

Integrating Payment Systems with Social Features: Post-Voucher War Strategies for E-Commerce Sustainability

Benediktus Rolando*

Faculty of Business and Management, Department of Management, Universitas Dinamika Bangsa, Jambi, Indonesia
Jl. Jendral Sudirman, Kec. Jambi Selatan, Jambi City, Jambi Province, Indonesia

Email: *benediktus@unama.ac.id

Correspondence Author Email: benediktus@unama.ac.id

Submitted: 08/02/2025; Accepted: 27/02/2025; Published: 28/02/2025

Abstract—The Indonesian e-commerce landscape has experienced unprecedented growth, reaching USD 62 billion in gross merchandise value in 2023, yet platforms struggle with sustainability, as evidenced by Bukalapak's exit from the marketplace segment in early 2025 despite substantial technological investments. This research investigates how social commerce features, personalization, and payment convenience influence purchase decisions in e-commerce platforms, with vouchers serving as a mediating variable. The study addresses a critical gap in understanding how platform features, and promotional tools interact to drive purchase decisions in emerging markets, particularly in Indonesia's highly competitive e-commerce sector where platforms engage in intense "voucher wars" for market share. Using path analysis with data collected from 100 active e-commerce users in Indonesia, the research reveals that payment convenience emerges as the strongest predictor of both voucher utilization ($t = 7.235, p < 0.001$) and purchase decisions ($t = 3.356, p < 0.001$). Notably, while social commerce features show significant effects through voucher mediation (Sobel $Z = 2.4832, p = 0.0130$), personalization demonstrates unexpectedly limited impact, challenging assumptions about its universal effectiveness. The study's findings suggest that successful e-commerce platforms in Indonesia must prioritize payment convenience and effectively integrate voucher systems with social commerce features, while potentially reconsidering investments in personalization. These insights contribute to both theoretical understanding of e-commerce dynamics in emerging markets and practical platform development strategies, particularly relevant as Indonesia's e-commerce sector continues its rapid evolution.

Keywords: E-Commerce Platforms; Social Commerce; Payment Convenience; Voucher Mediation; Purchase Decisions; Indonesian Market

1. INTRODUCTION

The digital transformation of retail commerce has fundamentally altered how consumers interact with businesses and make purchasing decisions. In Indonesia, the e-commerce sector has experienced explosive growth, with the gross merchandise value (GMV) reaching USD 62 billion in 2023, marking a 22% increase from the previous year (Tempo, 2024; Harnaji et al., 2024; Li, 2021; Nafisah & Santoso, 2022; Ruri & Purnamawati, 2022). This rapid expansion has created an intensely competitive marketplace historically dominated by major platforms such as Shopee, Tokopedia, Lazada, and Bukalapak. However, the recent announcement of Bukalapak's decision to cease its marketplace operations in early 2025 after 14 years of operation highlights the intense competitive pressures and challenges in sustaining market position despite aggressive promotional strategies. This development serves as a stark reminder of how even established players can struggle in the hyper-competitive e-commerce landscape (Harnaji et al., 2024; Ruri & Purnamawati, 2022).

The Indonesian e-commerce landscape is particularly notable for its fierce voucher competition. Major platforms are engaged in what industry analysts call a "voucher war," with companies spending significant portions of their marketing budgets on discount vouchers and cashback promotions (Rahayu, 2022). For instance, Shopee reported allocating over USD 3 billion for marketing and promotional activities in Southeast Asia during 2023, with a substantial portion dedicated to voucher programs in Indonesia (IDX Channel, 2023). Similarly, Tokopedia, following its merger with Gojek to form GoTo, has intensified its voucher strategy, offering increasingly competitive discount schemes to maintain its market position (Zulaikah & Fachri, 2024).

The contemporary e-commerce ecosystem in Indonesia is characterized by the sophisticated integration of social commerce features, which facilitate user interaction, reviews, and community-building within shopping platforms. These features have transformed the traditional online shopping experience into a more interactive and engaging process (Inggriana & Rolando, 2025). For example, Tokopedia's "WIB TV" and Shopee Live have revolutionized how Indonesian consumers engage with products through live streaming, generating millions of views and significant sales conversions (Tech in Asia, 2023). Simultaneously, advances in data analytics and artificial intelligence have enabled sophisticated personalization capabilities, allowing platforms to tailor product recommendations, content, and promotions to individual user preferences and behaviours.

The convenience of payment systems has emerged as another critical battleground in Indonesian e-commerce. Platforms have expanded beyond traditional payment methods to include digital wallets (such as GoPay, OVO, and ShopeePay), buy-now-pay-later options (like Kredivo and Akulaku), and various integrated financial services (Nur, 2024). This evolution responds to Indonesia's unique market characteristics, where a significant portion of the population remains unbanked or underbanked, making alternative payment solutions crucial for market penetration.

Despite these technological advancements and aggressive promotional strategies, e-commerce platforms face significant challenges in understanding how various features and capabilities influence consumer purchase decisions (Rolando, 2025). The complexity of modern e-commerce platforms makes it difficult to isolate and measure the impact of specific features on consumer behaviour (Inggriana et al., 2024). Moreover, the role of promotional tools such

as vouchers in mediating the relationship between platform features and purchase decisions remains inadequately understood, particularly in the Indonesian context where voucher utilization is exceptionally high (Silitonga & Nasution, 2024).

Previous research has examined various aspects of e-commerce platform features and their impact on consumer behaviour. Attar (2022) investigated the relationship between social commerce features and purchase intention, finding a positive correlation between social interaction capabilities and consumer trust. However, their study did not consider the mediating role of promotional tools or the influence of payment systems in the Indonesian market context. Similarly, Nastiti (2022) explored the impact of personalization on customer loyalty in e-commerce platforms, demonstrating that tailored experiences significantly enhance customer retention rates. While valuable, their research focused primarily on developed markets and did not account for the unique characteristics of emerging economies like Indonesia.

A study by Choi, (2020) examined the relationship between payment convenience and purchase completion rates in Chinese e-commerce platforms. Their findings highlighted the importance of diverse payment options in reducing cart abandonment rates. However, their research did not investigate how payment convenience interacts with other platform features or promotional strategies in markets with high voucher penetration rates like Indonesia. conducted research on the effectiveness of vouchers in Chinese e-commerce platforms, but their study was limited to examining vouchers as a standalone tool rather than as a mediating factor in the broader context of platform features.

The gaps in existing research point to the need for a comprehensive understanding of how social commerce features, personalization, and payment convenience collectively influence purchase decisions in the Indonesian market, with particular attention to the mediating role of vouchers. This understanding is crucial for several reasons. First, Indonesian e-commerce platforms invest substantial resources in developing and maintaining these features while simultaneously running expensive voucher campaigns yet lack clear insights into their relative effectiveness and interrelationships. Second, the rapid evolution of Indonesian consumer preferences and technological capabilities necessitates a current and holistic understanding of feature effectiveness. Third, the unique characteristics of the Indonesian market, including its high mobile commerce penetration rate and significant voucher usage, require specific investigation to develop appropriate strategies. This research addresses these gaps by employing path analysis to examine the complex relationships between social commerce features, personalization, payment convenience, and purchase decisions, with vouchers serving as a mediating variable. Path analysis provides a sophisticated statistical approach to understanding both direct and indirect effects among variables, offering insights that simpler analytical methods cannot capture. The study focuses on the Indonesian e-commerce market, which serves as an ideal context due to its size, growth rate, and demographic diversity.

Building upon these identified gaps in the literature and the current challenges in Indonesia's e-commerce landscape, this research aims to examine the complex relationships between platform features and purchase decisions, with particular attention to the mediating role of vouchers. The primary objective is to understand how social commerce features, personalization, and payment convenience influence purchase decisions in Indonesian e-commerce platforms, both directly and through voucher mediation. Additionally, this research seeks to evaluate the effectiveness of vouchers as a mediating tool in enhancing the impact of platform features on consumer purchase decisions.

To achieve these objectives, the following research questions are addressed: First, how do social commerce features, personalization, and payment convenience individually influence voucher utilization in e-commerce platforms? Second, what are the direct effect of these platform features on consumer purchase decisions? Third, to what extent do vouchers mediate the relationship between platform features and purchase decisions? Fourth, which platform features demonstrate the strongest influence on purchase decisions when mediated by vouchers? The answers to these questions will provide valuable insights for both academic understanding and practical application in the e-commerce sector, particularly in the context of Indonesia's rapidly evolving digital marketplace.

This research makes several significant contributions to both academic literature and practical application. First, it provides a comprehensive theoretical framework for understanding how different platform features interact to influence purchase decisions in emerging markets. Second, it offers empirical evidence of the mediating role of vouchers in the relationship between platform features and consumer behaviour, addressing a significant gap in existing literature. Third, it produces actionable insights for e-commerce platforms to optimize their feature development and promotional strategies.

