market for digital payments, and their sustained use can drive significant transaction volumes and generate stable revenue for providers (Alruthaya, 2021) and generate a stable flow of revenue for service providers.

Periodic use of Gen-Z will also impact the country's economic growth and support Sustainable Development Goals (SDGs) 9, industry, innovation, and (Cadman & Sarker, 2022). Consumer retention is defined as a business strategy aimed at retaining existing consumers and preventing them from switching to competitors (Ahmad, Jafar, & Aljoumaa, 2019). Companies can gain benefits such as repeated purchases, consumer recommendations, and a good brand reputation by focusing on consumer retention (Dragnea & Mihăiță, 2017).

Research on the influence of brand image on consumer retention suggests that a strong brand image can increase consumer loyalty through the satisfaction it produces (Hamzah et al., 2023; Latif, Islam, Noor, Saaban, & Abdul Halim, 2014). Other research finds that when consumers feel satisfied with their brand experience, they tend to remain loyal and make a re-purchase, which strengthens consumers' retention (Komba & Razak, 2021; Widjaya et al., 2024). Therefore, efforts to improve the brand image should be directed not only to enhance the direct perception of the brand but also to ensure consumer satisfaction, strengthening consumers' loyalty and retention.

The second independent variable used in this study is a security problem. Consumers who feel secure using digital wallet services tend to have higher satisfaction levels, as security is a fundamental aspect that affects trust in digital services (Komba & Razak, 2021; Lin et al., 2020; Soodan & Rana, 2020; Widjaya et al., 2024). Other research also supports this finding by showing that transparent and reliable digital wallet services in security aspects tend to improve user satisfaction (Muhtasim et al., 2022; Ravi et al., 2020). Thus, digital wallet service providers focusing on enhancing security features can effectively increase consumer satisfaction, ultimately strengthening consumer retention, especially among Generation Z who are highly sensitive to digital security issues.

The research aims to develop a new research framework by testing the influence of brand image and attention to safety on consumer retention (Latif et al., 2014; Levy & Hino, 2016; Soodan & Rana, 2020). The selection of these two variables is urgent and offers conceptual and empirical innovation on digital wallets that were previously limited only to testing intensive influence or adoption (Kotni, Patra, & Kumar, 2024).

Brand image refers to the perception of a product or service held by existing or potential consumers (Komba & Razak, 2021). Several studies have demonstrated that a strong brand image can enhance consumer loyalty by increasing satisfaction (Ahmed et al., 2022; Alić, Činjarević, & Agić, 2020). In the context of digital wallets, a positive brand image reflects trust and reliability, encouraging users to remain loyal to the service (Blom, Lange, & Hess, 2017). Therefore, building a strong brand image is crucial for providers to enhance consumer satisfaction and ultimately drive long-term consumer

retention (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019). Therefore, this study develops the first hypothesis as follows.

H1: The brand image significantly and positively affects Gen-Z consumers' retention in digital wallets

Security concerns are critical in influencing consumer retention in digital wallets, with consumer satisfaction acting as a mediating factor (Durgabhavani & Krishnan, 2019). Since digital wallets involve sensitive personal and financial data, ensuring robust security measures is essential to prevent fraud and data breaches (Soodan & Rana, 2020). When users feel that their information is secure, they are more likely to develop trust and satisfaction with the service, which positively impacts retention (Lin, Lin, & Ding, 2020). Previous study with a sample of users of digital banking applications also revealed that client retention is heavily influenced by consumer satisfaction, security, and privacy, which will have a more significant impact on consumer content (Widjaya et al., 2024). Therefore, this study develops the second hypothesis, which is as follows:

H2: Security concerns significantly and positively affect the Gen-Z consumers' retention in wallets

Consumer satisfaction plays a crucial role in influencing consumer loyalty and retention. Satisfied customers are more likely to continue using a service and recommend it to others, which strengthens consumer retention (Yi & Nataraajan, 2018). In the digital wallet context, satisfaction can mediate the relationship between brand image and security concerns, and consumer retention (Larsson & Broström, 2020). High levels of satisfaction foster a stronger emotional connection with the brand, increasing users' likelihood to remain loyal (Khoa, 2020). Generation Z, who are also known as the tech-savvy generation and have high expectations of digital experiences, satisfaction with features, ease of use (Alruthaya, 2021) and digital wallet security, are expected to have a significant positive correlation to their decision to continue using such services. Therefore, the third hypothesis developed in this study is as follows.

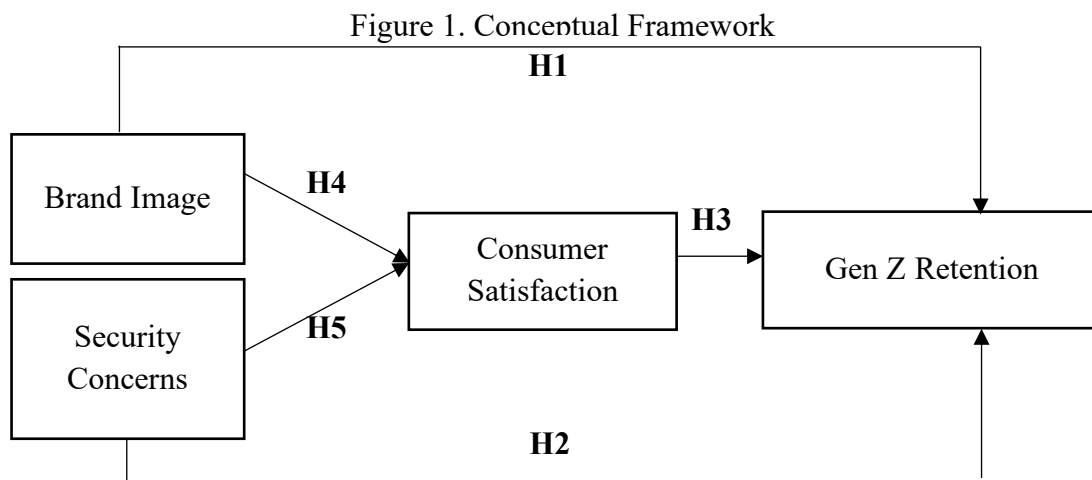
H3: Consumer satisfaction significantly and positively affects Gen-Z consumer retention in using digital wallets

