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THE NEXUS OF SERVICE INNOVATION, SEAMLESS DELIVERY, AND CUSTOMER SATISFACTION IN DIGITAL PAYMENT ECOSYSTEMS FOR UNWAVERING CUSTOMER LOYALTY

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Abstract

Digital wallet transactions have experienced a surge surpassing that of mobile banking transactions since 2021. Following a substantial merger with Tokopedia, GoPay has emerged as the digital wallet provider with the highest number of active users. The objective of this study is to examine the extent to which service innovation and service delivery, as antecedents of customer satisfaction, markedly influence customer loyalty. The study aims to address the broader implications of the digital payment landscape in Indonesia. Employing the purposive sampling method, the research involved 170 respondents. The data collected were subjected to analysis using Structural Equation Modeling with Partial Least Squares (SEM-PLS). The findings of the study indicate a significant impact of service innovation, service delivery, and customer satisfaction on customer loyalty. Moreover, service innovation and service delivery have a significant impact on customer satisfaction.

Keywords: Digital Wallet, Service Innovation, Service Delivery, Customer Satisfaction, Customer Loyalty

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INTRODUCTION

People have become familiar with the term "electronic wallet" or "digital wallet." Digital wallets introduce people to non-cash payment methods that are practical, safe, and profitable. The growth and acceleration of information technology innovation have emerged as a stimulus to make commercial transactions more accessible for people to use in their everyday lives (Putri et al., 2022). By 2020, Bank Indonesia had granted permission to 51 electronic payment providers, many of which have well-known names like ShopeePay, OVO, GoPay, DANA, and LinkAja. The use of digital payments in Indonesia has increased compared to the previous year, supported by BI policy in the context of economic recovery (Anggara & Raharjo, 2024). Additionally, it is anticipated that by 2025, Southeast Asia will have up to a quarter of a billion new users of digital payments. With 130 million new users over that time, Indonesia is expected to be the nation that contributes the most. The International Data Corporation (IDC) InfoBrief, which is backed by 2C2P Indonesia, is the source of the data. According to Airlangga Hartarto, Coordinating Minister for the Economy, Indonesia's digital economy might be about US\$130 billion in 2025 and would grow to about US\$300 billion in 2030 (Naurah, 2023).

Driven by convenience, digital payments have become commonplace in Indonesia, with GoPay emerging as one of the most popular providers, supported by super-apps, and maintaining a significant user base compared to competitors like OVO (Arifianto & Veritia, 2022; Crisanto, 2021; Hanifah, 2023). According to a survey conducted by Sharing Vision in December 2020, GoPay also emerged as the most frequently utilized digital payment platform in Indonesia. The e-wallet feature offered by the super app Gojek in 2020 secured the top position as the most utilized electronic money service, selected by 81 percent of participants. The consistency of survey results from 2021 to 2023, indicating GoPay's continued prominence as a leading digital wallet, suggests the effectiveness and efficiency of its strategy in fostering customer loyalty. However, the absence of specific data addressing the key indicators contributing to GoPay's sustained dominance throughout these years is noteworthy.

The literature posits that consumers engaging in online activities (e.g., information seeking, product selection, purchasing, and feedback sharing) establish expectations regarding e-service quality (e-SQ), which is widely recognized as a significant determinant of satisfaction. Previous studies primarily endorse a sequence in which elevated e-SQ positively impacts customer satisfaction, subsequently cultivating customer loyalty (Venkatakrishnan et al., 2023; Ashiq & Hussain, 2023). This indirect impact of e-SQ on loyalty via satisfaction is often substantiated by the realization of, or exceeding, expected service convenience. Service innovation consistently enhances customer satisfaction by generating perceived customer value. Applying the Expectation Confirmation Theory (ECT), this study hypothesizes that both service innovation and service delivery quality function as core antecedents: satisfaction occurs when perceived service performance aligns with or surpasses pre-defined expectations, whereas disconfirmation leads to dissatisfaction. However, the direct effects of these service attributes on loyalty remain equivocal; while some studies show satisfaction mediating the link between service engagement and loyalty (Paringan & Novani, 2022; Jati et al., 2022), others challenge the direct impact of e-SQ on satisfaction and loyalty altogether (Valencia & Layman, 2021; Fauziyah et al., 2023). Despite these conflicting direct impacts, a pervasive finding across the field is the robust and significant role of customer satisfaction as the most consistent and immediate predictor of customer loyalty.