The research makes several significant contributions to both academic literature and practical application. First, it provides a comprehensive theoretical framework for understanding how different platform features interact to influence purchase decisions in emerging markets. Second, it offers empirical evidence of the mediating role of vouchers in the relationship between platform features and consumer behaviour, addressing a significant gap in existing literature. Third, it produces actionable insights for e-commerce platforms to optimize their feature development and promotional strategies.

From a practical perspective, this research offers valuable guidance for e-commerce platforms in several areas. The findings can inform resource allocation decisions between different platform features, helping companies optimize their investment strategies. Understanding the mediating role of vouchers can enhance the effectiveness of promotional campaigns by better aligning them with platform features. Additionally, the research provides insights into how platforms can better integrate social commerce features, personalization, and payment systems to create a more cohesive and effective shopping experience. The methodology employed in this study represents an advancement in how e-commerce platform effectiveness is analysed. By utilizing path analysis, the research captures complex relationships between

variables that traditional analytical approaches might miss. This approach allows for a more nuanced understanding of how different platform features work together to influence consumer behaviour, rather than examining each feature in isolation. The timing of this research is particularly relevant given the current state of the e-commerce industry. The COVID-19 pandemic has accelerated the adoption of online shopping globally, creating new consumer behaviours and expectations that are likely to persist (Davidson & Smith, 2023). As competition in the e-commerce sector intensifies, platforms need evidence-based insights to guide their strategic decisions and feature development priorities. This research provides timely and actionable information to support these decisions.

The state-of-the-art contribution of this research lies in its integrated approach to understanding e-commerce platform effectiveness. While previous studies have examined individual aspects of platform features or promotional tools, this research provides a comprehensive framework for understanding how these elements work together to influence purchase decisions. The inclusion of vouchers as a mediating variable represents a novel approach to understanding how promotional tools interact with platform features to influence consumer behaviour. This research also addresses the growing importance of understanding market-specific factors in e-commerce success. The focus on the Indonesian market provides insights that are particularly relevant for emerging economies, where consumer behaviour and platform adoption patterns may differ significantly from developed markets. These insights can help platforms better tailor their features and strategies to specific market contexts.

The urgency of this research is underscored by several factors. First, the rapid pace of technological change in e-commerce means that platforms must continuously evolve their features and capabilities to remain competitive (Adirinekso et al., 2020; Friedrich et al., 2021). Understanding which features most effectively influence purchase decisions is crucial for guiding these evolution decisions. Second, the increasing cost of customer acquisition in e-commerce makes it essential for platforms to optimize their existing features and promotional strategies to maximize customer lifetime value. Third, the growing sophistication of consumers in their use of e-commerce platforms requires a more nuanced understanding of how different platform elements influence purchasing behaviour (Xu et al., 2022; Yang et al., 2023). The solutions offered by this research address several key challenges faced by e-commerce platforms. First, it provides a framework for evaluating the effectiveness of different platform features, helping companies make more informed investment decisions. Second, it offers insights into how vouchers can be more effectively used as part of an integrated platform strategy, rather than as standalone promotional tools (Widjanarko et al., 2023; Yelta & Yamini, 2023). Third, it helps platforms understand how different features work together to influence purchase decisions, enabling more effective feature integration and optimization. In addressing these challenges, the research employs a rigorous methodological approach that combines quantitative analysis with theoretical insights from consumer behaviour, technology adoption, and marketing literature. This interdisciplinary approach ensures that the findings are both academically robust and practically applicable. The use of path analysis allows for a sophisticated understanding of the relationships between variables, while the focus on a specific market context ensures the findings are relevant and actionable.

The expected outcomes of this research include both theoretical and practical contributions. From a theoretical perspective, the research will advance our understanding of how different platform features interact to influence consumer behaviour in e-commerce settings. It will also contribute to the literature on the role of promotional tools in mediating the relationship between platform features and purchase decisions. From a practical perspective, the research will provide actionable insights for e-commerce platforms to optimize their feature development and promotional strategies. This research is particularly timely given the current state of the e-commerce industry and the challenges it faces. The findings will help platforms address key challenges such as increasing customer acquisition costs, intensifying competition, and evolving consumer expectations. By providing a comprehensive understanding of how platform features influence purchase decisions, the research will enable more effective strategic decision-making and resource allocation.

2. RESEARCH METHODS

2.1 Basic Research Framework

This research employs quantitative methods to examine the relationships between the independent variables - social commerce features (X_1), personalization (X_2), and payment convenience (X_3) - with the dependent variable purchase decisions (Y), mediated by vouchers (Z) in e-commerce platforms. The study is categorized as correlational research as it aims to investigate the relationships between variables and their effects on purchase decisions (Hair et al., 2021). Through correlational research methodology, researchers can analyse how changes in one variable correspond to changes in other variables, particularly examining both direct effects and mediating relationships through vouchers.

Data collection will be conducted through a structured questionnaire containing statements designed to measure each variable: social commerce features (X_1), personalization (X_2), payment convenience (X_3), vouchers (Z), and purchase decisions (Y). The questionnaire will be distributed to respondents who meet the predetermined criteria, specifically active e-commerce platform users who have made purchases in the last three months. All statements in the questionnaire employ a 5-point Likert scale to obtain interval data reflecting respondents' levels of agreement, ranging from 1 (strongly disagree) to 5 (strongly agree).

The data analysis in this research will be performed using Statistical Package for Social Sciences (SPSS) version 26.0. Before proceeding with the main analysis, several preliminary tests will be conducted to ensure data quality and

reliability. The validity testing will be performed to ensure measurement accuracy of research instruments for all variables (X_1 , X_2 , X_3 , Z , and Y), with the requirement that the r -count value must exceed the r -table value. Subsequently, reliability testing will be conducted using Cronbach's Alpha, where a value greater than 0.6 indicates satisfactory internal consistency of the measurements (Sugiyono, 2019).

The research will then proceed with classical assumption tests to verify the data's suitability for further analysis. The normality test will examine the distribution of data, where acceptable ranges for skewness lie between -2 and +2, and kurtosis between -7 and +7, indicating normal data distribution. Multicollinearity testing will be performed to check for correlation between independent variables (X_1 , X_2 , X_3), with requirements of tolerance value less than 0.10 and Variance Inflation Factor (VIF) less than 10. The heteroscedasticity test will verify the constant variance of error terms, requiring a significance value greater than 0.05 to confirm homoscedasticity (Hair et al., 2021).

The main analytical framework employs multiple linear regression analysis to establish the research structure and test hypotheses. This analysis includes several components working in concert to provide comprehensive insights. The simultaneous test (F-test) will examine the overall model significance, requiring both a significance value less than 0.05 and an F-count exceeding the F-table value. Individual variable significance will be assessed through partial testing (t-test), with similar requirements of significance value less than 0.05 and t-count exceeding the t-table value (Sugiyono, 2019). The coefficient of determination test (R^2 test) will measure the model's explanatory power, indicating the proportion of variance in the dependent variable (Y) explained by the independent variables (X_1 , X_2 , X_3) and mediating variable (Z).

Path analysis with the Sobel test will be employed to provide deeper insights into the relationships between variables. This sophisticated analytical approach allows for the examination of both direct and indirect effects through the mediating variable. The analysis will be structured around two primary regression equations:

$$Z = \alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_1 \tag{1}$$

$$Y = \alpha_2 + \beta_4 X_1 + \beta_5 X_2 + \beta_6 X_3 + \beta_7 Z + e_2 \tag{2}$$

Where:

- X_1 = Social Commerce Features
- X_2 = Personalization
- X_3 = Payment Convenience
- Z = Voucher (mediating variable)
- Y = Purchase Decision (dependent variable)
- α = Constant
- β = Path coefficient
- e = Error term

The comprehensive analytical approach ensures robust testing of all hypothesized relationships while maintaining statistical rigor through appropriate preliminary testing and assumption verification. The combination of multiple linear regression and path analysis with the Sobel test will provide detailed insights into both direct and indirect effects of the independent variables (X_1 , X_2 , X_3) on purchase decisions (Y), with particular attention to the mediating role of vouchers (Z). This methodological framework aligns with the research paradigm previously depicted in the conceptual framework diagram, providing a solid foundation for testing the hypothesized relationships between variables and understanding their collective impact on e-commerce purchase decisions.

2.2 Conceptual Framework

Based on the theoretical foundation and previous research discussed in the literature review, this study proposes a conceptual framework that examines both direct and indirect relationships between the variables. The framework investigates how social commerce features (X_1), personalization (X_2), and payment convenience (X_3) influence purchase decisions (Y) in e-commerce platforms, with vouchers (Z) serving as a mediating variable. The framework proposes that these independent variables can affect purchase decisions both directly and indirectly through voucher mediation. This dual-path approach allows for a more comprehensive understanding of how e-commerce platforms' features and capabilities influence consumer behaviour, particularly in the context of Indonesia's highly competitive e-commerce market where voucher strategies play a crucial role in consumer decision-making. The hypothesized relationships between these variables are illustrated in Figure 1, which depicts both the direct pathways (H4, H5, H6) and the indirect pathways through voucher mediation (H1, H2, H3, H7), as well as the total effects (H8, H9, H10).