A strong brand image can create a positive perception in consumers' minds, increasing consumer satisfaction (Muhtasim et al., 2022). In previous studies, consumer satisfaction variables were shown to significantly and positively affect consumer retention (Hussain et al., 2024). Gen-Z, as a generation heavily influenced by brand image and user experience, tends to be more loyal to brands that have a positive reputation and can meet or exceed their expectations regarding the quality of services and features offered. Therefore, the hypothesis 4 developed in this study is as follows.

H4: Consumer satisfaction mediates the relationship between brand image and Gen-Z consumer retention using digital wallets

Attention to the security of information and transactions becomes a crucial factor in decision-making regarding the choice and use of digital wallet technology (He et al., 2020). In this study, consumer satisfaction is a variable mediating between concern for security and consumer retention. Suppose the experience using a digital wallet meets or exceeds their data and transaction security expectations. In that case, Gen-Z consumers may be more likely to be loyal and continue to use the service. Therefore, the 5th hypothesis developed in this study is as follows.

H5: Consumer satisfaction mediates the relationship between concern for security and retention of Gen-Z consumers in using digital wallets



METHODOLOGY

The questionnaire consists of two parts. The first part asks questions about respondents' demographics and e-wallet usage behavior, and the second part questions the construction of the research. Three brand image-related questions adopted by Xu, Prayag and Song (2022), three safety concerns adopted from Lu and Yi (2023), four consumer satisfaction issues adopted by Özkan, Süer, Keser dan Kocakoç (2019) and three consumer retention questions also taken from previous research Shimul et al (2024). In other words, 13 question indicators represent the research framework. All questions in this second part are asked using the 5-Point Likert Scale and distributed online. Through purposive sampling techniques, as many as 300 respondents were involved in this study.

The study uses the "10 times rule" approach to evaluate respondent adequacy, establishing that the minimum threshold of the study respondent is at least ten times greater than the number of indicators available in the research framework (J.F. Hair, Hult, Ringle, & Sarstedt, 2022). The 10-times rule approach, such as this study, is also popular in studies using PLS-SEM (Barclay, Thompson, & Higgins, 1995). With a total of 13 indicators, the minimum response requirement is 130, so a total of 300 respondents is enough for the study.

The research data was analyzed using the SmartPLS 4.1.0 software. Reliability and validity tests are carried out to ensure the reliability of the construction and existing data (Joseph F. Hair, Risher, Sarstedt, & Ringle, 2019). Subsequently, the hypothesis is tested using the Bootstrapping method to see if the established research hypotheses are proven or not.

RESULTS AND DISCUSSION

Demographic Respondents

There were 334 respondents involved in this study. Specifically, 65% of the total respondents were male (195 respondents), and the rest were female respondents, with a frequency of 139 respondents. Respondents came from several cities in Indonesia, including Bandung, Jakarta Central, South Jakarta, Makassar, Salatiga, Semarang, and Surabaya. In this study, Gopay was the most popular digital wallet used by respondents, with 189 respondents, followed by Ovo, Dana, and ShopeePay, with a total of 75, 42, and 28 respondents, respectively. As to the specific demographics of respondents, see Table 1 below.

Table 1. Respondent Characteristics

No	Variable	Frequency	%
1	<i>Gender</i>		
	Men	195	65
	Women	139	35
2	<i>Domicile</i>		
	Bandung	34	11,3
	Centre of Jakarta	50	12
	South Jakarta	41	13,7
	Makassar	109	36,3
	Salatiga	30	6,7
	Semarang	32	10,7
	Surabaya	38	9,3
3	<i>Occupation</i>		
	Students	18	8
	Private Sector	153	51
	Self-Employed	58	16
	Academicians (Lecturer, teacher, etc)	56	15,3
	Servant/Military/Police/State-Owned Enterprice	49	9,7
4	<i>Monthly Income</i>		
	Rp.3.500.000 - Rp.5.500.000	59	15
	Rp.5.500.001 - Rp.7.500.000	65	18,3
	Rp.7.500.001 - Rp.10.000.000	85	25
	>Rp.10.000.000	125	41,7

No	Variable	Frequency	%
5	<i>E-Wallet</i>		
	GoPay	189	63
	Ovo	75	21,7
	Dana	42	9,3
	ShopeePay	28	6

Source: Primary Research Data (2024)

Reliability And Validity Test

The Reliability and Validity Test uses the four-step processes to evaluate the research construction's reliability (Reliability of Indicators and Internal Consistency) and validity (Convergence and Discrimination). Hair et al (2019) explains that the first procedure in reliability testing is to test the reliability of the indicator by looking at Outer Loading values where the minimum threshold value is 0.708. Table 2 shows the outer loading value of all instruments on Brand Image (BI), Attention to Safety (SC), Customer Satisfaction (CS), and Consumer Retention (CR) values greater than 0.708, so it can be concluded that all indicators used qualify for indicator reliability measurement.