Building upon established literature, this study is primarily motivated by the need to investigate the complex causal relationships among service innovation, service delivery quality, customer satisfaction, and subsequent customer loyalty within the rapidly evolving

digital payment ecosystem, particularly in Indonesia. The central objective is to empirically determine the extent to which service innovation and delivery function as critical antecedents to customer satisfaction, thereby mediating the path towards sustained loyalty. This inquiry is highly pertinent given the dynamic nature of the Indonesian digital payment landscape, marked by intense competition among major electronic payment providers (e.g., ShopeePay, OVO, GoPay, DANA, and LinkAja). Furthermore, it is imperative to understand the factors that drive satisfaction and loyalty, especially considering Indonesia's significant contribution to the projected surge in digital payment users across Southeast Asia by 2025. By disassembling these complex processes, the research seeks to contribute valuable, nuanced insights to the existing body of knowledge, ultimately offering actionable recommendations for industry stakeholders, policymakers, and providers to optimize service enhancement and cultivate robust customer loyalty in this pivotal technological sector.

LITERATURE REVIEW

Expectation Confirmation Theory (ECT) is a cognitive framework designed to elucidate the satisfaction experienced post-purchase or post-adoption, based on the interplay between expectations, perceived performance, and the disconfirmation of beliefs (Oliver, 1980). Initially introduced within the realms of psychology and marketing literature, ECT has subsequently found resonance in various scientific disciplines, including consumer research and information systems. In the context of digital payment services, where the impact of service innovation and service delivery is pivotal. The expectation confirmation theory underscores the significance of confirmation in shaping satisfaction or behavior outcomes (Hu et al., 2023). This cognitive framework becomes particularly relevant when examining the satisfaction and loyalty of users engaging with digital payment platforms. The theory posits that users form expectations regarding the performance and features of digital payment services. Subsequent interactions and experiences with these services either confirm or disconfirm these expectations, influencing user satisfaction and, consequently, loyalty. Therefore, Expectation Confirmation Theory serves as a lens through which to understand the cognitive processes at play in the digital payment ecosystem. By exploring the relationship between user expectations, perceived performance, and belief disconfirmation within the context of service innovation and delivery, the theory contributes to a nuanced understanding of the factors influencing customer satisfaction and loyalty in the dynamic and competitive landscape of digital payment services.

The activities undertaken by a company to introduce new value and benefits to customers through technology, as well as fostering collaboration between the company and its customers, are termed service innovation (Woo et al., 2021). In the current highly competitive business environment, innovation stands out as a fundamental pillar for many organizations. The effective management of global competitiveness now heavily relies on fostering innovation, encompassing the orchestration of activities involved in generating novel ideas, advancing technology, creating new products, enhancing existing ones, and strategically marketing them. Both developed and a majority of developing nations have substantial service industries, and Service Innovation (SI) has emerged as a transformative force in the global economy. Its impact extends to bolstering productivity in the service sector, enhancing productivity in other service-dependent industries, and contributing to overall social and economic performance, particularly in developing nations (Valencia & Layman, 2021).

SI plays an instrumental role in shaping a company's performance by introducing new value propositions to customers. Through SI initiatives, businesses can elevate customer satisfaction (CS), fostering increased engagement, preferences, and overall performance. By effectively addressing the desires and needs of customers, SI facilitates the establishment of positive relationships with business clients. The contentment of business customers, in turn, positively influences repeat business and referrals, indicative of customer loyalty (Woo et al.,

2021). This encompasses the creation of innovative business models, the introduction of new methods for delivering services, and the utilization of technology to enhance service delivery (SD). Integration of digital payment services with other platforms, such as online shopping or transportation services, contributes additional convenience and value for customers. Lastly, the implementation of new security measures or fraud prevention techniques ensures the safety and security of customer transactions, further enhancing the overall service experience.

The act of furnishing a service to a customer is formally termed Service Delivery (SD). This comprehensive concept encompasses all stages and interactions, commencing with initial contact and communication, extending through the actual provision of service, and including any subsequent support or feedback exchanges between the customer and the service provider. Effective SD necessitates clear communication with customers, a thorough understanding of their requirements and expectations, the implementation of practical and well-designed service processes, and a dedicated focus on delivering high-quality and consistent service experiences. In the context of digital payment services, as outlined by Jati et al. (2022), SD involves providing and delivering digital payment services to customers, encapsulating all the requisite steps and activities to make the digital payment service accessible. This encompasses processes such as registration, account setup, transaction processing, customer support, and issue resolution. The quality and efficiency of these processes, along with the responsiveness and reliability of the digital payment service provider in meeting customer needs and expectations, fall under the umbrella of service delivery. A pragmatic approach to SD enhances customer satisfaction and fosters loyalty toward the digital payment service provider.