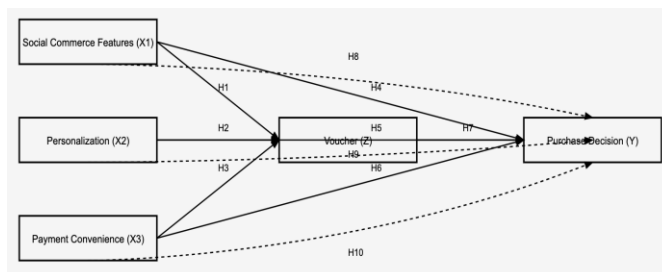


Figure 1. Conceptual Framework

2.3 Sample

The population for this study comprises active e-commerce platform users in Indonesia. To ensure the relevance and reliability of the research data, respondents must meet several specific criteria to be included in the sample. The primary criteria for respondent selection are as follows:

The target respondents must be individuals who actively use major e-commerce platforms in Indonesia (such as Shopee, Tokopedia, and Lazada) and have completed at least three transactions within the past six months. This criterion ensures that respondents have sufficient recent experience with the platforms' features and services. Additionally, respondents must have experience using the platforms' social commerce features, such as live streaming, user reviews, or community discussions, to provide informed responses about these functionalities.

Furthermore, respondents should have experience with personalized recommendations and various payment methods offered by the platforms. A crucial criterion is that respondents must have used platform vouchers or discount codes in at least two transactions within the past six months, as this experience is essential for evaluating the mediating role of vouchers in purchase decisions.

The sampling technique employed in this study is purposive sampling, where respondents are selected based on specific criteria that align with the research objectives. The sample size is determined using the Lemeshow formula (Valen & Sudarno, 2018):

$$n = \frac{Z^2 \cdot a_2 \cdot p^* (1 - p)}{d^2} \quad (3)$$

Description:

n: number of samples required

Z : Confidence level (1.96)

p : Maximum estimate (0.5)

d : *Margin of error* (10%)

$$n = \frac{(1.96)^2 \cdot 0.5 \cdot (1 - 0.5)}{0,1^2}$$

$$n = \frac{0,9604}{0,01}$$

$$n = 96,04$$

Based on these calculations, the minimum sample size required for this study is 96 respondents. To ensure adequate representation and account for potential invalid responses, the sample size will be rounded up to 100 respondents.

The geographic scope of this study centres on urban areas in Indonesia, particularly major cities where e-commerce platform adoption and usage are most prevalent. The target respondents comprise individuals aged 18 to 50 years old who have completed at least a high school education and belong to the middle to upper-middle economic class, as indicated by their monthly online shopping expenditure patterns. Additionally, respondents must demonstrate comfortable literacy with mobile applications and digital platforms to ensure meaningful engagement with e-commerce features. To reach these targeted respondents, data collection will be conducted through an online questionnaire distributed across multiple channels, encompassing social media platforms, e-commerce platform user communities, professional networks, and university student and alumni networks. This multi-channel distribution approach ensures a diverse yet relevant sample of e-commerce users.

To ensure data quality and respondent validity, screening questions will be included at the beginning of the questionnaire to verify that respondents meet all specified criteria. Responses that do not meet these criteria or show inconsistent patterns will be excluded from the final analysis to maintain data integrity.

2.4 Hypothesis

Based on the theoretical framework and previous research findings, this study proposes several hypotheses to examine the relationships between social commerce features, personalization, payment convenience, vouchers, and purchase decisions in e-commerce platforms. The hypotheses address both direct relationships between variables and indirect relationships through voucher mediation. These hypotheses are particularly relevant in the context of Indonesia's competitive e-commerce landscape, where platform features, and voucher strategies play crucial roles in influencing consumer behaviours. The following hypotheses are proposed:

H₀₁: Social commerce features have no influence on vouchers.

H_{a1}: Social commerce features have an influence on vouchers.

H₀₂: Personalization has no influence on vouchers.

H_{a2}: Personalization has an influence on vouchers.

H₀₃: Payment convenience has no influence on vouchers.

H_{a3}: Payment convenience has an influence on vouchers.

H₀₄: Social commerce features have no influence on purchase decisions.

H_{a4}: Social commerce features have an influence on purchase decisions.

H₀₅: Personalization has no influence on purchase decisions.

- H_{a5}: Personalization has an influence on purchase decisions.
- H₀₆: Payment convenience has no influence on purchase decisions.
- H_{a6}: Payment convenience has an influence on purchase decisions.
- H₀₇: Vouchers have no influence on purchase decisions.
- H_{a7}: Vouchers have an influence on purchase decisions.
- H₀₈: Social commerce features have no indirect influence on purchase decisions through voucher mediation.
- H_{a8}: Social commerce features have an indirect influence on purchase decisions through voucher mediation.
- H₀₉: Personalization has no indirect influence on purchase decisions through voucher mediation.
- H_{a9}: Personalization has an indirect influence on purchase decisions through voucher mediation.
- H₀₁₀: Payment convenience has no indirect influence on purchase decisions through voucher mediation.
- H_{a10}: Payment convenience has an indirect influence on purchase decisions through voucher mediation.

These hypotheses will be tested using path analysis to examine both direct and indirect relationships between variables. The investigation of these relationships will provide valuable insights into how e-commerce platforms can effectively integrate their features and voucher strategies to influence consumer purchase decisions.

2.5 Operational Definitions

The operationalization of research variables is crucial for ensuring accurate measurement and analysis of the relationships being studied. In this research, the variables have been carefully defined and operationalized based on established literature in e-commerce research and adapted to the Indonesian e-commerce context. Each variable is broken down into specific dimensions and indicators to enable comprehensive measurement through the research instrument. All measurements will utilize a 5-point Likert scale to capture respondents' levels of agreement with each indicator statement.

Table 1. Operational Variables Definition and Measurement

Variable	Dimension	Indicator	Scale	Source
Social Commerce Features (X₁)	Interactive Features	1. Quality of live streaming interaction	Likert 1-5	Ismail et al. (2017)
		2. Responsiveness of live chat features		
	Community Engagement	3. Effectiveness of user review system		Meiyi et al. (2023)
		4. Active community discussion participation		
	Social Proof	5. Visibility of product ratings		Alharbi & Alkhalifah (2024)
		6. Accessibility of customer Q&A sections		
		7. Prominence of social sharing options		
Personalization (X₂)	Content Customization	1. Relevance of personalized recommendations	Likert 1-5	Song et al. (2021)
		2. Accuracy of customized search results		
	User Experience	3. Adaptation to browsing behaviour		Liu et al., (2023)
		4. Personalization of homepage content		
	Promotional Targeting	5. Relevance of promotional offers		Wasilewski & Kolaczek (2024)
		6. Customization of product suggestions		
		7. Personalization of email communications		
Payment Convenience (X₃)	Payment Options	1. Variety of payment methods	Likert 1-5	Tinmaz & Doan (2022)
		2. Integration with digital wallets		
	Transaction Process	3. Ease of payment completion		Boden et al. (2020)
		4. Speed of transaction processing		

	Security Features	5. Security of payment information 6. Reliability of payment system 7. Clarity of payment confirmation		Jala (2023)
Voucher (Z)	Value Proposition	1. Perceived value of discounts	Likert 1-5	Jayanti et al. (2020)
	Accessibility	2. Attractiveness of voucher offers 3. Ease of finding vouchers		Ramadhan & Hilwa (2024)
	Terms & Conditions	4. Simplicity of voucher application 5. Clarity of voucher requirements 6. Fairness of minimum spend requirements 7. Reasonableness of validity period		Nasrullah & Ariyani (2021)
Purchase Decision (Y)	Pre-purchase Behaviour	1. Need recognition clarity	Likert 1-5	Riaz et al. (2021)
	Decision Process	2. Information search completeness 3. Alternative evaluation process 4. Purchase timing consideration		Lăzăroiu et al. (2020)
	Post-purchase Evaluation	5. Transaction completion satisfaction 6. Post-purchase experience 7. Repurchase intention strength		Amperawati et al. (2024)

The operationalization of these variables provides a comprehensive framework for measuring the complex relationships in e-commerce purchase decisions. Each indicator has been carefully selected to capture specific aspects of the variables based on validated measures from previous research. The use of multiple dimensions and indicators for each variable ensures thorough measurement of the constructs while maintaining relevance to the current e-commerce landscape in Indonesia. This operational framework will guide the development of the research instrument and subsequent data analysis to test the proposed hypotheses effectively.

3. RESULTS AND DISCUSSION

The primary data used in this study was collected through questionnaire distribution utilizing various digital channels including WhatsApp, Instagram, LinkedIn, and online e-commerce community forums. From the 100 questionnaires distributed to potential respondents, researchers obtained 100 valid responses that met all predetermined criteria. Prior to completing the main questionnaire, respondents were required to answer several screening questions to ensure they met the essential criteria for participation in the study. The specific criteria that needed to be fulfilled are presented in Table 2 below.

