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Digital Payment Quality and User Behavior in Social Commerce vs Marketplace Platforms: Evidence from TikTok Shop and Indonesian E-Commerce

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Abstrak

Penelitian ini mengkaji pengaruh kualitas sistem pembayaran digital terhadap perilaku pembelian konsumen dan efisiensi penjualan pada berbagai platform e-commerce di Indonesia, dengan fokus pada TikTok Shop dan marketplace konvensional seperti Shopee dan Tokopedia. Tujuan penelitian ini adalah untuk menilai bagaimana kelengkapan metode pembayaran, keamanan pembayaran, dan kecepatan pembayaran memengaruhi perilaku pengguna dan kinerja operasional dalam ekosistem perdagangan digital, sejalan dengan meningkatnya integrasi fitur sosial dan transaksi instan di platform online. Pendekatan kuantitatif digunakan dengan teknik Partial Least Squares Structural Equation Modeling (PLS-SEM), berdasarkan data dari 242 responden yang terdiri dari 121 konsumen dan 121 penjual. Analisis Multi-Group (MGA) dilakukan untuk membandingkan perbedaan antarplatform. Hasil penelitian menunjukkan bahwa seluruh dimensi kualitas pembayaran digital berpengaruh positif dan signifikan terhadap variabel dependen. Keamanan pembayaran menjadi prediktor terkuat perilaku pembelian konsumen, khususnya di TikTok Shop, sedangkan kelengkapan metode pembayaran lebih dominan pada marketplace tradisional. Bagi penjual, kecepatan pembayaran terbukti paling berkontribusi terhadap efisiensi penjualan di TikTok Shop, mencerminkan sifat cepat dan dinamis dari social commerce. Penelitian ini melengkapi kerangka teori TAM dan TPB dengan menunjukkan relevansi variabel kualitas pembayaran dalam konteks platform yang berbeda. Temuan ini memberikan implikasi praktis bagi pengembang platform dan pelaku bisnis dalam merancang sistem pembayaran yang lebih terpercaya dan efisien. Penelitian ini juga merekomendasikan studi lanjutan dengan cakupan demografis lebih luas dan teknologi pembayaran baru untuk memperdalam pemahaman tentang perilaku transaksi digital.

Kata Kunci: Pembayaran Digital; TikTok Shop; E-Commerce; Perilaku Konsumen; Efisiensi Penjualan; PLS-SEM.

Abstract

This study investigates the influence of digital payment system quality on consumer purchase behavior and sales efficiency across different e-commerce platforms in Indonesia, with a focus on TikTok Shop and established marketplaces such as Shopee and Tokopedia. The research aims to assess how payment method completeness, payment security, and payment speed affect user behavior and operational performance in digital commerce ecosystems, driven by the growing integration of social features and instant transactions in online platforms. A quantitative approach was employed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with data collected from 242 respondents, split evenly between consumers and merchants. Multi-Group Analysis (MGA) was applied to compare platform-specific effects. The findings reveal that all dimensions of digital payment quality have a significant positive impact on their respective dependent variables. Payment security is the strongest predictor of consumer purchase behavior, especially on TikTok Shop, while payment method completeness exerts greater influence on traditional marketplaces. On the seller side, payment speed enhances sales efficiency most significantly on TikTok Shop, reflecting the platform's reliance on fast-paced viral commerce. The study contributes to theoretical frameworks by demonstrating the varied relevance of TAM and TPB constructs in different platform contexts. It offers practical insights for platform developers and merchants seeking to optimize payment systems to improve user trust and operational effectiveness. The study also highlights the need for further research involving broader demographics and emerging payment technologies to deepen understanding of digital transaction behaviors.

Keyword: Digital Payments; TikTok Shop; E-Commerce; Consumer Behavior; Sales Efficiency; PLS-SEM.