Recent research by Valencia & Layman (2021) highlights key indicators of SD. Accuracy, which means that the system can provide services that are correct and free of mistakes, is a key factor. Indicators for measuring accuracy include assessing the number of errors or mistakes in transactions, the percentage of successful transactions, and the percentage of transactions necessitating a refund or correction. Customer convenience, reflecting the simplicity of using digital payment services, is another crucial metric. This measure is gauged through the ease of use, navigation, and the availability of customer support. Finally, responsiveness, indicating the system's ability to promptly and effectively address customer questions, issues, or complaints, is considered paramount. Metrics for measuring responsiveness encompass the time taken to respond to customer inquiries or complaints, the successful resolution of complaints, and the level of customer satisfaction with the company's response to their issues.

Satisfaction is defined as “an affective state resulting from a transaction’s affective and cognitive assessment process” (Jameel et al., 2021). Consumer satisfaction denotes the degree of contentment attained by a client after the procurement of particular products or services. It serves as a pivotal gauge for assessing how customers perceive the overall performance and value proposition of a business. Various factors, including the quality of the product or service, the company's responsiveness to customer needs, the standard of customer support, and the overall ease of conducting transactions with the company, collectively influence customer satisfaction (CS). Customer retention and positive recommendations to others are more likely when customers are content with their interactions (Dwita et al., 2023).

Specifically, within the context of Indonesia, customer satisfaction pertains to how pleased customers are with the innovation and service delivery of digital services. This satisfaction is significant because it directly influences customer loyalty; satisfied customers are more likely to continue using the service and recommend it to others. Numerous indicators for measuring customer satisfaction (CS), including transaction speed, security and privacy assurances, responsiveness of customer service, accessibility and user-friendliness of digital payment services, incentives and rewards programs, and the alignment of customer

expectations with ongoing service enhancements, such as the introduction of new features, payment options, or app functionalities (Valencia & Layman, 2021; Prasetyo et al., 2021).

Trust has always played a vital role in gaining customers' loyalty and bringing brand sustainability, as if a brand is no longer trusted by its customers, it becomes difficult for a brand to gain a huge market and attract customers (Ashiq & Hussain, 2023). Various factors, with Customer Satisfaction (CS) being a key element, contribute to the assessment of Customer Loyalty (CL). These elements play a crucial role in influencing a customer's decision to continue utilizing a specific delivery service, thus significantly determining the level of customer loyalty. The establishment of customer loyalty heavily hinges on achieving high levels of customer satisfaction. Customers are more inclined to persist in using a platform and recommend it to others when they are content with product quality, delivery timeliness, and overall service. A personal connection with a brand or service provider further cements customer commitment, as highlighted by Sidartha et al. (2021).

In the Indonesian digital payment context, customer loyalty is conceptually defined by the sustained behavioral preference of users for a specific service despite the availability of competitive alternatives. As a pivotal metric for evaluating the success of service innovation, delivery, and satisfaction initiatives (Valencia & Layman, 2021), loyalty is operationalized through a multi-dimensional framework. Key indicators for measurement include the frequency of use (daily utilization rate), priority of use (relative importance compared to substitute payment methods), and the monetary value of use (total customer expenditure). Additionally, the construct is captured by attitudinal metrics such as the willingness to recommend the service (advocacy) and the perceived switching costs associated with transitioning to a competing provider. The cultivation of this loyalty is empirically linked to the successful enhancement of customer satisfaction, establishing it as an outcome predominantly shaped by the equitable interplay between service innovation, service delivery, and satisfaction (Jati et al., 2022).