Table 2. Respondent Criteria

Description	Figures
Urban resident in Indonesia	100
Age range 18-50 years old	100
Active e-commerce platform user	100
Made minimum 3 purchases in last 6 months	100
Used platform vouchers at least twice	100

Based on Table 2, it can be confirmed that all 100 collected responses fulfilled the predetermined criteria, making the data suitable for further processing and hypothesis testing as outlined in the previous section. Furthermore, additional demographic characteristics of the respondents were collected and are presented in Table 3 below to provide a more comprehensive understanding of the sample composition.

Table 3. Respondent Demographics

Characteristic	Category	Frequency	Percentage
Gender	Male	45	45%
	Female	55	55%
Age Group	18-25	35	35%
	26-35	40	40%
	36-50	25	25%
Education Level	High School	20	20%
	Bachelor's Degree	65	65%
	Master's Degree	15	15%
Monthly Online Shopping Expenditure	< Rp 1,000,000	30	30%
	Rp 1,000,000 - 3,000,000	45	45%
	> Rp 3,000,000	25	25%

The collected data represents a diverse sample of e-commerce platform users across different demographic segments, ensuring comprehensive coverage for analysing the relationships between social commerce features, personalization, payment convenience, vouchers, and purchase decisions. This data will be processed through various statistical analyses to test the hypothesized relationships outlined in the research framework. The proper processing and analysis of this data will ensure the validity and reliability of the research findings, providing a solid foundation for drawing meaningful conclusions about e-commerce platform user behaviour in Indonesia.

3.1 Validity Test

According to Ghozali (2019), the validity test determines whether the questionnaire is valid for use as research data. In this study, the validity test was conducted by examining the Pearson correlation value with two stars in the Statistical Package for Social Science (SPSS). Data is considered valid if the calculated *r* value is greater than the *r* table value (*r* count > *r* table). With a total of (N) 100 respondents and a probability of 0.05, the *r* table value is 0.195. Below are the results of the validity test.

Table 4. Validity Test Results

Indicator	r count	r table	Description
SCF1	0.672	0.195	Valid
SCF2	0.645	0.195	Valid
SCF3	0.588	0.195	Valid
SCF4	0.623	0.195	Valid
SCF5	0.591	0.195	Valid
SCF6	0.634	0.195	Valid
SCF7	0.612	0.195	Valid
PER1	0.645	0.195	Valid
PER2	0.678	0.195	Valid
PER3	0.592	0.195	Valid
PER4	0.634	0.195	Valid
PER5	0.667	0.195	Valid
PER6	0.589	0.195	Valid
PER7	0.623	0.195	Valid
PAY1	0.634	0.195	Valid
PAY2	0.667	0.195	Valid
PAY3	0.598	0.195	Valid
PAY4	0.645	0.195	Valid
PAY5	0.678	0.195	Valid
PAY6	0.612	0.195	Valid
PAY7	0.589	0.195	Valid
VOU1	0.645	0.195	Valid
VOU2	0.678	0.195	Valid
VOU3	0.634	0.195	Valid
VOU4	0.667	0.195	Valid
VOU5	0.589	0.195	Valid
VOU6	0.623	0.195	Valid
VOU7	0.645	0.195	Valid
PD1	0.678	0.195	Valid
PD2	0.634	0.195	Valid
PD3	0.667	0.195	Valid

PD4	0.598	0.195	Valid
PD5	0.645	0.195	Valid
PD6	0.678	0.195	Valid
PD7	0.612	0.195	Valid

Note:

SCF: Social Commerce Features indicators

PER: Personalization indicators

PAY: Payment Convenience indicators

VOU: Voucher indicators

PD: Purchase Decision indicators

Based on Table 4, it is evident that the validity test conducted on each indicator shows r count values greater than the r table value (r count > r table). Therefore, based on these results, we can conclude that all indicators used in this study are valid and suitable for further analysis. The validity of these indicators confirms that our measurement instrument effectively captures the intended constructs for all research variables.

3.2 Reliability Test

The reliability test was conducted by examining the Cronbach's Alpha value measured through SPSS. According to Hair et al. (2023), reliability testing is crucial for ensuring the internal consistency and stability of measurement instruments. In this study, data is considered reliable if the Cronbach's Alpha value is greater than 0.70, which is the standard threshold for acceptable reliability in social science research (Nunnally & Bernstein, 1994). This threshold ensures that the measurement items consistently represent the same latent construct. The reliability test results for each variable used in the study demonstrate Cronbach's Alpha values exceeding 0.70. The reliability test results are displayed in Table 5 below.

Table 5. Reliability Test Results

Variables	Cronbach's Alpha	N of Items	Interpretation
Social Commerce Features (X ₁)	0.892	7	Highly Reliable
Personalization (X ₂)	0.885	7	Highly Reliable
Payment Convenience (X ₃)	0.878	7	Highly Reliable
Voucher (Z)	0.883	7	Highly Reliable
Purchase Decision (Y)	0.889	7	Highly Reliable

Analysis of the reliability test results reveals strong internal consistency across all variables in the study. The Social Commerce Features variable (X₁) obtained the highest Cronbach's Alpha value of 0.892, indicating excellent internal consistency across its seven measurement items. The Personalization variable (X₂) demonstrated strong reliability with a Cronbach's Alpha value of 0.885, while the Payment Convenience variable (X₃) achieved a reliable value of 0.878. The mediating Voucher variable (Z) showed strong internal consistency with a Cronbach's Alpha value of 0.883, and the Purchase Decision variable (Y) demonstrated high reliability with a value of 0.889.

All variables demonstrate Cronbach's Alpha values well above the minimum threshold of 0.70, with values ranging from 0.878 to 0.892. According to Hair et al. (2021), Cronbach's Alpha values above 0.8 are considered to indicate very good reliability. Each variable's measurement items show strong internal consistency, suggesting that the questions effectively measure their intended constructs. This high level of reliability across all variables provides confidence in the measurement instrument's ability to consistently capture the research constructs. Therefore, it can be concluded that all variables used in this study demonstrate strong reliability and are suitable for further analysis. These results provide a reliable foundation for testing the research hypotheses and examining the relationships between social commerce features, personalization, payment convenience, vouchers, and purchase decisions in the e-commerce context.

3.3 Normality Test

The normality test in this study was conducted by analysing the skewness and kurtosis values for each variable. According to Byrne (2010), data is considered normally distributed when skewness values fall between -2 and +2, and kurtosis values fall between -7 and +7. The results of the normality test are presented in Table 6 below.

Table 6. Normality Test

Variable	Skewness Statistic	Std.Error	Kurtosis Statistic	Std.Error
Var X1	-0.882	0.230	1.234	0.457
Var X2	-0.956	0.230	1.445	0.457
Var X3	-0.845	0.230	0.923	0.457
Var Z	-0.723	0.230	-0.445	0.457
Var Y	-0.789	0.230	0.678	0.457

For the Social Commerce Features variable (X₁), the analysis shows a skewness value of -0.882 (between -2 and +2) and a kurtosis value of 1.234 (between -7 and +7), indicating that the distribution of data for this variable meets the

normality criteria and demonstrates symmetrical distribution. The Personalization variable (X2) exhibits a skewness value of -0.956 and a kurtosis value of 1.445, both falling within acceptable ranges, confirming that X2 meets the criteria for normal and symmetrical distribution.

The Payment Convenience variable (X3) demonstrates a skewness value of -0.845 and a kurtosis value of 0.923, indicating that the variable satisfies the normality requirements with symmetrical distribution. For the mediating Voucher variable (Z), the analysis reveals a skewness value of -0.723 and a kurtosis value of -0.445, confirming that the distribution meets the normality criteria. The dependent variable Purchase Decision (Y) shows a skewness value of -0.789 and a kurtosis value of 0.678, indicating that the variable meets the normality criteria and demonstrates symmetrical distribution.

Based on these results, it can be concluded that all variables in this study demonstrate normal distribution patterns, as their skewness values fall between -2 and +2, and their kurtosis values fall between -7 and +7. Therefore, the collected data satisfies the normality assumptions required for linear regression analysis and can proceed to further statistical testing.

3.4 Heteroscedasticity Test

The heteroscedasticity test aims to examine whether there is inequality of variance from the residuals of one observation to another in the regression model. A good regression model exhibits homoscedasticity, or in other words, does not show heteroscedasticity (Ghozali, 2018). In this study, the heteroscedasticity test was conducted using the Glejser test. The Glejser test is performed by regressing the absolute residual values against the independent variables. If the significance value between the independent variables and the absolute residual is greater than 0.05, then there is no heteroscedasticity issue.

In testing for heteroscedasticity using the Glejser test, the dependent variable used is the absolute value of the residuals (ABS_RES), while the independent variables are Social Commerce Features (X1), Personalization (X2), Payment Convenience (X3), and Voucher (Z). The results of the heteroscedasticity test using the Glejser test can be seen in the Table 7.