Table 2. Outer Loading Value

	BI	SC	CS	CR
BI.1	0,888			
BI.2	0,866			
BI.3	0,859			
SC.1		0,910		
SC.2		0,868		
SC.3		0,924		
CS.1			0,821	
CS.2			0,904	
CS.3			0,753	
CR.1				0,770
CR.2				0,774
CR.3				0,823

Source: Primary Research Data (2024)

The following procedure in reliability testing is to test the reliability of internal consistency by looking at Cronbach's Alpha and Composite Reliability values. The minimum threshold of Cronbach's Alpha value is 0.70, while the Composite Reliability value condition is more significant than 0.60 (J.F. Hair et al., 2022; Joseph F. Hair et al., 2019). As shown in Table 3, Constructions BI, SC, CS, and CR, respectively, have Cronbach's Alpha values of 0.845, 0.885, 0.731, and 0.704, where these values exceed the required minimum values (0,70). In addition, SM, PTC, CS, and RC have Composite Reliability values of 0.879, 0.912, 0.732, and 0.722, which are above the required minimal values (0,60). In terms of internal consistency, the construction of this study is reliable.

Table 3. Cronbach's Alpha, Composite Reliability and AVE

Construct	Cronbach's Alpha	Composite Reliability	AVE
BI	0,845	0,879	0,759
SC	0,885	0,912	0,812
CS	0,731	0,732	0,652
CR	0,704	0,722	0,624

Source: Primary Research Data (2024)

The third and fourth procedures are construction validity tests, which include a convergence validity test and discriminatory validity testing. In a convergence validity test, each construction is required to have an Average Variance Extracted (AVE) value of at least 0.50 (Joseph F. Hair et al., 2019). Table 3 shows that all existing constructions (BI, SC, CS, and CR) have AVE values above 0.50, so all constructions are convergently declared valid.

The validity test of discrimination is by looking at the value of the Heterotrait-Monotrait Ratio (HTMT). Hair et al (2019) elaborated that the acceptable HTMT value is below 0.90. Table 4 shows that all the HTMT values on the structures used in the study have values below 0.90, so it can be concluded that discrimination in all the constructions in this study is valid.

Tabel 4. Heterotrait-Monotrait Ratio (HTMT)

Indicators	HTMT
CS \leftrightarrow SM	0.684
SC \leftrightarrow BI	0.399
SC \leftrightarrow BI	0.611
CR \leftrightarrow BI	0.463
CR \leftrightarrow CS	0.757
CR \leftrightarrow SC	0.745

Source: Primary Research Data (2024)

Hypothesis Test

After implementing the Bootstrapping process, the conceptual framework is known to explain the relationship between the variables and predict the observed data (structural model's explanatory power) through the value R2 where the value of the R2 variable Consumer Satisfaction (CS) is 0.401 and the Consumer Retention variable is 0.469 which can be categorized as weak (weak) (J.F. Hair et al., 2022; Joseph F. Hair et al., 2019).

Table 5 below shows the results of the test of the hypothesis where, at a significant rate of 5%, the Brand Image was found to have no significant influence on Consumer Retention (CR) with a P-value of 0.746 (greater than 0.05), so that the first hypotheses (H1) were rejected. However, Attention to Consumer Safety and Satisfaction was found

to have a positive and significant influence on Consumer Retention with P values of 0,000 and 0,000 (less than 0.05), respectively, so that the second (H2) and third (H3) hypotheses were accepted.

In addition to the direct relationship above, Table 5 also shows the results of the test of the indirect hypothesis (Indirect Effect). Consumer Satisfaction was found to mediate the relationship between Brand Image and Consumer Retention with a P-Value 0,000, so the fourth hypothesis (H4) was accepted. Furthermore, since brand image did not significantly influence consumer retention directly, the influence of mediation on H4 was categorized as complete mediation. In addition, consumer satisfaction was also found to Mediate the relation between Consumer Attention to Safety and consumer retention with a 0,000 Value, so the fifth hypothetical (H5). Furthermore, it was also previously found that the security concerns had a significant effect on Consumer retention, so in this context consumer satisfaction mediated the relationship in a partial way (partial mediation).

Table 5. Hypotheses Testing

Hypotheses	Relationship Test	Original Sample	P values	Result
<i>Direct Effect</i>				
H1	BI → CR	0,433	0,746	Not Supported
H2	SC → CR	0,441	0,000	Supported
H3	CS → CR	0,339	0,000	Supported
<i>Indirect Effect</i>				
H4	BI → CS → CR	0,147	0,000	Supported
H4	SC → CS → CR	0,116	0,000	Supported

Source: Primary Research Data (2024)

Discussion

This research found some things after going through the test phase of the hypothesis. First, it was found that brand image does not directly affect Generation Z's retention in using digital wallets. However, it has been found that consumer satisfaction has proven to mediate the relationship between brand image and consumer generation retention. This confirms the findings of (Liu & Liu, 2015) as well as (Simarmata, Keke, Veronica, Silalahi, & Benková, 2017), which explain that although brand image has a vital position in strengthening consumer retention, brand image is often not a self-determining determinant, so it sometimes requires other determinants such as consumer confidence, quality of service, and of course customer satisfaction as found by this study.

Secondly, this study also found that consumer satisfaction mediates the relationship between the Z-generation's concern for the safety of digital wallet usage and the retention of the Z gene in using digital wallets partially. In other words, direct attention to consumer safety and satisfaction positively and significantly impacts consumer retention. This reinforces previous research that explains similar things (Durgabhavani & Krishnan, 2019; He et al., 2020; Somanchi & Telang, 2016; Widjaya et al., 2024).