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1. Introduction

Digital payment systems have experienced rapid expansion in Indonesia, driven by the growing adoption of non-cash transactions and mobile payment technologies. Digital payments, or e-payments, refer to electronic financial transactions between payers and recipients (Pandey, 2022). As digital adoption accelerates, consumers increasingly prefer cashless methods for their online purchases due to their practicality and efficiency compared to conventional payment modes (Bojjagani *et al*., 2023). Data from Bank Indonesia (2025) highlight a 36.1 percent increase in digital payment transaction volume in 2024, with mobile-based transactions rising by 39.1 percent, reflecting a strong shift from cash to digital-based financial solutions. This trend confirms the assertion of Sharma *et al*. (2024), who note that digital payment modes have become key drivers of the online shopping experience. Indonesia is recognized as the fastest-growing digital economy in Southeast Asia, with a projected Gross Merchandise Value (GMV) of USD 90 billion in 2024, representing 13 percent annual growth driven primarily by the e-commerce sector (Business Indonesia, 2024). Much of this expansion is fueled by innovative platforms integrating payment technologies and social features. The rise of social commerce, particularly TikTok Shop, illustrates this shift by merging social interaction with transactional capabilities (Hossain & Kim, 2020). These platforms utilize real-time engagement, social content, and personalized user experiences to enhance consumer involvement and foster brand loyalty. TikTok Shop has achieved notable growth, recording an increase in GMV from USD 4.4 billion in 2022 to USD 16.3 billion in 2023 (Setyowati, 2024). Unlike traditional marketplaces such as Shopee, Tokopedia, and Lazada, TikTok Shop embeds payment and shopping functions directly into a social media environment, enabling seamless purchasing without switching between applications (Siswapranata & Mediawati, 2024). With features like live selling and integrated digital payment options, this model presents an alternative ecosystem that bridges media engagement and online commerce. Digital payment systems play a critical role in facilitating this ecosystem. They enhance consumer convenience while optimizing operational workflows for sellers (Poudel *et al*., 2023). Faster fund settlement improves cash flow management, reduces payment delays, and enhances sales efficiency (Devriese & Mitchell, 2006). However, challenges such as security risks and consumer data protection remain central concerns (Muslim *et al*., 2023). These risks necessitate robust payment infrastructure and risk management practices to ensure trust and secure transactions, as emphasized by Coelho and Prenio (2020).

While many studies have explored consumer behavior and adoption of digital payments, limited comparative research has been conducted to assess payment system quality across TikTok Shop and traditional e-commerce platforms in Indonesia. Prior works have examined general consumer purchase behavior (Lestari *et al*., 2022), ease of payment (Isanawikrama *et al*., 2023), or security concerns (Tian *et al*., 2023), but often without differentiating between platforms or payment methods. Given the scale and diversity of Indonesia's digital payment landscape, it is critical to understand how payment system quality affects both consumer purchase behavior and seller performance on different platform types. To address this knowledge gap, this study compares the quality of digital payment systems between TikTok Shop, as a social commerce platform, and major e-commerce marketplaces. The analysis focuses on three key dimensions: payment completeness, security, and speed. This research aims to explain how these dimensions influence purchase behavior and sales efficiency across different transactional environments and to identify the distinguishing factors driving performance on each platform. This article contributes both theoretically and practically by expanding the discourse on payment system quality within hybrid commerce environments. A comparative lens provides insights valuable for policymakers, platform developers, merchants, and researchers navigating the evolving dynamics of Indonesia's digital economy. The remainder of this paper is structured as follows: the next section presents the research framework and methodology, followed by the results and discussion. Recommendations and conclusions are offered in the final sections.

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2. Literature Review

2.1 Digital Payment Systems in E-Commerce

Digital payment systems have transformed the landscape of online commerce by enabling electronic transactions that bypass traditional cash and card mechanisms. These systems facilitate seamless fund transfer between users and merchants across digital platforms. Pandey (2022) defines digital payments as transactions executed through electronic channels without direct physical exchange. The adoption of such systems has been accelerated by the growth of mobile applications and internet penetration across emerging markets, including Indonesia (Bojjagani *et al*., 2023). Sharma *et al*. (2024) emphasize that efficient payment infrastructures are crucial in maintaining consumer trust and driving repeat purchases in the competitive digital marketplace landscape. This highlights the importance of complete and accessible payment options in influencing purchase behavior. H1: The completeness of digital payment methods has an effect on consumer purchasing behavior on TikTok Shop and other e-commerce marketplace platforms.

2.2 TikTok Shop and the Rise of Social Commerce

TikTok Shop represents a new form of social commerce, integrating content creation and transactional functionalities. Unlike conventional marketplaces, TikTok Shop blends user-generated content with real-time purchasing, offering a seamless transition from engagement to consumption. Hossain and Kim (2020) describe this as "content-driven commerce," where social interaction becomes a catalyst for transaction. The platform leverages algorithm-based exposure, live selling features, and embedded payment options to convenience both buyers and sellers. Reports indicate that TikTok Shop's engagement-driven approach has significantly influenced consumer behavior, including impulsive buying triggered by integrated payment systems (Katadata, 2024). H2: The security of digital payments influences consumer purchasing behavior on TikTok Shop and other e-commerce marketplace platforms.