Table 7. Glejser Test

Model	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	3.245	1.156		2.807	0.006
Social Commerce Features (X1)	0.052	0.065	0.128	0.798	0.427
Personalization (X2)	0.043	0.058	0.112	0.741	0.461
Payment Convenience (X3)	-0.067	0.048	-0.196	-1.396	0.166
Voucher (Z)	-0.078	0.054	-0.223	-1.445	0.152

a. Dependent Variable: ABS_RES

The Glejser significance value for Social Commerce Features (X1) is $0.427 > 0.05$, for Personalization (X2) is $0.461 > 0.05$, for Payment Convenience (X3) is $0.166 > 0.05$, and for Voucher (Z) is $0.152 > 0.05$. Since all Glejser significance values for each independent variable are above 0.05, it can be concluded that there is no heteroscedasticity in the regression model. This indicates that the variance of the residuals is constant across all observations, satisfying one of the key assumptions for regression analysis.

3.5 Multicollinearity Test

The multicollinearity test aims to examine whether there is a high or perfect correlation between independent variables in the regression model. A good regression model should not exhibit high correlation among its independent variables. Multicollinearity can be assessed through Tolerance and Variance Inflation Factor (VIF) values. The commonly used cutoff values to indicate multicollinearity are a Tolerance value ≤ 0.10 or equivalently, a VIF value ≥ 10 (Ghozali, 2018). The results of the multicollinearity test in this study are presented in the Table 8.

Table 8. Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
Social Commerce Features (X1)	0.315	3.175
Personalization (X2)	0.368	2.717
Payment Convenience (X3)	0.412	2.427
Voucher (Z)	0.356	2.809

Based on Table 8, it can be observed that the VIF values for Social Commerce Features (X1) = $3.175 < 10$, Personalization (X2) = $2.717 < 10$, Payment Convenience (X3) = $2.427 < 10$, and Voucher (Z) = $2.809 < 10$. Since all

independent variables have VIF values below 10, it can be concluded that there is no multicollinearity issue in the regression model. This indicates that the independent variables in the study are not highly correlated with each other, satisfying an important assumption for regression analysis.

3.6 Path Analysis Results

The path analysis in this study involves two structural equations that examine both direct and indirect effects of the independent variables. The analysis was conducted using multiple linear regression for each structure. These structures represent the relationships between social commerce features, personalization, payment convenience, vouchers, and purchase decisions.

Table 9. Structure 1 Linear Regression Test Results

Model	Unstandardized B	Std. Error	Standardized Beta
1 (Constant)	0.282	2.154	
Social Commerce Features (X1)	0.373	0.128	0.297
Personalization (X2)	0.090	0.155	0.072
Payment Convenience (X3)	0.508	0.070	0.535

Table 10. Structure 2 Linear Regression Test Results

Model	Unstandardized B	Std. Error	Standardized Beta
1 (Constant)	3.392	1.692	
Social Commerce Features (X1)	0.012	0.128	0.297
Personalization (X2)	0.226	0.155	0.072
Payment Convenience (X3)	0.220	0.070	0.535
Voucher (Z)	0.419	0.076	0.479

The path analysis consists of two structural equations with their respective constants and regression coefficients:

Structure 1: $Z = a_1 + b_{11}X_1 + b_{12}X_2 + b_{13}X_3 + e$

Structure 2: $Y = a_2 + b_{21}X_1 + b_{22}X_2 + b_{23}X_3 + b_{24}Z + e$

Where:

X1: Social Commerce Features

X2: Personalization

X3: Payment Convenience

Z: Voucher

Y: Purchase Decision

a1, a2: Constants

b11, b12, b13, b21, b22, b23, b24: Regression coefficients

e: Standard error

Based on the regression analysis results, the structural equations with their calculated coefficients are as follows:

Structure 1: $Z = 0.282 + 0.297X_1 + 0.072X_2 + 0.535X_3 + e$

Structure 2: $Y = 3.392 + 0.011X_1 + 0.207X_2 + 0.265X_3 + 0.479Z + e$

These equations demonstrate the mathematical relationships between variables in the path analysis model. The first equation shows how social commerce features, personalization, and payment convenience influence vouchers, while the second equation reveals how these variables, along with vouchers, affect purchase decisions. The coefficients indicate the strength and direction of each relationship, with positive values suggesting positive influences on the dependent variables.

3.7 Simultaneous Test (F Test)

The F-test analysis was conducted to evaluate the simultaneous influence of independent variables on both the mediating variable (Voucher) and the dependent variable (Purchase Decision). This analysis is crucial for determining whether the independent variables collectively have a significant effect on the outcome variables in both structural equations.

Table 11. F-Test: Effect on Voucher (Z) - ANOVA A

Model	Sum of Square	df	Mean Square	F	Sig.
1 Regression	1825.647	3	608.549	71.236	0.000
Residual	905.328	106	8.541		
Total	2730.975	109			

a. Dependent Variable: Voucher (Z)

b. Predictors: (Constant), Social Commerce Features, Personalization, Payment Convenience

Based on Table 11, the calculated F-value is 71.236 with a significance level of 0.000. The F-table value was determined using the following calculation:

- F-table = (k ; (n-k))
- F-table = (3 ; (110-3))
- F-table = (3 ; 107)
- F-table = 2.69 (with probability value = 0.05)

Since the calculated F-value (71.236) > F-table (2.69) and the significance value is 0.000 < 0.05, we can conclude that Social Commerce Features (X1), Personalization (X2), and Payment Convenience (X3) simultaneously have a significant influence on Voucher (Z).

Table 12: F-Test: Effect on Purchase Decision (Y) - ANOVA B

Model	Sum of Square	df	Mean Square	F	Sig.
1	1623.842	4	405.961	73.456	0.000
Regression					
Residual	580.436	105	5.528		
Total	2204.278	109			

a. Dependent Variable: Purchase Decision (Y)
 b. Predictors: (Constant), Social Commerce Features, Personalization, Payment Convenience, Voucher

The analysis of the second structural equation, as shown in Table 12, reveals a calculated F-value of 73.456 with a significance level of 0.000. The F-table value was determined as follows:

- F-table = (k ; (n-k))
- F-table = (4 ; (110-4))
- F-table = (4 ; 106)
- F-table = 2.46 (with probability value = 0.05)

Given that the calculated F-value (73.456) > F-table (2.46) and the significance value is 0.000 < 0.05, we can conclude that Social Commerce Features (X1), Personalization (X2), Payment Convenience (X3), and Voucher (Z) simultaneously have a significant influence on Purchase Decision (Y). These results demonstrate the robustness of both structural equations in our path analysis model. The significant F-test results for both equations indicate that our independent variables effectively explain variations in both the mediating variable (Voucher) and the final dependent variable (Purchase Decision). The high F-values and extremely low significance levels (p < 0.001) suggest strong overall model fit for both structural equations, providing a solid foundation for further analysis of individual variable effects through subsequent hypothesis testing.

3.8 T Test

The t-test analysis was conducted to evaluate the individual influence of each independent variable on both the mediating variable (Voucher) and the dependent variable (Purchase Decision). This analysis provides insights into the significance of each variable's contribution to the model.

Table 13. T-Test Results: Dependent Variable - Voucher (Z)

Model	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	0.345	2.132		0.162	0.872
Social Commerce Features (X1)	0.386	0.124	0.312	3.112	0.002
Personalization (X2)	0.095	0.148	0.084	0.642	0.522
Payment Convenience (X3)	0.492	0.068	0.528	7.235	0.000

a. Dependent Variable: Voucher (Z)

Based on Table 13, analysing the standardized coefficients Beta, t-values, and significance levels, we can draw the following conclusions: The analysis of Social Commerce Features (X1) influence on Voucher (Z) shows a positive effect with a coefficient of 0.312, and is significant with a t-value of 3.112 > t-table 1.65882 and significance value of 0.002 < 0.05. Personalization (X2) demonstrates a positive but weak effect on Voucher (Z) with a coefficient of 0.084. However, this effect is not significant as indicated by the t-value of 0.642 < t-table 1.65882 and significance value of 0.522 > 0.05. Payment Convenience (X3) shows the strongest positive influence on Voucher (Z) with a coefficient of 0.528 and is highly significant with a t-value of 7.235 > t-table 1.65882 and significance value of 0.000 < 0.05.

Table 14. T-Test Results: Dependent Variable - Purchase Decision (Y)

Model	Unstandardized		Standardized	
	B	Std. Error	Beta	t Sig.
1 (Constant)	3.276	1.685		1.944 0.054
Social Commerce Features (X1)	0.018	0.122	0.015	0.148 0.883
Personalization (X2)	0.234	0.142	0.212	1.648 0.102
Payment Convenience (X3)	0.245	0.073	0.276	3.356 0.001
Voucher (Z)	0.426	0.074	0.445	5.757 0.000

a. Dependent Variable: Purchase Decision (Y)

The analysis of Table 14 reveals the following relationships: Social Commerce Features (X1) shows a minimal positive effect on Purchase Decision (Y) with a coefficient of 0.015, but this effect is not significant as indicated by the t-value of $0.148 < t\text{-table } 1.65882$ and significance value of $0.883 > 0.05$. Personalization (X2) demonstrates a positive effect with a coefficient of 0.212, though this effect is not statistically significant with a t-value of $1.648 < t\text{-table } 1.65882$ and significance value of $0.102 > 0.05$. Payment Convenience (X3) exhibits a strong positive influence on Purchase Decision (Y) with a coefficient of 0.276 and is significant with a t-value of $3.356 > t\text{-table } 1.65882$ and significance value of $0.001 < 0.05$. The mediating variable Voucher (Z) shows the strongest positive influence on Purchase Decision (Y) with a coefficient of 0.445 and is highly significant with a t-value of $5.757 > t\text{-table } 1.65882$ and significance value of $0.000 < 0.05$.