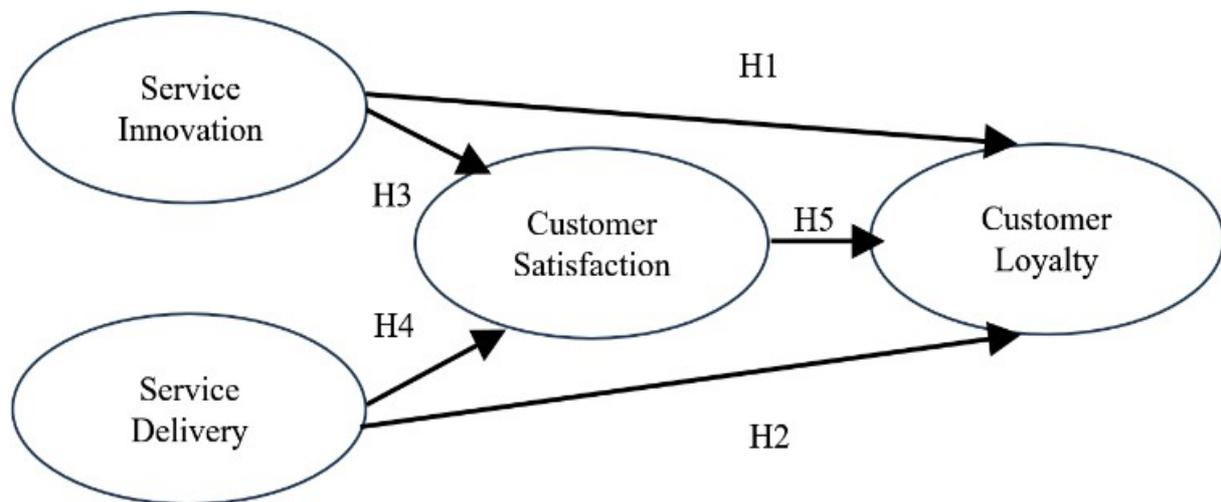


Figure 1. Conceptual Model

The study of service innovation has gained significant attention over the last three decades (Gustafsson et al., 2020; Moreira et al., 2020). Conversely, given that customer satisfaction is defined as a consumer's assessment and response to their level of contentment, the study showed a notable improvement in satisfaction when service innovation and delivery were effectively implemented (Ginting et al., 2023; Valencia & Layman, 2021). In simpler terms, customer contentment with digital payment services is heightened when there is a proactive approach to innovation and the provision of outstanding service, consequently fostering increased loyalty to the brand. Furthermore, the research posited that customer loyalty is more significantly influenced by service innovation than by service delivery. This implies that a consistently reliable service delivery may have a diminished impact compared to the introduction of novel features or services in bolstering customer loyalty.

Consequently, the initial hypothesis in this study asserts the following:

H1: Service innovation significantly and positively influences customer loyalty in the digital payment industry.

While service delivery has a notable and direct positive correlation with customer loyalty, the quality of service delivery, particularly in healthcare, is often evaluated by users based on personal experience, highlighting the importance of a user-oriented approach to improve satisfaction (Valencia & Layman, 2021; Amankwah et al., 2019). This implies that effective service delivery fosters positive relationships with customers, ultimately enhancing their loyalty. The same trend was evident in diverse business settings, such as Honda Authorized dealers, where the analysis revealed a positive and statistically significant impact of the service delivery system on customer loyalty (Jati et al., 2022). Consequently, the second hypothesis of this study posits:

H2: Service delivery significantly and positively influences customer loyalty in the digital payment industry.

It was determined that service innovation in commercial banks exerts a substantial and positive influence on customer satisfaction. The study underscores that service innovation plays a pivotal role in achieving various levels of customer satisfaction, with a particular emphasis on customer value-creating service innovation demonstrating a positive and significant impact on customer satisfaction in the telecommunications network industry. Additionally, the concentration on the service innovation process and increased innovation efforts emerged as effective strategies for attaining customer satisfaction (Valencia & Layman, 2021). Earlier research indicated that service innovation, encompassing organizational, process, and production innovation, contributes significantly to heightened customer satisfaction. The investigation affirmed a noteworthy relationship between the studied innovation factors and customer satisfaction, establishing that service innovation serves to enhance customer satisfaction. Consequently, the third hypothesis of this study posits:

H3: Service innovation significantly and positively influences customer satisfaction in the digital payment industry.

Recent studies affirm that e-service quality plays a crucial role in attaining customer e-satisfaction (Khan et al., 2020; Khan, Arshad, & Munir, 2023). Since customer satisfaction is fundamentally defined as a consumer's evaluative response to their level of contentment, the service delivery provided by commercial banks plays a constructive role in significantly enhancing it (Ginting et al., 2023; Valencia & Layman, 2021). This positive impact is attributed to the provision of high-quality service delivery, which, in turn, cultivates positive relationships with customers. The level of customer satisfaction is seen to escalate in proportion to the delivery of convenience services and, in some instances, surpass customer expectations. Similarly, Jati et al. (2022) demonstrated in their study that the service delivery

system has a positive and statistically significant influence on customer satisfaction among Honda Authorized Dealers in the Bantul Regency of Yogyakarta. These findings align with and reinforce previous research and expert opinions, which commonly assert that service delivery systems exert a substantial influence on customer satisfaction. Consequently, the fourth hypothesis of this study posits:

H4: Service delivery significantly and positively influences customer satisfaction in the digital payment industry.