2.3 Key Dimensions of Payment System Quality

The quality of a digital payment system is measured through dimensions such as payment completeness, security, and speed. Payment completeness includes the availability of diverse payment options, such as e-wallets, bank transfers, and pay-later services (Isanawikrama *et al*., 2023). Security remains a major concern, especially in emerging platforms like social commerce where unfamiliar actors are involved. Muslim *et al*. (2023) note that perceptions of security significantly influence transaction intent and user confidence. Speed also plays an important role, as fast payment processing and settlement improve user satisfaction and operational efficiency for sellers (Devriese & Mitchell, 2006). In digital commerce, faster payment systems can facilitate higher transaction volumes and smoother operations. H3: The speed of digital payments affects digital sales efficiency on TikTok Shop and other e-commerce marketplace platforms. H4: The completeness of digital payment methods affects digital sales efficiency on TikTok Shop and other e-commerce marketplace platforms. H5: The security of digital payments influences digital sales efficiency on TikTok Shop and other e-commerce marketplace platforms.

2.4 Digital Payment Adoption and Consumer Behavior

Consumer willingness to use digital payment platforms is shaped by factors like perceived usefulness, trust, ease of use, and social influence (Tian *et al*., 2023). The Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology explain how users transition from conventional to digital payments. Lestari *et al*. (2022) found that a seamless and positive payment experience increases the likelihood of repeat purchases. In platforms such as TikTok Shop, interaction with content, live events, and community-driven features enhance impulsive purchasing, often triggered by easy and instant payment systems (Siswapranata & Mediawati, 2024). This tendency may differ from traditional marketplaces where purchasing decisions tend to be more planned. H6: There are significant differences in the factors affecting consumer purchasing behavior and sales efficiency between TikTok Shop and other e-commerce marketplace platforms.

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3. Research Methodology

3.1 Research Design and Sample

This study employs a quantitative design using survey-based data collection. The target population consists of two distinct groups: (1) consumers (buyers) who have conducted at least one online transaction via TikTok Shop, Shopee, Tokopedia, or Lazada within the past three months and (2) sellers who have been actively operating on the same platforms for a minimum of six months with at least 20 transactions per month. Given that the exact size of the population is unknown, the sample size was calculated using the formula developed by Lemeshow *et al*. (1990), which is appropriate for studies with large or indeterminate populations. With a confidence level of 95% (Z=1.96), maximum variability (P=0.5), and a margin of error of 10% (d=0.1), the required sample size was determined as follows:

$$n = \frac{\left(Z^2.P(1-p)\right)}{d^2} = \frac{\left(1.96^2.0.5\ (1-0.5)\right)}{0.1^2} = 96.04$$

A total of 97 respondents were targeted for each group, resulting in a total of 194 respondents. The inclusion criteria for buyers were as follows: they must be active users of at least one of the target platforms within the last three months, have completed at least five purchase transactions, and be aged 17 years or older. For sellers, the inclusion criteria required that they had been actively selling on one of the target platforms for at least six months and had conducted a minimum of 20 sales transactions per month. The study operationalizes its research variables to ensure precise measurement of theoretical constructs. It examines several constructs, including Digital Payment System Quality, which is measured through three dimensions: Speed of Digital Payment, Completeness of Digital Payment Methods, and Digital Payment Security. Speed of Digital Payment refers to the perceived speed of transaction completion and fund transfer, with indicators such as the speed of fund receipt and balance updates upon payment, adapted from Schuh & Stavins (2016). Completeness of Digital Payment Methods pertains to the availability of diverse payment options, including e-wallet integration (e.g., GoPay, OVO, DANA), bank transfers, credit/debit card support, PayLater/BNPL services, QRIS, cash on delivery, and minimarket and direct debit payments. Digital Payment Security refers to the perceived security of personal and financial information during transactions, including indicators like the security of personal information, data protection during transmission, storage security, and confidence in system compliance with security standards, as adapted from Barkhordari *et al*. (2017). The study also includes constructs related to Consumer Purchase Behavior, which is defined as the actions and decisions associated with searching, selecting, and buying products, with key indicators including purchase frequency, preferred platform, platform loyalty, and comparison between online and offline behavior (adapted from Kotler *et al*., 2022). Additionally, the construct of Sales Efficiency is examined, which refers to a seller's ability to optimize revenue while minimizing operational costs, with indicators such as operational and marketing cost efficiency, labor cost efficiency, Sales Efficiency Ratio (SER), and Customer Acquisition Cost (CAC), as adapted from Anisa *et al*. (2022). Data were collected using an online questionnaire distributed via Google Forms, with separate questionnaires for buyers and sellers. The items in the questionnaires were measured on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), chosen for its efficiency and broad reach across Indonesia (Bougie & Sekaran, 2020). For data analysis, Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach was used via SmartPLS 4.0. The analytical procedures involved a measurement model (Outer Model), which assessed indicator reliability and validity (factor loadings, AVE), discriminant validity testing, and construct reliability (Cronbach's Alpha, Composite Reliability). In addition, a structural model (Inner Model) was applied for path analysis and significance testing, as well as determining the coefficient of determination (R^2) and predictive relevance (Q^2). To explore platform-specific differences, Multi-Group Analysis (MGA) was conducted by comparing path coefficients among platforms, including TikTok Shop, Shopee, Tokopedia, and Lazada.