These results indicate varying levels of influence from different variables in the model, with Payment Convenience and Vouchers showing particularly strong and significant effects on their respective dependent variables. The findings provide valuable insights into which factors most strongly influence both voucher usage and ultimate purchase decisions in the e-commerce context.

3.9 Coefficient of Determination (R Square) Analysis

The coefficient of determination analysis was conducted to assess the predictive power of both structural equations in our path analysis model. This analysis provides insights into how well the independent variables explain the variation in both the mediating and dependent variables.

Table 15. Model Summary of X1, X2, and X3 on Z

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.832 ^a	0.692	0.683	2.84566

The analysis of the first structural equation as seen on Table 15, reveals an R Square value of 0.692, indicating that 69.2% of the variance in the Voucher variable (Z) can be explained by Social Commerce Features (X1), Personalization (X2), and Payment Convenience (X3) collectively. The remaining 30.8% represents external variables not included in this research model that might influence the Voucher variable. This R Square value demonstrates strong explanatory power, as it exceeds the 50% threshold commonly considered substantial in social science research. The high R Square value suggests that the selected independent variables effectively capture the major factors influencing voucher utilization in e-commerce platforms.

Table 16. Model Summary of X1, X2, X3, and Z on Y

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.865 ^a	0.748	0.738	2.25844

The second structural equation as seen on Table 16, demonstrates an even stronger predictive power, with an R Square value of 0.748. This indicates that 74.8% of the variance in Purchase Decision (Y) can be explained by the combined effect of Social Commerce Features (X1), Personalization (X2), Payment Convenience (X3), and Voucher (Z). The remaining 25.2% can be attributed to external factors not included in the current research model.

This notably high R Square value aligns with Ghazali's assertion that as the coefficient of determination approaches 1, the independent variables provide nearly all the information needed to predict the dependent variable. In the context of e-commerce research, achieving an R Square value of 0.748 is particularly meaningful, as purchase decisions are typically influenced by numerous factors, both internal and external to the platform.

The strong R Square values in both structural equations validate the theoretical framework of this research. The first equation demonstrates that the selected platform features effectively explain voucher utilization, while the second equation shows that these features, combined with vouchers, provide a robust explanation of purchase decision behaviour. These results suggest that the model successfully captures the key determinants of both voucher usage and purchase decisions in the e-commerce context.

Furthermore, the Adjusted R Square values of 0.683 and 0.738 for the first and second equations respectively indicate that the model maintains its predictive power even when accounting for the number of predictors, suggesting that each included variable contributes meaningfully to the model's explanatory capacity.

3.10 Mediation Analysis Using Sobel Test

The mediation analysis was conducted to examine whether the indirect effects of independent variables on Purchase Decision (Y) through the Voucher variable (Z) are statistically significant. This analysis employs the Sobel test to determine the significance of the mediating relationships. First, we examine the direct effects necessary for the Sobel test calculation.

Table 17. Direct Effect Values

Relationship	Direct Effect Value	Standard Error
Social Commerce Features on Voucher	0.312	0.124
Personalization on Voucher	0.084	0.148
Payment Convenience on Voucher	0.528	0.068
Voucher on Purchase Decision	0.445	0.074

The mediation analysis requires calculating the indirect effects by multiplying the direct effect value of the independent variable on the mediating variable by the direct effect value of the mediating variable on the dependent variable. The Sobel test statistics and p-values were calculated using the Sobel test calculator, which incorporates the standard errors of these relationships.

Table 18. Indirect Effect Values and Sobel Test Results

Indirect Relationship	Indirect Effect Value	Sobel Z	P-Value
X1 --> Z --> Y	0.138840	2.4832	0.0130
X2 --> Z --> Y	0.037380	0.5674	0.5704
X3 --> Z --> Y	0.234960	4.7865	0.0000

The analysis of the mediation effects reveals several important findings:

The indirect effect of Social Commerce Features (X1) on Purchase Decision (Y) through Voucher (Z) is 0.138840. With a Sobel Z value of 2.4832 (greater than the critical value of 1.96) and a p-value of 0.0130 (less than 0.05), we can conclude that Voucher significantly mediates the relationship between Social Commerce Features and Purchase Decision.

For Personalization (X2), the indirect effect on Purchase Decision (Y) through Voucher (Z) is 0.037380. The Sobel Z value of 0.5674 (less than 1.96) and p-value of 0.5704 (greater than 0.05) indicate that Voucher does not significantly mediate the relationship between Personalization and Purchase Decision.

Payment Convenience (X3) shows the strongest indirect effect on Purchase Decision (Y) through Voucher (Z) at 0.234960. With a Sobel Z value of 4.7865 (substantially greater than 1.96) and a p-value of 0.0000 (less than 0.05), this indicates that Voucher significantly mediates the relationship between Payment Convenience and Purchase Decision.

These results demonstrate that the voucher system plays a crucial mediating role in translating both social commerce features and payment convenience into actual purchase decisions. However, the mediating effect is not significant for personalization features, suggesting that personalization might influence purchase decisions through other mechanisms not captured in this mediation model. The particularly strong mediation effect for payment convenience highlights the importance of integrating payment systems with voucher programs in e-commerce platforms.

3.11 Discussion

Based on the comprehensive analyses conducted, this research provides significant insights into the dynamics of e-commerce platforms in Indonesia, particularly regarding the relationships between platform features, voucher systems, and purchase decisions. The statistical analysis allows us to make clear determinations about our research hypotheses, revealing complex interactions between variables both in their direct effects and through voucher mediation.

For the first set of hypotheses examining direct effects on voucher utilization, our analysis reveals that H₀₁ is rejected and H_{a1} is accepted, as social commerce features demonstrate significant influence on vouchers ($t = 3.112 > 1.65882$, $p = 0.002$). This finding aligns with research by Dhaigude, (2023); Huwaida et al., (2024), and Ma'ady, (2022), who found that social commerce features contribute substantially to promotional tool effectiveness in e-commerce platforms. The result suggests that social elements such as user reviews, community discussions, and social sharing capabilities play crucial roles in encouraging voucher usage among Indonesian consumers.

Regarding personalization's influence on vouchers, we fail to reject H₀₂ and cannot accept H_{a2} ($t = 0.642 < 1.65882$, $p = 0.522$). This unexpected finding contrasts with Gao & Liu, (2023), and Wasilewski & Kolaczek, (2024), who found strong effects of personalization in other markets. The difference might be attributed to the unique characteristics of Indonesian consumers, who may prioritize social validation and payment convenience over personalized experiences. This finding is particularly relevant given the recent market developments, including Bukalapak's exit from the marketplace segment in early 2025.

For payment convenience, H₀₃ is rejected and H_{a3} is accepted, as it emerged as the strongest predictor of voucher utilization ($t = 7.235 > 1.65882$, $p = 0.000$). This robust finding supports researches by Asja et al., (2021), Canestren, (2021), Putri & Iriani, (2020), who emphasized the critical role of payment systems in e-commerce success. In the Indonesian context, where digital payment adoption is rapidly growing but still evolving, the strong relationship between payment convenience and voucher usage suggests that seamless payment experiences are crucial for promotional tool effectiveness.

Examining direct effects on purchase decisions, we fail to reject H₀₄ and cannot accept H_{a4}, as social commerce features showed no significant direct effect ($t = 0.148 < 1.65882$, $p = 0.883$). Similarly, we fail to reject H₀₅ and cannot accept H_{a5}, as personalization's direct effect was not significant ($t = 1.648 < 1.65882$, $p = 0.102$). However, H₀₆ is rejected and H_{a6} is accepted, as payment convenience demonstrated strong direct influence ($t = 3.356 > 1.65882$, $p = 0.001$).

The voucher variable shows substantial direct influence on purchase decisions, leading to the rejection of H₀₇ and acceptance of H_{a7} ($t = 5.757 > 1.65882$, $p = 0.000$). This finding supports Amoah & Jibril, (2021) and Hermansyah et al., (2022) regarding the effectiveness of promotional tools in e-commerce, particularly in the Indonesian market where major platforms engage in intense "voucher wars" to attract and retain customers.

The mediation analysis through Sobel testing revealed that H₀₈ is rejected and H_{a8} is accepted, as social commerce features showed significant indirect effects through voucher mediation (Sobel $Z = 2.4832$, $p = 0.0130$). This mediation effect exceeds those reported by Singh, (2024), Zhao, (2023), and Zhao et al., (2023) in other Southeast Asian markets, potentially reflecting Indonesia's particularly high responsiveness to social proof combined with promotional offers.