As per Islam et al. (2021), customers who experience satisfaction with a business tend to exhibit loyalty as they perceive the service as less risky. Such satisfied customers consistently engage with the same service and advocate for the company, thereby enhancing their loyalty and commitment during the decision-making process for future purchases. Furthermore, the study posits that customer satisfaction acts as a mediating factor in facilitating a positive connection between service innovation and customer loyalty. Additionally, customer satisfaction, which is recognized as a substantial catalyst for positive overall customer experience, is emphasized by the research as forming the fundamental basis for notably influencing customer loyalty (Jati, 2022; Valencia & Layman, 2021). Consequently, the concluding hypothesis of this study asserts:

H5: Customer satisfaction significantly and positively influences customer loyalty in the digital payments industry.

METHOD

The study employed a quantitative research method due to its ability to accurately and objectively synthesize data reflecting the current situation. A quantitative explanatory approach was employed, concentrating on elucidating the mechanisms or reasons behind a phenomenon. This type of research aims to analyze patterns within the current study, providing valuable insights for future research endeavors. The primary aim of employing a quantitative research design is to assess the relationship between an independent variable and a dependent variable in the population. Respondents will be presented with a set of questions through Google Forms, and the data will be collected via a survey. A Likert scale with five options will be employed to measure and quantify responses, ranging from strongly agree to significantly disagree (Jebb et al., 2021).

The population under scrutiny comprises digital payment users, although the exact number is undetermined. Turner (2020) defines sampling as the selection of a subset from the population of interest, as involving the entire population is impractical. The chosen sampling method for this research is purposive sampling, targeting digital payment users residing in the east, west, north, or south areas of Surabaya. The sample size, determined using the formula by Hair & Alamer (2022), is 170 individuals, distributed across the geographical divisions of Surabaya.

For data analysis, the study will utilize the Structural Equation Model (SEM) and the Partial Least Squares (PLS) Method. SEM, particularly covariance-based SEM, allows for the evaluation of existing concepts. PLS technology is adept at handling complex models with numerous variables. Using the PLS-SEM improves data prediction precision, reliability, and factor indeterminacy (Ashiq & Hussain, 2023). The SmartPLS 3.0 application will be employed for the PLS-SEM investigation, involving both outer and inner models. The outer model explains the connections between variables and their indicators, encompassing validity and reliability tests.

RESULT

The study sample comprised 170 users of digital payment services in Surabaya, recruited across four balanced geographical regions of the city (East, West, North, and South). The gender distribution was slightly skewed towards male respondents (57.1% male, n=97), with the dominant age cohort being Generation Z individuals aged 17–22 years (50%, n=85). The primary digital payment service utilized by the respondents was predominantly GoPay (64.7%), followed by ShopeePay (15.8%) and OVO (15.3%). In terms of methodological rigor, convergent validity was assessed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via the SmartPLS software. Validity was established based on two criteria: a loading factor exceeding 0.7 for individual items and the Average Variance Extracted (AVE) value surpassing 0.5 for each construct. The subsequent section will present the detailed results of the indicator analyses.

Table 1. Outer Loading Indicators

Item	Factor Loading	AVE	Cronbach's Alpha	Composite Reliability
CL1	0.819	0.761	0.921	0.921
CL2	0.881			
CL3	0.883			
CL4	0.877			
CL5	0.899			
CS1	0.779	0.649	0.891	0.891
CS2	0.838			
CS3	0.766			
CS4	0.801			
CS5	0.833			
CS6	0.814			
SD1	0.892	0.812	0.885	0.885
SD2	0.905			
SD3	0.907			
SI1	0.773	0.661	0.897	0.897
SI2	0.831			
SI3	0.856			
SI4	0.794			
SI5	0.834			
SI6	0.786			

The robust evaluation of the measurement model confirmed both the convergent validity and reliability of the instrument constructs. As demonstrated in Table 1, all individual questionnaire items exhibited factor loadings exceeding the 0.70 threshold, signifying adequate item-to-construct correlation and effective explanatory capability. Furthermore, convergent validity was rigorously confirmed by the Average Variance Extracted (AVE) values for all latent variables, which uniformly surpassed the required 0.50 criterion. Reliability of the measurement instrument was subsequently assessed using both Composite Reliability (CR) and Cronbach's Alpha. The results confirm high internal consistency, as every construct yielded CR and α values substantially exceeding the recommended 0.70 benchmark. These consistent and robust outcomes affirm the psychometric soundness and reliability of the research instrument utilized in this study.

Table 2. Fornell-Larcker Test

	CL	CS	SD	SI
CL	0.872			
CS	0.788	0.805		
SD	0.764	0.775	0.901	
SI	0.736	0.759	0.743	0.813

The results of the Fornell-Larcker results are in accordance with the requirements of the discriminant validity test. This was shown by the result in Table 2, which indicates that each variable is valid because its AVE root value is more significant than its correlation value to other variables. As a result, the discriminant validity of each and every variable that was examined has been established. The Outer analysis model's summary of the results is shown in Figure 2 below.