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4. Results and Discussion

4.1 Results

4.1.1 Respondent Characteristics

This study collected data from a total of 242 respondents, consisting of 121 buyers and 121 sellers who actively use e-commerce platforms such as TikTok Shop, Shopee, Tokopedia, and Lazada in Indonesia. All buyers had completed at least one transaction within the past three months, while sellers had a minimum of six months of sales experience and at least 20 transactions per month. Tables 1 and 2 summarize the demographic profiles of both groups.

4.1.2 Buyer Characteristics

As shown in Table 1, the majority of buyer respondents were primarily aged 18–28 years (71.9%), followed by those aged 29–39 years (24.8%), while respondents aged over 39 accounted for only 3.3%. The educational background of respondents was notably high, with 39.7% holding a bachelor's degree, and 34.7% holding a diploma. Respondents with master's degrees represented 12.4%, and 13.2% had completed high school. Regarding gender, female respondents slightly outnumbered male respondents (55.4% and 44.6%, respectively). These characteristics reflect a typical user base of e-commerce platforms in Indonesia: young, educated consumers with strong digital adoption tendencies.

Table 1. Characteristics of Buyer Respondents

Description	Frequency	Percentage
Age		
18 – 28 years	87	71,9%
29 – 39 years	30	24,8%
>39 years	4	3,3%
Level of Education		
High School	16	13,2%
Diploma	42	34,7%
Bachelor's Degree	48	39,7%
Master's Degree	15	12,4%
Gender		
Male	54	44,6%
Female	67	55,4%

4.1.3 Seller Characteristics

Table 2 presents the profile of seller respondents. A significant share (50.4 percent) worked in administrative or financial roles, while 36.4 percent identified as business owners, and 13.2 percent served in managerial positions. The majority were aged 18–28 years (57.6 percent), followed by those aged 29–39 years (38.4 percent), emphasizing the dominance of younger entrepreneurial actors in digital commerce. In terms of educational attainment, 52.1 percent held bachelor's degrees and 28.9 percent had diplomas. Like the buyer group, the seller group also exhibited a significant female majority (67 percent). The fashion sector was the most represented category (52.1 percent), followed by cosmetics (15.7 percent), food and beverages (14.9 percent), and other miscellaneous businesses (14.9 percent), with electronics accounting for only 2.5 percent. Regarding business tenure, most sellers had been operating for 1–5 years (59.5 percent), with 29.8 percent active for 6–10 years. This suggests that most businesses were in the growth phase, with a solid level of market experience.

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Table 2. Characteristics of Seller Respondents

Description	Frequency	Percentage
Position		
Owner	44	36,4%
Manager	16	13,2%
Administrative/Finance Staff	61	50,4%
Age		
18 – 28 years	72	57,6%
29 – 39 years	48	38,4%
>39 years	5	4%
Level of Education		
High School	19	15,7%
Diploma	35	28,9%
Bachelor's Degree	63	52,1%
Master's Degree	4	3,3%
Gender		
Male	40	33%
Female	81	67%
Type of Business		
Fashion	63	52,1%
Food/beverages	18	14,9%
Cosmetics	19	15,7%
Electronics	3	2,5%
Others	18	14,9%
Business Duration		
<1 years	9	7,4%
1 – 5 years	72	59,5%
6 – 10 years	36	29,8%
>10 years	4	3,3%

4.1.4 Measurement Model

Before conducting hypothesis testing, an instrument quality assessment was performed to ensure that all constructs met the necessary criteria for validity and reliability. Convergent validity was evaluated by examining factor loadings and the Average Variance Extracted (AVE). Indicators were considered valid if their factor loadings exceeded 0.70 and the AVE was above 0.50. Reliability was assessed using Composite Reliability (CR) and Cronbach's Alpha, with values greater than 0.70 indicating internal consistency. The results for the buyer and seller groups are presented in Tables 3 and 4, respectively.

Table 3. Buyer Convergent Validity

Variabel	Indikator	Loading Factor	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Digital Payment Security	X2.1	0.963	0.987	0.987	0.989	0.937
	X2.2	0.963				
Completeness of Digital Payment Methods	X3.1	0.969	0.922	0.922	0.962	0.927
	X3.2	0.972				
	X3.3	0.967				
	X3.4	0.973				
	X3.5	0.97				

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	X3.6	0.957				
Consumer Purchasing Behavior	Y.1	0.926	0.983	0.984	0.986	0.897
	Y.2	0.958				
	Y.3	0.975				
	Y.4	0.969				
	Y.5	0.932				
	Y.6	0.958				
	Y.7	0.944				
	Y.8	0.912				

All constructs for the buyer sample demonstrated strong convergent validity. Each indicator exhibited a loading factor above 0.90, and AVE values ranged from 0.897 to 0.937, surpassing the recommended threshold. Cronbach's Alpha values for all constructs exceeded 0.98, indicating high internal reliability, and Composite Reliability also ranged between 0.962 and 0.989. These results confirm that variables related to Digital Payment Security, Completeness of Payment Methods, and Consumer Purchase Behavior have robust measurement properties.