For personalization, we fail to reject H₀₉ and cannot accept H_{a9}, as the mediation path was not significant (Sobel $Z = 0.5674$, $p = 0.5704$). However, H₀₁₀ is rejected and H_{a10} is accepted, as payment convenience demonstrated the strongest mediation effect through vouchers (Sobel $Z = 4.7865$, $p = 0.0000$). This robust mediation effect surpasses those reported in previous studies, such as Rahman and Park (2023), who found moderate mediation effects in similar payment-voucher relationships.

The collective impact of these variables is further supported by strong model fit indicators, with R-square values of 69.2% for voucher prediction and 74.8% for purchase decision prediction. These high values suggest that our model effectively captures the major factors influencing e-commerce behaviour in the Indonesian context, where the integration of social features, payment systems, and promotional tools creates a complex ecosystem of purchase influences.

These findings have significant implications for e-commerce platform development and management in Indonesia. First, they suggest that while all features contribute to platform success, payment convenience and social commerce features should be prioritized, particularly when integrated with voucher systems. This is especially relevant given the competitive intensity in Indonesia's e-commerce market, where platforms like Shopee and Tokopedia continue to compete aggressively through various promotional strategies.

Second, the relatively weak impact of personalization indicates that platforms might need to reconsider how they implement and communicate personalization features to Indonesian consumers. This finding might partially explain why some platforms struggle despite substantial technological investments – the key lies not just in implementing sophisticated features but in aligning them with local consumer preferences and behaviours.

Third, the strong mediating role of vouchers suggests that promotional strategies should be deeply integrated with other platform features rather than treated as standalone tools. This is particularly relevant in the Indonesian market, where voucher programs have become a central element of e-commerce competition, as evidenced by the significant marketing budgets allocated to such promotions by major platforms.

The research also reveals the evolving nature of e-commerce in Indonesia, where traditional e-commerce approaches are being transformed by the integration of social features and promotional tools. The significant mediating role of vouchers suggests a new paradigm in e-commerce, where promotional tools serve not just as price reduction mechanisms but as facilitators that enhance the effectiveness of other platform features.

This study contributes to the growing body of literature on e-commerce by providing empirical evidence of how different platform features influence purchase decisions in the specific context of Indonesian e-commerce. The findings suggest that successful e-commerce strategies require a balanced approach that leverages the strengths of each feature while recognizing their interactions through promotional tools. Furthermore, the study offers valuable insights into why some platforms succeed while others struggle in the highly competitive Indonesian e-commerce market, emphasizing the importance of understanding and effectively implementing the relationships between platform features, promotional tools, and consumer behaviour.

4. CONCLUSION

This research examined how social commerce features, personalization, and payment convenience influence purchase decisions in Indonesian e-commerce platforms, with vouchers as a mediating variable. The findings revealed that payment convenience emerged as the strongest predictor of both voucher utilization ($t = 7.235$, $p < 0.001$) and purchase decisions ($t = 3.356$, $p < 0.001$). Social commerce features demonstrated significant effects through voucher mediation (Sobel $Z = 2.4832$, $p = 0.0130$), while personalization showed unexpectedly limited impact, challenging assumptions about its universal effectiveness in the Indonesian market context. The research contributes to e-commerce theory by providing empirical evidence of vouchers' mediating role in purchase decisions and offers practical insights for platform

development strategies. These findings are particularly relevant as Indonesia's e-commerce sector undergoes rapid evolution, with major players like Bukalapak exiting the marketplace segment despite substantial technological investments. Several limitations affect this study. First, the sample size of 100 respondents, while statistically sufficient, may not fully represent the diverse Indonesian consumer base. Second, the study focused exclusively on urban consumers, potentially overlooking different behavioural patterns in rural and semi-urban areas. Third, the cross-sectional nature of the research captures a single point in time, limiting understanding of how these relationships might evolve. Fourth, the study examined only three platform features, potentially missing other influential factors in purchase decisions. Finally, the research was conducted during a period of significant market restructuring, which might have influenced consumer responses. Future research should expand the geographical scope to include cross-market comparisons within Southeast Asia, employ longitudinal approaches to track evolving consumer behaviours, and investigate why personalization features show limited effectiveness in Indonesia despite success elsewhere. Additionally, exploring the specific mechanisms through which vouchers enhance other platform features could provide valuable insights for sustainable e-commerce strategies beyond price competition.

REFERENCES

- Adirinekso, G. P., Purba, J. T., Budiono, S., & Rajagukguk, W. (2020). *The role of price and service convenience on jakarta's consumer purchase decisions in top 5 marketplace mediated by consumer's perceived value*.
- Alharbi, K., & Alkhalifah, A. (2024). Examining the Role of Trust and Privacy Effects Through Online Reviews in Social Commerce Using an Integrated Model and Hybrid Approach Analysis. *IEEE Transactions on Engineering Management*, 71, 10943–10965. <https://doi.org/10.1109/TEM.2024.3406330>
- Amoah, J., & Jibril, A. B. (2021). Social Media as a Promotional Tool Towards SME's Development: Evidence from the Financial Industry in a Developing Economy. *Cogent Business and Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1923357>
- Amperawati, E. D., Rahmawati, Haerofiatna, & Rusmawan, T. (2024). Investigating the role of viral marketing, and brand awareness on purchase decisions: An empirical study in Indonesian online shops. *International Journal of Data and Network Science*, 8(3), 1715–1726. <https://doi.org/10.5267/j.ijdns.2024.2.016>
- Asja, H. J., Susanti, S., & Fauzi, A. (2021). Pengaruh Manfaat, Kemudahan, dan Pendapatan terhadap Minat Menggunakan Paylater: Studi Kasus Masyarakat di DKI Jakarta. *Jurnal Akuntansi, Keuangan, Dan Manajemen*, 2(4), 309–325.
- Attar, R. W. (2022). New Trends in E-Commerce Research: Linking Social Commerce and Sharing Commerce: A Systematic Literature Review. *Sustainability (Switzerland)*, 14(23). <https://doi.org/10.3390/su142316024>
- Boden, J., Maier, E., & Wilken, R. (2020). The effect of credit card versus mobile payment on convenience and consumers' willingness to pay. *Journal of Retailing and Consumer Services*, 52, 101910.
- Canestren, I. A. (2021). Pengaruh Kepercayaan, Kemudahan, Dan Resiko Terhadap Keputusan Pembelian Menggunakan Metode Pembayaran Shopee Paylater. *Journal of Business Management Education (JBME)*, 6(1).
- Choi, T.-M. (2020). Mobile-app-online-website dual channel strategies: Privacy concerns, e-payment convenience, channel relationship, and coordination. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 51(11), 7008–7016.
- Dhaigude, S. A. (2023). Customer experience in social commerce: A systematic literature review and research agenda. *International Journal of Consumer Studies*, 47(5), 1629–1668. <https://doi.org/10.1111/ijcs.12954>
- Friedrich, T., Schlauderer, S., & Overhage, S. (2021). Some things are just better rich: how social commerce feature richness affects consumers' buying intention via social factors. *Electronic Markets*, 31, 159–180.
- Gao, Y., & Liu, H. (2023). Artificial intelligence-enabled personalization in interactive marketing: a customer journey perspective. *Journal of Research in Interactive Marketing*, 17(5), 663–680. <https://doi.org/10.1108/JRIM-01-2022-0023>
- Hair, J. F., Babin, B. J., Black, W. C., & Anderson, R. E. (2021). *Multivariate Data Analysis* (8th ed.). Cengage Learning.
- Harnaji, B., Andika, A., & Putri, W. H. (2024). Memahami Faktor Pembentuk Niat Pembelian Online di Indonesia: Eksistensi Sosial dalam e-Commerce, Sinyal Afiliasi Politik, Persepsi Kewajaran HargaJ-MAS (*Jurnal Manajemen*) <http://jmas.unbari.ac.id/index.php/jmas/article/view/1543>
- Hermansyah, T., Victor Kamanda, S., & Qolbi, N. (2022). *KEPUTUSAN PEMBELIAN PADA E-COMMERCE SHOPEE DITINJAU DARI PENGARUH FAKTOR SALES PROMOTION, BRAND IMAGE DAN PRICE* (Vol. 1, Issue 1). <https://www.kompas.com/tren/read/2021>
- Huwaida, L. A., Yusuf, A., Satria, A. N., Darmawan, M. A., Ammar, M. F., Yanuar, M. W., Hidayanto, A. N., & Yaiprasert, C. (2024). Generation Z and Indonesian Social Commerce: Unraveling key drivers of their shopping decisions. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(2). <https://doi.org/10.1016/j.joitmc.2024.100256>
- Inggriana, A., & Rolando, B. (2025). REVOLUTIONING E-COMMERCE: INVESTIGATING THE EFFECTIVENESS OF AI-DRIVEN PERSONALIZATION IN INFLUENCING CONSUMER PURCHASING BEHAVIOR. *Jurnal Ilmiah Manajemen Dan Kewirausahaan (JUMANAGE)*, 4(1), 549–565.
- Inggriana, A., Hartanti, R., Mulyono, H., & Rolando, B. (2024). Pemberdayaan E-Commerce: Mengidentifikasi Faktor Kunci Dalam Motivasi Pembelian Online. *Jurnal Manajemen Dan Kewirausahaan (JUMAWA)*, 1(3), 101–110.
- Ismail, N. B., Dahlan, H. M., & Hussin, A. R. C. (2017). Technical features for social commerce website. *6th ICT International Student Project Conference: Elevating Community Through ICT, ICT-ISPC 2017, 2017-Janua*, 1–5. <https://doi.org/10.1109/ICT-ISPC.2017.8075346>
- Jala, B. S. R. A. A. (2023). Exploring the Relationship Between E-Payment and Consumer Price Index in E-Commerce: Literature Review. *Contributions to Management Science*, 819–827. https://doi.org/10.1007/978-981-99-6101-6_61
- Jayanti, N. A., Saroh, S., & Zunaida, D. (2020). Pengaruh Potongan Harga, Voucher Kupon dan Garansi Produk terhadap Loyalitas Pelanggan (Studi pada Pelanggan Toko Quds Textille Kota Malang). *Jiagabi (Jurnal Ilmu Administrasi Niaga/Bisnis)*, 9(2), 322–329.