In addition, accepting the fourth and fifth hypotheses proving the role of consumer satisfaction variable mediation is also an argument supporting previous research. For

example, Bagra et al (2023) who researched determinants influencing consumer loyalty to digital wallets in making payments, found the role of consumer satisfaction mediation. Furthermore, research in the context of using crypto assets in the digital market conducted by Chen et al (2022) also found a role in the mediation of consumer satisfaction. This research reinforces the argument that consumer satisfaction positions are becoming essential in influencing consumer behavior in the digital financial services ecosystem context.

The study contributed to existing literature about digital wallets by highlighting the significant mediating role of consumer satisfaction in the relationship between brand image, security issues, and consumer retention between Generation Z. These findings support the idea that although brand image alone may not directly affect consumer retaining, the effect is fully realized through consumer content. This aligns with previous research emphasizing the importance of integrating determinants such as trust, quality of service, and consumer satisfaction to strengthen consumer retention. Furthermore, this study confirmed that consumer content partially mediates the relationship between consumer security and retention issues, which increasingly reinforces the vital role of consumers' satisfaction in adopting and using digital wallets.

For practitioners, these findings suggest that digital wallet providers should prioritize improved consumer satisfaction in order to increase retention rates. This can be achieved by focusing on brand image and security features. Ensuring a strong and positive brand image and robust security measures can lead to higher consumer satisfaction, increasing consumer loyalty. In addition, providers must invest in consumer satisfaction initiatives, such as user-friendly interfaces, reliable consumer support, and continuous improvements in security protocols to address the specific problems of Generation Z users. Thus, digital wallet providers can build a loyal consumer base and sustain growth in a competitive digital payment market.

Building on the findings, it is clear that the role of consumer satisfaction extends beyond merely mediating the relationship between brand image and retention; it also acts as a crucial mechanism through which digital wallet providers can establish long-term relationships with Generation Z users. As noted by Bagra et al (2023) , consumer satisfaction significantly contributes to customer loyalty in digital payments, which emphasizes that satisfaction is not just an outcome of brand image but a driver of continued engagement with the service. For companies operating in the digital wallet space, focusing on satisfaction means addressing users' preferences, pain points, and expectations in a highly competitive environment where switching costs are low, and alternative services are abundant.

The integration of security measures with user experience also plays a pivotal role in shaping consumer perceptions and satisfaction. As demonstrated by (Somanchi & Telang, 2016), users who perceive higher levels of security are more likely to trust and continue using digital wallet services. This notion is reinforced by the current study's findings that attention to safety directly impacts retention through consumer satisfaction. Gen-Z, in particular, being more attuned to digital security concerns, requires reassurance that their financial data is protected. Therefore, digital wallet providers must prioritize

advanced security features such as two-factor authentication, encryption, and fraud detection systems, which are critical in building trust and satisfaction among users.

Another important consideration is the evolving expectations of Generation Z, who seek seamless and personalized digital experiences. As digital natives, this demographic group expects digital wallet services to be user-friendly, intuitive, and responsive to their needs. Widjaya et al., (2024) point out that user experience, particularly in terms of convenience and ease of use, heavily influences satisfaction levels, which in turn affect retention. Therefore, providers must continually innovate and refine their platforms, offering features that align with the fast-paced, technology-driven lifestyles of Gen-Z. These innovations can include personalized rewards, integrated financial management tools, and instant payment capabilities, which all contribute to a higher level of consumer satisfaction.

Lastly, the practical implications for digital wallet service providers extend to their overall business strategy. The findings suggest that providers should adopt a holistic approach, where brand image, security, and satisfaction are not treated as separate components but as interconnected aspects that work together to enhance retention. By focusing on creating a strong brand identity that is synonymous with security and reliability, while simultaneously improving user satisfaction through tailored experiences and responsive support, companies can build a loyal consumer base. This strategic focus on satisfaction and security will be essential in a market where consumer loyalty can significantly impact long-term business success.

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In addition, accepting the fourth and fifth hypotheses proving the role of consumer satisfaction variable mediation is also an argument supporting previous research. For example, Bagra et al. (2023), who researched determinants influencing consumer loyalty to digital wallets in making payments, found the role of consumer satisfaction mediation. Furthermore, research in the context of using crypto assets in the digital market conducted by Chen et al (2022) also found a role in the mediation of consumer satisfaction. This research reinforces the argument that consumer satisfaction positions are becoming

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For practitioners, these findings suggest that digital wallet providers should prioritize improved consumer satisfaction in order to increase retention rates. This can be achieved by focusing on brand image and security features. Ensuring a strong and positive brand image and robust security measures can increase consumer satisfaction and loyalty. In addition, providers must invest in consumer satisfaction initiatives, such as user-friendly interfaces, reliable consumer support, and continuous improvements in security protocols to address the specific problems of Generation Z users. Thus, digital wallet providers can build a loyal consumer base and sustain growth in a competitive digital payment market.

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Integrating security measures with user experience also plays a pivotal role in shaping consumer perceptions and satisfaction. As demonstrated by (Somanchi and Telang, 2016), users who perceive higher levels of security are more likely to trust and continue using digital wallet services. The current study's findings reinforce this notion that attention to safety directly impacts retention through consumer satisfaction. Gen-Z, in particular, being more attuned to digital security concerns, requires reassurance that their financial data is protected. Therefore, digital wallet providers must prioritize advanced security features such as two-factor authentication, encryption, and fraud detection systems, which are critical in building user trust and satisfaction.

Another important consideration is the evolving expectations of Generation Z, who seek seamless and personalized digital experiences. As digital natives, this demographic group expects digital wallet services to be user-friendly, intuitive, and responsive to their needs. Widjaya et al. (2024) point out that user experience, particularly

convenience and ease of use, heavily influences satisfaction levels, affecting retention. Therefore, providers must continually innovate and refine their platforms, offering features that align with the fast-paced, technology-driven lifestyles of Gen-Z. These innovations can include personalized rewards, integrated financial management tools, and instant payment capabilities, which all contribute to higher consumer satisfaction.