Table 4. Seller Convergent Validity

Variabel	Indikator	Loading Factor	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Digital Payment Speed	X1.1	0.942	0.989	0.989	0.990	0.891
	X1.2	0.949				
	X1.3	0.975				
	X1.4	0.970				
	X1.5	0.957				
Completeness of Payment Methods	X2.1	0.985	0.978	0.979	0.982	0.902
	X2.2	0.985				
Digital Payment Security	X3.1	0.937	0.978	0.978	0.983	0.918
	X3.2	0.940				
	X3.3	0.967				
	X3.4	0.959				
	X3.5	0.974				
	X3.6	0.919				
Sales Efficiency	Y.1	0.926	0.969	0.969	0.985	0.970
	Y.10	0.949				
	Y.11	0.942				
	Y.12	0.893				
	Y.2	0.935				
	Y.3	0.912				
	Y.4	0.957				
	Y.5	0.970				
	Y.6	0.962				
	Y.7	0.951				
	Y.8	0.962				
	Y.9	0.963				

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The seller sample also met all validity and reliability criteria. Indicator loadings ranged from 0.893 to 0.985 across the four constructs (Digital Payment Speed, Completeness of Payment Methods, Digital Payment Security, and Sales Efficiency). Cronbach's Alpha ranged from 0.969 to 0.989, while Composite Reliability fell between 0.982 and 0.990, confirming strong reliability. All constructs had AVE values well above 0.50, ranging from 0.891 to 0.970, which substantiates convergent validity.

4.1.5 Model Validity Assessment

Following the confirmation of convergent validity, discriminant validity was evaluated to ensure that each construct measured in the model was distinct from the others. Discriminant validity was assessed using the cross-loading method, where each indicator should load higher on its associated construct than on any other.

4.1.6 Buyer Discriminant Validity

In the buyer sample, all indicators demonstrated higher loadings on their respective constructs compared with other constructs, indicating satisfactory discriminant validity. For example, indicators for the Completeness of Digital Payment Methods (X3.1–X3.6) showed consistently higher loadings on that construct than on Digital Payment Security or Consumer Purchase Behavior, confirming the constructs' distinctiveness.

Table 5. Buyer Discriminant Validity

Indicator	Digital Payment Security	Completeness of Payment Methods	Consumer Purchasing Behavior
X2.1	0.897	0.963	0.926
X2.2	0.932	0.963	0.925
X3.1	0.969	0.940	0.945
X3.2	0.972	0.933	0.947
X3.3	0.967	0.896	0.909
X3.4	0.973	0.928	0.954
X3.5	0.970	0.898	0.931
X3.6	0.957	0.919	0.938
Y.1	0.848	0.885	0.926
Y.2	0.909	0.921	0.958
Y.3	0.956	0.943	0.975
Y.4	0.931	0.935	0.969
Y.5	0.920	0.880	0.932
Y.6	0.946	0.922	0.958
Y.7	0.915	0.892	0.944
Y.8	0.906	0.897	0.912

4.1.7 Seller Discriminant Validity

Similarly, discriminant validity in the seller model was confirmed. Indicators for constructs such as Sales Efficiency (Y.1–Y.12) and Digital Payment Security (X3.1–X3.6) showed higher loadings on their respective constructs than on other constructs. This pattern was consistent across all constructs, confirming the distinctiveness of each construct.

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Table 6. Seller Discriminant Validity

Indicator	Sales efficiency	Digital payment security	Digital payment speed	Completeness of digital payment methods
X1.1	0.909	0.924	0.942	0.880
X1.2	0.924	0.917	0.949	0.910
X1.3	0.933	0.931	0.975	0.946
X1.4	0.945	0.941	0.970	0.933
X1.5	0.943	0.901	0.957	0.952
X2.1	0.958	0.948	0.954	0.985
X2.2	0.954	0.927	0.946	0.985
X3.1	0.948	0.937	0.937	0.918
X3.2	0.862	0.940	0.863	0.846
X3.3	0.910	0.967	0.921	0.908
X3.4	0.922	0.959	0.921	0.921
X3.5	0.935	0.974	0.936	0.937
X3.6	0.915	0.919	0.903	0.886
Y.1	0.926	0.936	0.923	0.924
Y.10	0.949	0.891	0.940	0.932
Y.11	0.942	0.894	0.885	0.894
Y.12	0.893	0.798	0.834	0.869
Y.2	0.935	0.934	0.901	0.889
Y.3	0.912	0.888	0.897	0.886
Y.4	0.957	0.901	0.933	0.941
Y.5	0.970	0.944	0.924	0.936
Y.6	0.962	0.944	0.958	0.929
Y.7	0.951	0.911	0.901	0.901
Y.8	0.962	0.943	0.957	0.928
Y.9	0.963	0.932	0.940	0.955

4.1.8 Coefficient of Determination (R^2 and Adjusted R^2)

The coefficient of determination (R^2) was used to assess the explanatory power of the independent variables in predicting the variance of the dependent variables in the structural model. The results for both the buyer and seller groups are presented in Tables 7 and 8.