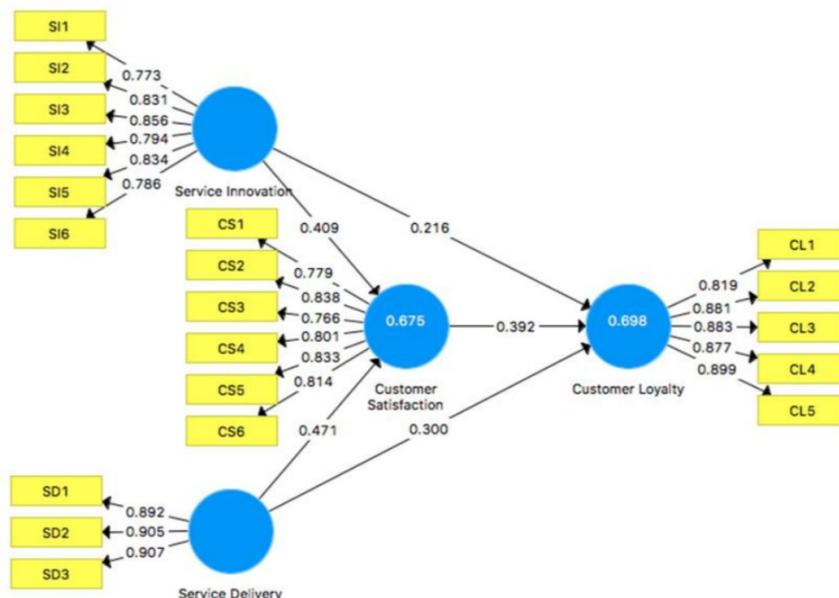


Figure 2. Outer model framework

Table 3. R Square and R Square Adjusted

Variables	R Square	R Square Adjusted
CL	0.698	0.692
CS	0.675	0.671

The initial test of the structural inner model aimed to assess the contributions of the independent variables to both mediation and independent variables. The results, presented in Table 3, indicate that 69.8% of the variance in the customer loyalty variable is influenced by service innovation, service delivery, and customer satisfaction. Additionally, 67.5% of the variance in customer satisfaction is attributed to the combined influence of service innovation and service delivery. However, the remaining 32.5% is influenced by variables not considered in this study. It is worth noting that R², while providing valuable insights, can tend to be overly optimistic in estimating the fit of the linear regression. To address this concern, R² Adjusted is introduced in this research, confirming that the combined influence of service innovation, service delivery, and customer satisfaction on customer loyalty remains relatively high at around 69.2%. Similarly, customer satisfaction, influenced by service innovation and service delivery, is recorded at 67.1%.

Table 4. Blindfolding Test

Variables	Q ²	Category
CL	0.523	>0
CS	0.531	>0

The results of the blindfolding procedure were utilized to assess the predictive relevance (Q²) of the model's endogenous latent variables (Customer Loyalty [CL] and Customer Satisfaction [CS]). As presented in Table 4, the Q² values for both CL (0.523) and CS (0.531) are substantially greater than zero (Category >0). This empirical finding confirms that the structural model possesses a strong level of predictive relevance, indicating that the exogenous constructs in the model have significant explanatory power for the variances observed in the endogenous variables. Consequently, the model is deemed robust for predicting observations not included in the original estimation data.

Table 5. Path Coefficient Bootstrapping

	(O)	(M)	<u>ST</u> <u>DEV</u>	t-test	P- Values
SI to CL	0.216	0.218	0.084	2.572	0.010
SD to CL	0.300	0.299	0.090	3.330	0.001
SI to CS	0.409	0.411	0.080	5.095	0.000
SD to CS	0.471	0.471	0.076	6.213	0.000
CS to CL	0.392	0.390	0.072	5.443	0.000

Table 6 is obtained by looking at the t-test estimate in the path coefficients (bootstrapping) part of SmartPLS' speculation testing area. The fact that the t-test value exceeds 1.96 indicates that it has a significant impact on other variables. The outcomes of using SmartPLS software to process data for hypothesis testing are as follows: Through a value of >1.96 and a P-value of 0.010, which is less than 0.05, the relationship between Service Innovation (SI) and Customer Loyalty (CL) is significant, with a value of 2.572. Since the first hypothesis concludes that service innovation significantly and favorably affects customer loyalty, it is typically assumed that H1 is accepted. With a value of >1.96 and a P-value of 0.001, which is less than 0.05, the relationship between Service Delivery (SD) and Customer Loyalty (CL) has a significance value of 3.330. Given that the first hypothesis concludes that

service delivery significantly and favorably impacts customer loyalty, we generally accept H2. With a value of >1.96 and a P-value of 0.000, which is less than 0.05, the relationship between Service Innovation (SI) and Customer Satisfaction (CS) has a significance level of 5.095.