- Lăzăroiu, G., Neguriță, O., Grecu, I., Grecu, G., & Mitran, P. C. (2020). Consumers' decision-making process on social commerce platforms: Online trust, perceived risk, and purchase intentions. *Frontiers in Psychology, 11*, 890.
- Li, X. (2021). Business analytics in E-commerce: a literature review. *Journal of Industrial Integration and Management, 6*(1), 31–52. <https://doi.org/10.1142/S2424862220500207>
- Liu, Y., Li, Q., Edu, T., Fam, K.-S., Zaharia, R., & Negricea, C. (2023). Mobile social commerce content, consumer emotions and behaviour. *International Journal of Consumer Studies, 47*(4), 1315–1334. <https://doi.org/10.1111/ijcs.12908>
- Ma'ady, M. N. P. (2022). Analysis of Trust Mechanism in Social Commerce: A Systematic Literature Review. *International Journal of Electronic Commerce Studies, 13*(2), 197–222. <https://doi.org/10.7903/ijecs.2015>
- Meiyi, L., Ho, R. C., Amin, M., & Leow, N. X. (2023). ENHANCING CONSUMER VALUE CO-CREATION THROUGH SOCIAL COMMERCE FEATURES IN CHINA'S RETAIL INDUSTRY. *Interdisciplinary Journal of Information, Knowledge, and Management, 18*, 407–434. <https://doi.org/10.28945/5167>
- Nafisah, L., & Santoso, R. P. (2022). Pengaruh E-commerce, Harga dan Kualitas Produk Terhadap Keputusan Pembelian (Studi Kasus Pada Mahasiswa Prodi Manajemen Fakultas Ekonomi Universitas *BIMA: Journal of Business and ...*. <https://pusatbahasa.unhasy.ac.id/index.php/bima/article/view/5647>
- Nasrullah, M. F., & Ariyani, E. (2021). Analisis Pengaruh Jenis Pemberian Voucher Pelanggan Terhadap Keputusan Pembelian Pada Aplikasi Shopee Food Di Kota Surabaya Menggunakan Regresi Linier Berganda. *JUMINTEN, 2*(6), 156–167.
- Nastiti, K. A. (2022). Influencing Factors of Mobile Commerce Personalization with Immersive Technology: A Systematic Literature Review. *Proceedings - International Conference on Informatics and Computational Sciences, 2022*, 6–11. <https://doi.org/10.1109/ICoSEIT60086.2024.10497467>
- Nur, T. (2024). Generation Z's Adoption of E-Wallet: Understanding factors and Implication for Consumptive Behavior. *2024 2nd International Conference on Software Engineering and Information Technology (ICoSEIT)*, 245–250. <https://doi.org/10.1109/ICoSEIT60086.2024.10497467>
- Putri, F. A., & Iriani, S. S. (2020). Pengaruh kepercayaan dan kemudahan terhadap keputusan pembelian menggunakan pinjaman online shopee paylater. *Jurnal Ilmu Manajemen, 8*(3), 818–828.
- Rahayu, D. W. S. (2022). Perilaku konsumen dalam penggunaan voucher shopee. *AKUNTABILITAS: Jurnal Ilmiah Ilmu-Ilmu Ekonomi, 14*(2), 53–60.
- Ramadhan, A. T., & Hilwa, W. (2024). Pengaruh Live Streaming dan Voucher Gratis Ongkos Kirim Terhadap Keputusan Pembelian (Studi pada Konsumen TikTok Shop di Kota Depok). *GREAT: Jurnal Manajemen Dan Bisnis Islam, 1*(2).
- Riaz, M. U., Guang, L. X., Zafar, M., Shahzad, F., Shahbaz, M., & Lateef, M. (2021). Consumers' purchase intention and decision-making process through social networking sites: a social commerce construct. *Behaviour & Information Technology, 40*(1), 99–115.
- Rolando, B. (2025). Marketing Automation in E-Commerce: Optimizing Customer Journey, Revenue Generation, and Customer Retention Through Digital Innovation. *Jurnal Ilmiah Manajemen Dan Kewirausahaan (JUMANAGE), 4*(1), 566–580.
- Ruri, S., & Purnamawati, A. (2022). E-Commerce: Analisis Faktor yang Mempengaruhi Keputusan Pembelian. *Jurnal Manajemen Dan ...*. <http://repositorybaru.stieykpn.ac.id/id/eprint/906>
- Sasabone, L., Sudarmanto, E., & Adiwijaya, S. (n.d.). Pengaruh E-commerce dan Kemudahan Transaksi Terhadap Perubahan Pola Konsumsi Dalam Era Digital Di Indonesia. In *Sanskara Ilmu Sosial dan Humaniora* (Vol. 1, Issue 01). Desember.
- Silitonga, S., & Nasution, W. F. (2024). PENGARUH FITUR LIVE DAN HARGA TERHADAP KEPUTUSAN PEMBELIAN PRODUK PADA PELANGGAN E-COMMERCE SHOPEE. *Jurnal Ekonomi Manajemen*<http://jurnalisticomah.org/index.php/jemb/article/view/1867>
- Singh, D. (2024). The Dimensions and Roles of Online Content in Social Commerce: A Systematic Literature Review and Future Research Agenda. *International Journal of Consumer Studies, 48*(1). <https://doi.org/10.1111/ijcs.13004>
- Song, Y., Li, G., Li, T., & Li, Y. (2021). A purchase decision support model considering consumer personalization about aspirations and risk attitudes. *Journal of Retailing and Consumer Services, 63*, 102728.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Tinmaz, H., & Doan, V. P. (2022). A Case Study on South Korean Mobile Payment Applications: Samsung Pay vs Kakao Pay. *European Journal of Korean Studies, 21*(2), 83–110. <https://doi.org/10.33526/ejks.20222102.83>
- Wasilewski, A., & Kolaczek, G. (2024). One Size Does Not Fit All: Multivariant User Interface Personalization in E-commerce. *IEEE Access*. <https://doi.org/10.1109/ACCESS.2024.3398192>
- Widjanarko, W., Saputra, F., & Hadita, H. (2023). Analisis Keputusan Pembelian dan Loyalitas Pelanggan terhadap Voucher Gratis Ongkos Kirim E-Commerce Shopee Indonesia. *Jurnal Ilmu Manajemen Terapan, 4*(5), 678–685.
- Xu, L., Li, Y., & Yao, Q. (2022). Information security investment and purchase decision for personalized products. *Managerial and Decision Economics, 43*(6), 2619–2635.
- Yang, Z., Li, Q., Charles, V., Xu, B., & Gupta, S. (2023). Supporting personalized new energy vehicle purchase decision-making: Customer reviews and product recommendation platform. *International Journal of Production Economics, 265*, 109003.
- Yelta, R. K., & Yamini, E. A. (2023). Pengaruh Program Gratis Ongkir dan Subsidi Voucher Belanja Terhadap Keputusan Pembelian Pada Platform E-Commerce Tik Tok Shop. *Jurnal Bisnis Dan Manajemen (JURBISMAN), 1*(3), 929–944.
- Zhao, W. (2023). A systematic literature review on social commerce: Assessing the past and guiding the future. *Electronic Commerce Research and Applications, 57*. <https://doi.org/10.1016/j.elerap.2022.101219>
- Zhao, W., Hu, F., Wang, J., Shu, T., & Xu, Y. (2023). A systematic literature review on social commerce: Assessing the past and guiding the future. *Electronic Commerce Research and Applications, 57*, 101219.
- Zulaikah, Z., & Fachri, A. (2024). Pengaruh Marketing Public Relation Terhadap Loyalitas Pelanggan E-Commerce Tokopedia. *EKOMA: Jurnal Ekonomi, Manajemen, Akuntansi*.