4.1.9 Buyer Group

The model explained a substantial portion of the variance in Consumer Purchase Behavior, with an R^2 value of 0.955, as shown in Table 6. This indicates that 95.5% of the variation in consumer purchasing behavior is jointly explained by Digital Payment Method Completeness and Digital Payment Security. The remaining 4.5% of the variance is attributed to other factors outside the model.

Table 7. Buyer Discriminant Validity

Dependent Variable	R Square	R Square Adjusted
Consumer Purchase Behavior	0.955	0.955

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4.1.10 Seller Group

For the seller dataset, the dependent variable Sales Efficiency demonstrated an R^2 value of 0.965, with an Adjusted R^2 of 0.964, as presented in Table 7. This result suggests that 96.5% of the variance in Sales Efficiency can be explained by Digital Payment Speed, Digital Payment Method Completeness, and Digital Payment Security. The remaining 3.5% of the variance is attributed to other factors not included in this model. These values indicate a very high level of predictive accuracy within the model, demonstrating its robustness in explaining sales efficiency among sellers.

Table 8. Seller Discriminant Validity

Dependent Variable	R Square	R Square Adjusted
Sales Efficiency	0.965	0.964

Both R^2 values exceed the conventional benchmark of 0.75, indicating that the models for both the consumer and seller groups have strong explanatory power and are well-suited for hypothesis testing.

4.1.11 Hypothesis Testing Results

The structural model analysis (Inner Model) was conducted to evaluate the hypothesized relationships between latent variables. This step tested the direct effects of independent variables on dependent variables using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. Figures 4.1 and 4.2 present the structural models for the buyer and seller groups, respectively. The buyer model examines the effects of Digital Payment Method Completeness and Digital Payment Security on Consumer Purchase Behavior, while the seller model analyzes the influence of Digital Payment Speed, Payment Method Completeness, and Payment Security on Sales Efficiency.

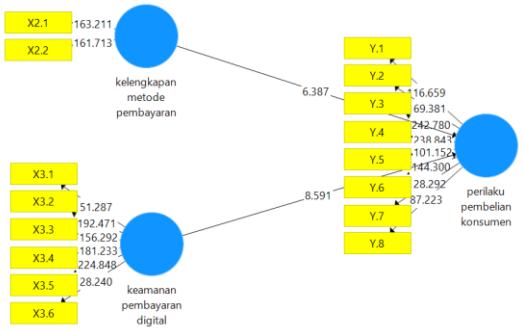

Figure 1. Buyer Structural Model

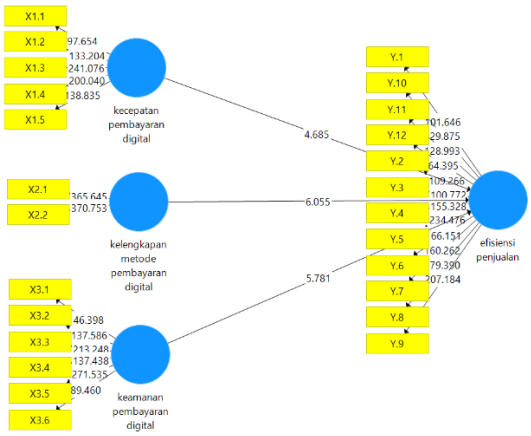

Figure 2. Seller Structural Model

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Table 9 summarizes the results of hypothesis testing based on bootstrapping in SmartPLS. A hypothesis is considered accepted when the T-statistic exceeds 1.96 and the p-value is less than 0.05.