Lastly, the practical implications for digital wallet service providers extend to their business strategy. The findings suggest that providers adopt a holistic approach, where brand image, security, and satisfaction are not treated as separate components but as interconnected aspects that work together to enhance retention. Companies can build a loyal consumer base by focusing on creating a strong brand identity that is synonymous with security and reliability while simultaneously improving user satisfaction through tailored experiences and responsive support. This strategic focus on satisfaction and security will be essential in a market where consumer loyalty can significantly impact long-term business success.

First, it is important to note that this research significantly contributes to the literature on consumer retention in the context of digital wallet services, particularly among Generation Z in Indonesia. As revealed by this research, although brand image is often considered an important variable in strengthening consumer loyalty, the results of this study show that brand image does not directly influence user retention. This draws attention to the mediating role of consumer satisfaction, which is the main determinant in strengthening the relationship between brand image and user retention. This finding reinforces the theoretical understanding that consumer satisfaction is not only a result of the usage experience but also a bridge between expectations of brand image and the decision to continue using the service. Future researchers can expand this study by examining other factors influencing satisfaction and how these variables mediate the relationship with user retention.

Second, the finding that attention to security has a direct and significant impact on the retention of Generation Z users also highlights the importance of security in digital services. As this research emphasizes, users' concern for security, especially protecting personal data and transactions, greatly influences their decision to continue using digital wallet services. In this context, security and consumer satisfaction interact to form long-term loyalty, where enhancing perceived security measures can directly increase users' sense of safety and ultimately improve satisfaction and retention. Future researchers can further explore the specific types of security risks that most affect consumer perceptions and behaviours in different markets.

Third, this research also provides important insights into the dynamics of consumer satisfaction mediation in the relationship between brand image and attention to security. By demonstrating that consumer satisfaction fully mediates the relationship between brand image and retention but only partially mediates the relationship between attention to security and retention, this study contributes new knowledge to the existing literature. This partial mediation relationship indicates that although satisfaction is very important, direct attention to security also plays an independent role in influencing consumers' decisions to continue using the service. This finding allows researchers to

explore other variables that can strengthen or weaken the mediating role of consumer satisfaction in digital services.

Fourth, the results of this study have important methodological implications, particularly in using SmartPLS 4.1.0 software to analyze the relationships between variables. The structural equation modelling (SEM) approach in this research allows researchers to accurately evaluate the mediating role and interactions between independent, dependent, and mediating variables. With a relatively low R², this study suggests that other variables still need to be considered in the research model. This opens up opportunities for future research to expand this model by incorporating variables such as service quality, trust, perceived value, and loyalty programs, which can more comprehensively affect consumer retention.

Lastly, from a practical perspective, the findings of this research underscore the need for a holistic approach to building consumer loyalty towards digital wallet services. By ensuring that brand image and strong security features are integrated with a satisfying user experience, service providers can strengthen the loyalty of Generation Z customers. For other researchers interested in the study of digital consumer behaviour, the results of this research provide a strong foundation for exploring how various factors interact in shaping consumer experiences and decisions. Moreover, with the increasingly developing ecosystem of digital services, this research becomes an important reference for understanding user retention dynamics in a competitive market.

METHODOLOGY

This study underscores the pivotal role of consumer satisfaction as a mediating factor in both brand image and security concerns, while also illustrating the intricate challenge of retaining Generation Z users in the digital wallet ecosystem. The absence of a direct impact of brand image on user retention suggests that Gen Z places greater value on actual service experiences than on brand perception alone. This insight encourages digital wallet providers to prioritize the consistent quality of user experience alongside branding, especially given the intense competition in the digital payments industry, where user satisfaction serves as a crucial differentiator.

Moreover, the study's focus on security aligns with the heightened emphasis on privacy and data protection in digital financial services today. Growing up in an era of increased digital vigilance, Generation Z highly values robust security features in the platforms they engage with. The finding that customer satisfaction partially mediates the relationship between security concerns and retention suggests that while security is essential, it must be complemented by a positive overall user experience. Future research could further examine specific security measures, such as biometric authentication and encryption, that have the most substantial influence on consumer trust and loyalty.

The study also notes limitations, including low R² values, indicating that the model does not fully account for the variability in consumer retention. This opens avenues for exploring additional factors that may contribute to retention in digital wallet services. Variables such as service quality, perceived value, and trust may offer a more holistic

understanding of consumer loyalty. Introducing loyalty programs as a variable could also shed light on the role of rewards in sustaining user engagement. In light of the fast-paced evolution of digital financial services, future studies should build upon this model to better reflect the dynamic landscape.

Another limitation is the sample size of 300 respondents, which, while adequate for the study's scope, may restrict the generalizability of the findings. A broader sample, possibly spanning diverse demographics outside Indonesia, could enhance the robustness of results and provide broader insights into Generation Z's digital wallet usage patterns. Future research could also adopt a stratified sampling approach to examine whether retention drivers differ among Gen Z subgroups, such as students versus young professionals.

Furthermore, longitudinal studies could offer deeper insights into retention behavior over time. Given that consumer preferences, particularly among Generation Z, are likely to shift with technological advancements, a longitudinal approach would enable researchers to observe how retention drivers evolve, helping digital wallet providers adapt their strategies accordingly. Analyzing behavior across different time frames would yield more comprehensive data on the longevity of retention factors and the sustained effectiveness of brand image, security, and satisfaction initiatives. Such insights are invaluable for industry stakeholders aiming to secure a competitive edge in an increasingly saturated market.