Since the first hypothesis concludes that service innovation significantly and favorably affects customer satisfaction, it is generally assumed that H3 is accepted. The study's findings indicate that the relationship between Service Delivery (SD) and Customer Satisfaction (CS) is valued at 6.213, which is significant because it is greater than 1.96, and the P-value is 0.000, which is less than 0.05. Since the first hypothesis concludes that customer happiness is significantly and favorably impacted by service delivery, it is generally assumed that H4 is accepted. With a score of >1.96 and a P-value of 0.000, which is less than 0.05, the relationship between Customer Satisfaction (CS) and Customer Loyalty (CL) is significant, with a value of 5.443. Since the first hypothesis concludes that customer satisfaction significantly and favorably affects customer loyalty, it is generally assumed that H5 is accepted.

Table 6. Mediation Testing

Hypothesis	(O)	(M)	ST DEV	T Stat	P- Values
SI to CS to CL	0.185	0.184	0.046	3.998	0.000
SD to CS to CL	0.160	0.160	0.043	3.745	0.000

The table presents the outcomes of the mediation tests conducted in this study. The findings reveal that customer satisfaction serves as a mediator in the relationship between service innovation and customer loyalty. The t-statistic value of 3.998, exceeding the threshold of 1.96, and the p-value of 0.000, less than 0.05, indicate a significant and positive mediation effect of customer satisfaction on the influence of service innovation on customer loyalty. It is noteworthy that the mediation type in this research is identified as partial, as the influence of service innovation on customer loyalty remains significant even in the absence of customer satisfaction. However, service innovation's impact on customer loyalty is greater when mediated by customer satisfaction based on the t-statistic value. Similarly, the mediation testing results indicate that customer satisfaction plays a mediating role in the association between service delivery and customer loyalty. The t-statistic value of 3.745, surpassing the threshold of 1.96, and the p-value of 0.000, below 0.05, signify a significant and positive mediation effect of customer satisfaction on the relationship between service delivery and customer loyalty. Furthermore, the type of mediation identified in this research is partial, as the impact of service delivery on customer loyalty remains significant even when customer satisfaction is involved. However, the influence of service delivery on customer loyalty is amplified when moderated by customer satisfaction, as indicated by the t-statistic value.

DISCUSSION

The analysis of the preceding table reveals a positive correlation between service innovation (SI) and customer loyalty (CL), affirming the first hypothesis. The positive range in the original sample's results indicates this relationship. Service innovation introduces new features, functionalities, and services that enhance the overall customer experience. Service innovation is defined by Ordanini and Parasuraman (2011) as an offering not previously available to the firm's customers—either an addition to the current service mix or a change in the service delivery process—that requires modifications in the sets of competencies applied by service providers and customers. Offering unique and convenient services, such as easy payment options, personalized offers, and rewards programs, increases customer satisfaction and loyalty. Important indicators from the survey include security, privacy, and integration with other services supporting customers' lifestyles and daily activities. While service

innovation independently influences customer loyalty, the mediation of customer satisfaction also significantly contributes to this outcome. This finding is consistent with the research of Jati et al. (2022), which demonstrates the influence of service innovation on customer loyalty. Differentiating from competitors, organizations can establish a unique brand image and attract loyal customers who appreciate the innovative approach.

The results show that there is a positive link between service delivery and customer loyalty, which supports the third hypothesis. The results exhibit a positive range in the original sample, and the t-statistic highlights a significant relationship between the two variables. Consistent and reliable service delivery fosters trust in customers, who rely on the organization for consistent, guaranteed services. Consistently meeting customer needs through high-quality services fosters customer loyalty. According to Jati et al. (2022), consistent service delivery is crucial for building customer loyalty, as customers value organizations that reliably deliver excellent service within promised timelines.

The fourth hypothesis supports a positive correlation between service innovation and customer satisfaction. The positive range in the original sample and a significant t-statistic demonstrate the relationship. Higher levels of innovation increase the likelihood of customer satisfaction with digital payment applications. Customers who experience satisfaction with a business tend to exhibit loyalty as they perceive the service as less risky (Islam, 2021). Introducing new features, benefits, or services through innovation adds value to customers and differentiates companies from competitors. Creating an integrated and secure ecosystem for digital payment services, including integration with other services, enhances convenience and adds value, encouraging customer retention and satisfaction.