Table 9. Hypothesis Testing

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Deskripsi
Completeness of Payment Methods -> Consumer Purchasing Behavior	0.421	6.387	0.000	Accepted
Digital Payment Security -> Consumer Purchasing Behavior	0.568	8.591	0.000	Accepted
Speed of Digital Payments -> Sales Efficiency	0.328	4.685	0.000	Accepted
Completeness of Digital Payment Methods -> Sales Efficiency	0.386	6.055	0.000	Accepted
Digital Payment Security -> Sales Efficiency	0.282	5.781	0.000	Accepted

The first hypothesis (H1) posited a positive effect of Digital Payment Method Completeness on Consumer Purchase Behavior. The path coefficient of 0.421 and a T-statistic of 6.387 confirm this relationship as significant (p = 0.000). This suggests that a broader availability of payment methods enhances consumer purchase behavior by 42.1%. Hypothesis 2 (H2), which examined the impact of Digital Payment Security on Consumer Purchase Behavior, yielded a coefficient of 0.568, with a T-statistic of 8.591 (p = 0.000), indicating a strong and significant positive effect. Digital payment security increases consumer purchase behavior by 56.8%, emphasizing that secure payment mechanisms are critical to fostering consumer trust and encouraging transaction intentions. In the context of sellers, the third hypothesis (H3) assessed the impact of Digital Payment Speed on Sales Efficiency and was supported with a coefficient of 0.328 and a T-statistic of 4.685 (p = 0.000). This result suggests that faster payment processing boosts sales efficiency by 32.8%. The fourth hypothesis (H4) examined the effect of Digital Payment Method Completeness on Sales Efficiency, which was also supported (O = 0.386, T = 6.055, p = 0.000), indicating that offering a broader range of payment options positively impacts operational efficiency. Lastly, hypothesis 5 (H5) tested the effect of Digital Payment Security on Sales Efficiency and was confirmed with a coefficient of 0.282 (T = 5.781, p = 0.000). This suggests that a higher perceived level of security can enhance sales efficiency by 28.2%. Across all five hypotheses, Digital Payment Security exhibited the strongest effect on consumer behavior, while Digital Payment Method Completeness showed the strongest influence on sales efficiency among sellers.

4.1.12 Multi-Group Analysis (MGA) for Platform Differences (H6)

A Multi-Group Analysis was performed to test the sixth hypothesis, which examines whether the influence of digital payment attributes differs between TikTok Shop users and users of other marketplaces. A significant difference was determined using a p-value threshold of 0.05.

Table 10. MGA Results for Buyer Group

Path	Path Coefficients-diff (TikTok vs Marketplace)	p-Value (1tailed)	p-Value (new)
Digital Payment Security -> Consumer Purchase Behavior	0.287	0.001	0.002
Digital Payment Method Completeness -> Consumer Purchase Behavior	-0.292	0.999	0.003

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For buyers, Digital Payment Security demonstrated a significantly stronger impact on Consumer Purchase Behavior among TikTok Shop users compared to marketplace users (p = 0.002), with a positive path difference of 0.287. This indicates that security concerns are more influential for users of newer platforms like TikTok Shop. In contrast, Digital Payment Method Completeness had a significantly greater effect on marketplace users than on TikTok Shop buyers (diff = -0.292, p = 0.003). This suggests that established platforms, such as Shopee or Tokopedia, benefit more from offering a wider range of payment options, likely due to higher user expectations for payment flexibility on these more mature platforms.

Table 11. MGA Results for Seller Group

Path	Path Coefficients-diff (TikTok vs Marketplace)	p-Value (1-tailed)	p-Value (new)
Digital Payment Security -> Sales Efficiency	-0.293	0.994	0.012
Digital Payment Speed -> Sales Efficiency	0.394	0.003	0.007
Digital Payment Method Completeness -> Sales Efficiency	-0.099	0.863	0.274

Among sellers, the effect of Digital Payment Security on Sales Efficiency was significantly stronger in marketplaces than in TikTok Shop (diff = -0.293, p = 0.012), suggesting that established platforms may offer more effective mechanisms for secure payment processing and risk mitigation. The most notable difference was observed in the impact of Digital Payment Speed on Sales Efficiency, which was higher in TikTok Shop (diff = 0.394, p = 0.007). This highlights the competitive advantage TikTok Shop has in facilitating fast transactions, such as quicker settlement and fund availability for sellers. Digital Payment Method Completeness did not show a significant difference between platforms (p = 0.274), indicating similar influence levels on sales efficiency across TikTok Shop and other marketplaces. Based on these findings, H6 is accepted. The results confirm consistent differences in how digital payment attributes influence consumer and seller outcomes on TikTok Shop compared to established marketplaces. For buyers, security and payment variety are the primary differentiators, while for sellers, security and speed are the key factors influencing performance across platforms.