This research makes a unique contribution to the literature by examining the interplay between brand image, security concerns, and consumer satisfaction within the context of digital wallet retention among Generation Z in Indonesia. Unlike prior studies that focus primarily on adoption, this research highlights retention—a critical metric for providers pursuing sustainable growth. The finding that brand image impacts retention only when mediated by consumer satisfaction underscores the importance of experience-focused branding, where satisfaction is key to fostering long-term loyalty. These insights are particularly pertinent in a commoditized digital services market, where customer retention is often more cost-effective than acquisition.

For practitioners, the study provides actionable insights into the retention drivers for Generation Z in digital wallet services, emphasizing the dual significance of strong security measures and a rewarding user experience. As digital wallet adoption continues to rise in Indonesia and other emerging markets, companies that prioritize these elements are likely to achieve higher consumer loyalty and retention. The study's practical recommendations—such as enhancing security protocols, tailoring user experiences, and building consumer trust—offer a strategic framework for digital wallet providers to fortify their market position. By integrating theoretical insights with practical guidance, this research not only enriches academic discussions but also offers implementable strategies that can be readily applied within the digital financial services sector.

REFERENCE

- Ahmad, A. K., Jafar, A., & Aljoumaa, K. (2019). Customer churn prediction in telecom using machine learning in big data platform. *Journal of Big Data*, 6(1). <https://doi.org/10.1186/s40537-019-0191-6>
- Ahmed, R. R., Azam, M., Qureshi, J. A., Hashem E, A. R., Parmar, V., & Md Salleh, N. Z. (2022). The Relationship Between Internal Employer Branding and Talent Retention: A Theoretical Investigation for the Development of a Conceptual Framework. *Frontiers in Psychology*, 13(March), 1–11. <https://doi.org/10.3389/fpsyg.2022.859614>
- Alić, A., Činjarević, M., & Agić, E. (2020). The role of brand image in consumer-brand relationships: Similarities and differences between national and private label brands. *Management and Marketing*, 15(1), 1–16. <https://doi.org/10.2478/mmcks-2020-0001>
- Alruthaya, A. (2021). The Application of Digital Technology and the Learning Characteristics of Generation Z in Higher Education Thanh-Thuy Nguyen Sachithra Lokuge 2 Research Method 3 Overview of the Literature Sample. *Australasian Conference on Information Systems*, 1–7.
- Ameen, N., & Anand, A. (2020). Generation Z in the United Arab Emirates: A Smart-Tech-Driven iGeneration. *The New Generation Z in Asia: Dynamics, Differences, Digitalization*, 181–192. <https://doi.org/10.1108/978-1-80043-220-820201018>
- Anshari, M., Arine, M. A., Nurhidayah, N., Aziyah, H., & Salleh, M. H. A. (2021). Factors influencing individual in adopting eWallet. *Journal of Financial Services Marketing*, 26(1), 10–23. <https://doi.org/10.1057/s41264-020-00079-5>
- Bagla, R. K., & Sancheti, V. (2018). Gaps in customer satisfaction with digital wallets: challenge for sustainability. *Journal of Management Development*, 37(6), 442–451. <https://doi.org/10.1108/JMD-04-2017-0144>
- Bagra, G., Hussain, P., Ahmad, F., Rana, N., & Tiwari, V. (2023). A Study on Factors Influencing the Use of Digital Wallet and Customer Loyalty in E-Payment System: Assessing the Mediating Role of Customer Satisfaction. *Journal of Informatics Education and Research*, 3(2). <https://doi.org/10.52783/jier.v3i2.557>
- Bankuoru Egala, S., Boateng, D., & Aboagye Mensah, S. (2021). To leave or retain? An interplay between quality digital banking services and customer satisfaction. *International Journal of Bank Marketing*, 39(7), 1420–1445. <https://doi.org/10.1108/IJBM-02-2021-0072>
- Barclay, D., Thompson, R., & Higgins, C. (1995). The Partial Least Squares (PLS) Approach to Causal Modeling: Personal Computer Use as an Illustration. *Technology Studies*, 2.
- Baxi, C. O., Patel, K. J., Patel, K. M., Patel, V. B., & Acharya, V. A. (2023). Consumers' Digital Wallet Adoption: Integration of Technology Task Fit and UTAUT. *International Journal of Asian Business and Information Management*, 15(1), 1–23. <https://doi.org/10.4018/IJABIM.334016>