Similarly, the findings support the fifth hypothesis, indicating a positive correlation between service delivery and customer satisfaction. The positive range in the original sample and a significant t-test underscore the relationship. Digital payment services should prioritize service delivery, as service quality directly influences customer experience and perception. Empirical evidence from recent studies suggests that high e-service quality is a prerequisite for generating customer e-satisfaction (Khan et al., 2020; Khan, Arshad, & Munir, 2023). Meeting and exceeding customer requirements with precision and attention to detail leads to increased customer satisfaction. High-quality service provision directly contributes to customer satisfaction, emphasizing the importance of prioritizing service delivery in the digital payment service industry. The findings in the initial analysis demonstrate a positive correlation between customer satisfaction and loyalty. It is possible to conclude that the evidence supports the second hypothesis. The positive range of the original sample's result demonstrates this. Additionally, the t-statistic demonstrates that there is a significant relationship between the two variables.

While service quality plays an important role for businesses in increasing or decreasing sales through online platforms, the satisfaction of customers is equally indispensable (Ashiq & Hussain, 2023). Satisfied customers are likely to continue using a service or making additional purchases. Customers who choose to do business with the same brand or company over other options are more likely to be loyal to that brand or company because of their frequent use of the services. It considers digital services such as the app's ease of use, transaction speed, transaction accuracy, and service dependability. Satisfaction from customers fosters confidence in the service. Customers are likely to trust the brand and continue using the digital payment service if they have a positive experience and believe it to be dependable. Trust is a vital consideration during the study of the customer satisfaction indicator. Trust is crucial for customer satisfaction in digital payment services, where security concerns are prominent. To build and keep users' trust, strong security measures are necessary. This will make them happier. Enhancing security measures is essential not only for mitigating risks but also for cultivating a sense of trust that underpins customer satisfaction within the digital payment

landscape. Service delivery has a positive and significant effect on customer satisfaction among e-wallet users in Indonesia, due to factors like real-time top-up speed (Valencia & Layman, 2021).

According to the study, supported by Jati et al. (2022), satisfied customers are more likely to participate in loyalty programs and advocate for a brand, thereby fostering customer loyalty and promoting repeat transactions. Initially, incentivizing customer loyalty through rewards can be advantageous. However, in the long term, this approach may have adverse effects, as customers may become loyal primarily to the rewards rather than the core features of digital payment services. While some loyalty programs may attract customers initially, maintaining loyalty necessitates prioritizing fundamental service qualities. Therefore, sustained customer loyalty hinges on consistently delivering exceptional service experiences. According to the findings of the survey, it is evident that respondents perceive the switching costs associated with digital payment services to be relatively low, suggesting that transitioning between providers is easy. As a result, the maintenance of customer loyalty within this competitive landscape requires continuous innovation and consistent delivery of services, both of which are crucial prerequisites for nurturing and enhancing customer satisfaction among digital payment service providers.

CONCLUSION

The empirical results confirm that service innovation and service delivery quality significantly impact both customer satisfaction and subsequent customer loyalty. To enhance customer experience, digital payment providers are advised to prioritize user-friendly interface development, functionality improvement, process streamlining, and the strategic integration of advanced technologies like AI, machine learning, and data analytics to drive innovation capabilities. Furthermore, effective service delivery is crucial, as its timeliness and accuracy build trust and positively influence overall business perception, directly fostering customer retention. Crucially, the study reaffirms that customer satisfaction is a powerful determinant of loyalty and functions as a significant mediator in the relationship between both service innovation and service delivery with customer loyalty. For future research, it is recommended to explore alternative metrics for customer loyalty, investigate additional mediation effects beyond satisfaction, and broaden the scope of analysis to include various digital payment service types, along with demographic and geographical factors, to achieve a more nuanced understanding of consumer behavior in electronic service contexts.

LIMITATION

The study acknowledges several limitations that warrant consideration for a comprehensive interpretation of its findings. Firstly, the sample, consisting of digital payment users in Surabaya, may not be representative of broader demographics. The cross-sectional design of the study limits its ability to establish causal relationships over time. Moreover, the study focuses on a specific set of variables, neglecting potential influences from external factors. The rapidly evolving nature of technology in the digital payment landscape raises concerns about the potential obsolescence of findings. The study also emphasizes a context-specific approach to the Indonesian digital payment industry, suggesting caution in generalizing results to other markets. While acknowledging these limitations, the study's findings offer valuable insights into the dynamics of service innovation, delivery, satisfaction, and loyalty within the Indonesian digital payment sector.

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