4.2 Discussion

This study examined the impact of key digital payment system attributes namely payment method completeness, payment security, and payment speed on consumer purchase behavior and sales efficiency within the context of Indonesian e-commerce platforms, specifically focusing on TikTok Shop and established marketplaces. Using Partial Least Squares Structural Equation Modeling (PLS-SEM) and Multi-Group Analysis (MGA), the findings confirm that all three attributes significantly influence both behavioral and operational outcomes. However, the strength of these effects varies across platform types and user groups. Overall, this study contributes to the understanding of digital payment system quality and its dual effect on consumer and merchant outcomes in the emerging social-commerce ecosystem. Payment method completeness was found to have a strong positive impact on both consumer purchase behavior and sales efficiency. This finding aligns with the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness increase when users have access to a variety of payment options. For consumers, having diverse payment options reduces friction during checkout, boosting their control over the transaction and increasing confidence in their purchasing decisions. For merchants, offering a broader range of payment methods enhances customer coverage, reduces transaction delays, and increases operational efficiency. These results align with previous studies by Zalukhu and Lattu (2025) and Dhani *et al*. (2025), who highlighted that flexible payment systems are essential in driving customer acquisition and conversion. Payment security emerged as the most influential factor affecting consumer behavior, particularly for TikTok Shop users.

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This underscores the importance of perceived security in shaping online shopping behavior, especially on newer platforms where trust is still developing. The path coefficient of 0.568 (for buyers) indicates that security perceptions not only foster trust but also enhance perceived usefulness, as outlined in TAM. This result supports earlier research by Laurence *et al*. (2024) and Suardana and Mahyuni (2024), which emphasized that security is a critical predictor of purchase intention and e-commerce adoption, particularly in emerging markets. While payment speed had a smaller impact on consumer behavior, it significantly affected sales efficiency. The effect was particularly strong on TikTok Shop, which highlights the platform's design for fast checkout and rapid transaction settlement. TikTok Shop users, often consisting of micro-entrepreneurs and digital creators, depend on quick capital turnover for inventory management and cash flow stability. This finding supports earlier insights from Raz (2024) and Kilay *et al*. (2022), who emphasized the importance of fast payment cycles for optimizing revenue in digital platforms focused on SMEs. Through MGA, this study identified key differences between TikTok Shop and other marketplaces. Specifically, digital payment security had a stronger impact on consumer behavior for TikTok Shop users, while payment method completeness played a more significant role in established platforms like Shopee and Tokopedia. These differences reflect variations in user maturity and platform trust structures. Newer platforms such as TikTok Shop face higher scrutiny regarding security practices, while established marketplaces are judged more on their convenience and the breadth of payment options they offer. On the seller side, payment speed had a more significant effect on TikTok Shop's sales efficiency. This finding emphasizes the operational model of social-commerce platforms, where fast transaction settlements are crucial for supporting dynamic selling strategies. Conversely, payment security was more influential in marketplaces, reflecting the robustness of their fraud prevention mechanisms, escrow systems, and customer protection policies. These platform-based differences suggest that digital payment strategies must be adaptable to the nature of the platform and the behaviors of its users. For example, TikTok Shop could benefit from enhanced security communication and features that build trust with users, while established marketplaces could refine their payment speed features to better accommodate emerging seller segments.

5. Conclusion

This study investigated the impact of digital payment system quality on consumer purchase behavior and sales efficiency across two types of e-commerce platforms: TikTok Shop and more established marketplaces. The analysis focused on three key dimensions of payment quality: payment method completeness, payment security, and payment speed. The findings, grounded in the Technology Acceptance Model and the Theory of Planned Behavior, provide both theoretical and practical insights. The results confirmed that all three dimensions significantly affect behavioral and operational outcomes, though their relative importance varies across platforms and user groups. Payment security was the most decisive factor influencing purchase behavior, particularly among TikTok Shop users. This highlights the importance of trust-building measures in newer social-commerce environments. On the other hand, payment method completeness had a more significant impact in traditional marketplaces, where consumers typically expect a broader variety of payment options. For sellers, payment speed played a crucial role in enhancing sales efficiency on TikTok Shop, which aligns with the platform's fast-paced, creator-driven ecosystem. In contrast, payment security was found to be more important in established marketplaces that rely on robust risk management systems. These findings suggest that payment system attributes should be tailored to the specific characteristics of platforms and user expectations. Platform operators and payment providers can apply these insights to improve both user experience and operational effectiveness. Enhancing security features and offering more diverse payment options can help strengthen consumer trust and support seller performance, especially in dynamic social-commerce environments. While this study addressed its objectives and provided empirical support for the hypotheses, certain limitations should be acknowledged. The sample was limited to Indonesian users and sellers, with a strong representation of younger demographics and small businesses. As such, the findings

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may not fully reflect behaviors in other regions or among different age groups. Future research could broaden the demographic scope, explore additional platforms, or examine emerging payment technologies such as biometric payments or blockchain. In summary, this research contributes to a deeper understanding of how digital payment design influences consumer and merchant experiences in online commerce. It offers a foundation for future studies and practical strategies aimed at enhancing digital transaction ecosystems. The results underscore the importance of adapting payment systems to meet the needs of various platform communities, emphasizing the significance of secure, fast, and inclusive digital payment practices.

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