- Blom, A., Lange, F., & Hess, R. L. (2017). Omnichannel-based promotions' effects on purchase behavior and brand image. *Journal of Retailing and Consumer Services*, 39, 286–295. <https://doi.org/10.1016/j.jretconser.2017.08.008>
- Cadman, T., & Sarker, T. (2022). De Gruyter Handbook of sustainable development and finance. In *De Gruyter Handbook of Sustainable Development and Finance*. <https://doi.org/10.1515/9783110733488>
- Chawla, D., & Joshi, H. (2023). Role of Mediator in Examining the Influence of Antecedents of Mobile Wallet Adoption on Attitude and Intention. *Global Business Review*, 24(4), 609–625. <https://doi.org/10.1177/0972150920924506>
- Chen, C.-F., & Chen, C.-T. (2014). The Effect of Higher Education Brand Images on Satisfaction and Lifetime Value from Students' Viewpoint. *The Anthropologist*, 17(1), 137–145. <https://doi.org/10.1080/09720073.2014.11891423>
- Chen, X., Miraz, M. H., Gazi, Md. A. I., Rahaman, Md. A., Habib, Md. M., & Hossain, A. I. (2022). Factors affecting cryptocurrency adoption in digital business transactions: The mediating role of customer satisfaction. *Technology in Society*, 70, 102059. <https://doi.org/10.1016/j.techsoc.2022.102059>
- Dragnea, M., & Mihăiță, N. (2017). Customer Retention Strategies and Organizational Adaptability. *Proceedings of the 30th International Business Information Management Association (IBIMA)*, 8–9.
- Durgabhavani, K., & Krishnan, A. R. (2019). Impact of security and privacy issues in Internet marketing-a study. *International Journal of Management*, 10(4), 36–43. <https://doi.org/10.34218/IJM.10.4.2019.005>
- Fadhilah, I., & Aruan, D. T. H. (2023). Understanding consumer adoption and actual usage of digital payment instruments: comparison between Generation Y and Generation Z. *International Journal of Electronic Marketing and Retailing*, 14(1), 1. <https://doi.org/10.1504/ijemr.2023.10050665>
- Hadi Raharjo, R. J. (2023). The Gen Z's Digital Payment Loyalty in Indonesia. *Revista de Cercetare Si Interventie Sociala*, 83, 181–202. <https://doi.org/10.33788/rcis.83.13>
- Hair, J.F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (third). Los Angeles: Sage Publications India Pvt.
- Hair, Joseph F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hamzah, M. I., Ramli, F. A. A., & Shaw, N. (2023). The moderating influence of brand image on consumers' adoption of QR-code e-wallets. *Journal of Retailing and Consumer Services*, 73, 103326. <https://doi.org/10.1016/j.jretconser.2023.103326>
- Hariguna, T., Adiandari, A. M., & Ruangkanjanases, A. (2020). Assessing customer intention use of mobile money application and the antecedent of perceived value, economic trust and service trust. *International Journal of Web Information Systems*, 16(3), 331–345. <https://doi.org/10.1108/IJWIS-12-2019-0055>

- He, D., Li, S., Li, C., Zhu, S., Chan, S., Min, W., & Guizani, N. (2020). Security Analysis of Cryptocurrency Wallets in Android-Based Applications. *IEEE Network*, 34(6), 114–119. <https://doi.org/10.1109/MNET.011.2000025>
- Huang, L., Wang, M., Chen, Z., Deng, B., & Huang, W. (2020). Brand image and customer loyalty: Transmitting roles of cognitive and affective brand trust. *Social Behavior and Personality: An International Journal*, 48(5), 1–12. <https://doi.org/10.2224/sbp.9069>
- Hussain, M., Javed, A., Khan, S. H., & Yasir, M. (2024). Pillars of Customer Retention in the Services Sector: Understanding the Role of Relationship Marketing, Customer Satisfaction, and Customer Loyalty. *Journal of the Knowledge Economy*, 13132. <https://doi.org/10.1007/s13132-024-02060-2>
- Kahawandala, N., Peter, S., & Niwunhella, H. (2020). Profiling purchasing behavior of Generation Z. *Proceedings - International Research Conference on Smart Computing and Systems Engineering, SCSE 2020*, 155–160. <https://doi.org/10.1109/SCSE49731.2020.9313038>
- Khoa, B. T. (2020). The role of mobile skillfulness and user innovation toward electronic wallet acceptance in the digital transformation era. *2020 International Conference on Information Technology Systems and Innovation, ICITSI 2020 - Proceedings*, 30–37. <https://doi.org/10.1109/ICITSI50517.2020.9264967>
- Komba, K. J., & Razak, K. A. (2021). *Factors Influencing Customer Retention for Electronic Wallet Services in Malaysia*. 11(2), 2019–2022. <https://doi.org/10.18178/ijssh.2021.11.2.1037>
- Kotni, V. V. D. P., Patra, S. K., & Kumar, S. (2024). Bibliometric analysis on digital wallets: Current research status and future research directions. *Digital Currency Assets and Challenges to Financial System Stability*, (May), 1–21. <https://doi.org/10.4018/9798369307700.ch001>
- Kumar, S. R., & Jayaraj, A. M. (2019). The impact of image and trust of bsnl brand on the retention of customers: A mediating function of satisfaction of customer with special reference to BSNL, Trivandrum. *Journal of Advanced Research in Dynamical and Control Systems*, 11(11 Special Issue), 358–362. <https://doi.org/10.5373/JARDCS/V11SP11/20193042>
- Larsson, A., & Broström, E. (2020). Ensuring customer retention: insurers' perception of customer loyalty. *Marketing Intelligence and Planning*, 38(2), 151–166. <https://doi.org/10.1108/MIP-02-2019-0106>
- Latif, W. B., Islam, M. A., Noor, I. B. M., Saaban, S. B., & Abdul Halim, A. B. M. A. (2014). Antecedents of brand image: A case of a developing country. *Asian Social Science*, 10(19), 1–10. <https://doi.org/10.5539/ass.v10n19p1>
- Levy, S., & Hino, H. (2016). Emotional brand attachment: a factor in customer-bank relationships. *International Journal of Bank Marketing*, 34(2), 136–150. <https://doi.org/10.1108/IJBM-06-2015-0092>
- Lin, W. R., Lin, C. Y., & Ding, Y. H. (2020). Factors affecting the behavioral intention to adopt mobile payment: An empirical study in Taiwan. *Mathematics*, 8(10), 1–19. <https://doi.org/10.3390/math8101851>

- Liu, G., & Liu, X. (2015). *Influence Mechanism Research of Store Image for Consumer Brand Loyalty: Empirical Study for Medicine Retail Industry*. https://doi.org/10.1007/978-3-662-47241-5_118
- Louis, E. N., Sartono, E. S., Patricia, E., Gui, A., Shaharudin, M. S., Pitchay, A. A., & Chanda, R. C. (2023). Factors Influencing Customers Intention to Use Digital Banking Services. *2023 IEEE Symposium on Industrial Electronics and Applications, ISIEA 2023*, 1–6. <https://doi.org/10.1109/ISIEA58478.2023.10212252>
- Lu, B., & Yi, X. (2023). Institutional trust and repurchase intention in the sharing economy: The moderating roles of information privacy concerns and security concerns. *Journal of Retailing and Consumer Services*, 73, 103327. <https://doi.org/10.1016/j.jretconser.2023.103327>
- Malik, A., Suresh, S., & Sharma, S. (2019). An empirical study of factors influencing consumers' attitude towards adoption of wallet apps. *International Journal of Management Practice*, 12(4), 426–442. <https://doi.org/10.1504/IJMP.2019.102534>
- Mathew, J. (2021). Drivers of Customer Retention: An Introspection Into Indian Retail Customers. *Vision*, 2024. <https://doi.org/10.1177/09722629211043592>
- Mihardjo, L. W. W., Sasmoko, Alamsjah, F., & Elidjen. (2019). The influence of digital customer experience and electronic word of mouth on brand image and supply chain sustainable performance. *Uncertain Supply Chain Management*, 7(4), 691–702. <https://doi.org/10.5267/j.uscm.2019.4.001>
- Moghavvemi, S., Mei, T. X., Phoong, S. W., & Phoong, S. Y. (2021). Drivers and barriers of mobile payment adoption: Malaysian merchants' perspective. *Journal of Retailing and Consumer Services*, 59(March 2020), 102364. <https://doi.org/10.1016/j.jretconser.2020.102364>
- Mohlala, C., & Bankole, F. (2022). Using a support vector machine to determine loyalty in African, European, and North American telecoms. *Frontiers in Research Metrics and Analytics*, 7, 1025303. <https://doi.org/10.3389/frma.2022.1025303>
- Muhtasim, D. A., Tan, S. Y., Hassan, M. A., Pavel, M. I., & Susmit, S. (2022). Customer Satisfaction with Digital Wallet Services: An Analysis of Security Factors. *International Journal of Advanced Computer Science and Applications*, 13(1), 195–206. <https://doi.org/10.14569/IJACSA.2022.0130124>
- Niezurawska, J., Kycia, R. A., & Niemczynowicz, A. (2023). Preface. In *Managing Generation Z* (pp. 1–2). New York: Routledge. <https://doi.org/10.4324/9781003353935-1>
- Özkan, P., Süer, S., Keser, İ. K., & Kocakoç, İ. D. (2019). The effect of service quality and customer satisfaction on customer loyalty. *International Journal of Bank Marketing*, 38(2), 384–405. <https://doi.org/10.1108/IJBM-03-2019-0096>
- Ravi, N. C., Muppalaneni, N. B., Sridevi, R., Kamakshi Prasad, V., Govardhan, A., & Padma, J. (2020). Advanced Access Control Mechanism for Cloud Based E-wallet. *Lecture Notes on Data Engineering and Communications Technologies*, 31, 392–399. https://doi.org/10.1007/978-3-030-24643-3_47
- Rusdianti, D., & Fajar, A. N. (2023). Unraveling the Impact of Brand Awareness, Promotion, Security, and Service Quality on Customer Satisfaction and Loyalty in

- E-Wallet OVO: An Analytical Study. *Journal of System and Management Sciences*, 13(6), 523–535. <https://doi.org/10.33168/JSMS.2023.0630>
- Saragih, M. H., Widjaja, E., & Marchia, Q. (2023). Examining the Determinants of Sakuku User Loyalty In Jakarta. *Journal of System and Management Sciences*, 13(1), 305–322. <https://doi.org/10.33168/JSMS.2023.0117>
- Shimul, A. S., Faroque, A. R., & Cheah, I. (2024). Does brand attachment protect consumer–brand relationships after brand misconduct in retail banking? *International Journal of Bank Marketing*, 42(2), 183–204. <https://doi.org/10.1108/IJBM-10-2022-0453>
- Simarmata, J., Keke, Y., Veronica, Silalahi, S. A., & Benková, E. (2017). How to establish customer trust and retention in a highly competitive airline business. *Polish Journal of Management Studies*, 16(1), 202–214. <https://doi.org/10.17512/pjms.2017.16.1.17>
- Soegoto, E. S., & Sumantri, M. B. R. (2020). The Influence of Digital Wallet. *IOP Conference Series: Materials Science and Engineering*, 879(1). <https://doi.org/10.1088/1757-899X/879/1/012122>
- Somanchi, S., & Telang, R. (2016). Security, fraudulent transactions and customer loyalty: A field study. *2016 International Conference on Information Systems, ICIS 2016*, (May), 80972995.
- Soodan, V., & Rana, A. (2020). Modeling customers' intention to use e-wallet in a developing nation: Extending UTAUT2 with security, privacy and savings. *Journal of Electronic Commerce in Organizations*, 18(1), 89–114. <https://doi.org/10.4018/JECO.2020010105>
- Widjaya, W., Michael, G., & Gui, A. (2024). Key Factors Affecting Customer Retention in Digital Banking Applications in Indonesia. *2024 Second International Conference on Emerging Trends in Information Technology and Engineering (ICETITE)*, 1–7. <https://doi.org/10.1109/ic-ETITE58242.2024.10493293>
- Xu, J. (Bill), Prayag, G., & Song, H. (2022). The effects of consumer brand authenticity, brand image, and age on brand loyalty in time-honored restaurants: Findings from SEM and fsQCA. *International Journal of Hospitality Management*, 107, 103340. <https://doi.org/10.1016/j.ijhm.2022.103340>
- Yi, Y., & Natarajan, R. (2018). Customer satisfaction in Asia. *Psychology and Marketing*, 35(6), 387–391. <https://doi.org/10.1002/mar.21093>