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-RESEARCH ARTICLE-

UNVEILING FACTORS INFLUENCING NEOBANKING ADOPTION WITH AN EXTENDED UTAUT-3 MODEL TO IMPROVE NEOBANK MARKETING STRATEGY

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─Abstract─

Neobanks represent a significant development in the digital transformation of the banking industry. This study examines the impact of key factors on shaping behavioural intention, user conduct, and the likelihood of recommending neobank services. The research employs an enhanced version of the UTAUT-3 framework, incorporating trust and marketplace utilisation within the context of neobanking. Data were gathered from 386 neobank users via surveys, and the results were analysed using Partial Least

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Squares Structural Equation Modelling (PLS-SEM) and Partial Dependence Analysis. The findings indicate that factors such as trust, marketplace usage, performance expectancy, effort expectancy, social influence, hedonic motivation, price value, habit, facilitating conditions, and personal technological innovativeness all have a positive correlation with behavioural intention, as evidenced by the upward trends in partial dependence plots. Furthermore, user behaviour is strongly associated with the willingness to recommend neobank services, with a notably rapid increase in this relationship. This study concludes that seamless integration into the broader digital ecosystem and the reinforcement of customer trust through robust data protection are critical in shaping consumer behaviour. By focusing on the primary drivers of customer acquisition, neobanks can enhance their ability to attract new customers, boost engagement, and lower acquisition costs.

Keywords: Extended UTAUT-3, Intention to Recommend, Marketplace Usage, Neobank, Trust.

INTRODUCTION

The shift from traditional, branch-centric banking to digital banking signifies a profound transformation in the financial sector (Boot et al., 2021; Broby, 2021). This transition is increasingly accelerated by financial technology, which has played a pivotal role in the growth of neobanks (Boot et al., 2021; Broby, 2021). Neobanks, as a major leap forward in digital finance, offer a wide range of services through online platforms, operating without the need for physical branches (Bradford, 2020). These banks primarily cater to retail consumers and small to medium-sized businesses, often overlooked by conventional banks (Padmanabhan & Padmanabhan, 2021). By adopting a mobile-first approach in their innovative products and services, neobanks distinguish themselves from both traditional and digital banks (Bouteraa et al., 2021).

Neobanks provide comprehensive digital financial management tools embedded directly within marketplace applications. The increasing popularity of digital platforms and financial transactions on e-commerce sites has fueled the growth of neobanks. For example, in Indonesia, e-commerce transaction volumes grew substantially between 2017 and 2022, with a notable 18.99% increase in transaction value, reaching 64 trillion rupiah in 2022 (Lokadata., 2022). This trend has driven neobanks to offer simplified financial management tools, from initial purchase to final payment, all within marketplace apps. The widespread adoption of neobanks and their seamless integration with digital marketplaces present both opportunities and challenges for marketing strategies. Neobanks harness user data and transaction insights from digital marketplaces to gain a deeper understanding of customer behaviour, preferences, and financial needs. This approach is particularly valuable for attracting younger, digitally savvy customers who are well-versed in integrated payment systems (Hopkinson et al., 2019; Toshtemirovich, 2020). As a result, neobanks leverage marketplace usage data to

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craft more tailored and effective strategies for engaging, acquiring, retaining, and cross-selling to customers throughout their lifecycle.

Despite widespread enthusiasm for the integration of digital payment platforms and marketplaces, neobanks encounter numerous challenges that affect their performance and long-term sustainability. Key issues include increasing customer engagement, enhancing user experience, and ensuring data security (Tiong, 2020; Imerman & Fabozzi, 2020; Singhal & Kar, 2015). Additionally, neobanks must address concerns related to safety and risk in order to build customer trust (Singhal & Kar, 2015). In Indonesia, a notable challenge for neobanks is their low user penetration, which accounts for only 6.93% of the 97 million banking app users (Similarweb, 2020). The growth of this sector depends heavily on the ease and convenience experienced by users. Furthermore, the high costs associated with acquiring new users, particularly during periods of technological stagnation, represent a significant barrier to the long-term viability of these institutions.

Despite offering flexible and convenient services, neobanks face challenges regarding application usability, transaction security, and the safety of investments (Vishnuvardhan et al., 2020). Data security concerns and the risk of financial loss associated with fully online accounts remain primary obstacles to the widespread adoption of neobanks. These factors notably influence user behaviour, especially among those who do not fully integrate neobank services as their primary banking option, or who use them only for payments. Without robust security and reliable performance, neobanks risk losing long-term customers to alternative financial institutions.

To address these challenges and expand their user base, neobank providers must develop a comprehensive understanding of prospective users across different demographics. This allows for the creation of targeted strategies that cater to the specific needs of users who cannot be treated uniformly. This study will examine the key factors influencing behavioural intentions, usage patterns, and the willingness to recommend neobank services. The results will explore how these elements impact user behaviour and the propensity to recommend neobank services. The study underscores the importance of understanding the factors affecting the acceptance and adoption of neobanks, particularly the role of trust and the integration of marketplace platforms within their marketing strategies. It employs a conceptual framework that builds on the UTAUT-3 model, incorporating additional constructs such as trust, and marketplace application use to enhance understanding of neobank adoption. This approach fills a gap identified in previous research. The findings of this study are highly relevant to neobanking and digital banking service providers, offering essential insights into customer behaviour. By focusing on key factors influencing neobank adoption, the study provides valuable information for developing strategies that address these vital elements. The findings can be applied to refine neobank marketing approaches and improve user experience, thus driving the growth and success of neobanks.

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This article comprises several essential sections: the literature review, study methods, findings, discussion, and conclusion. The literature review consolidates and analyses previous research pertaining to neobanks, and the methodologies employed in this study. The research methodology section delineates the adopted approach, specifying the research design, data collection techniques, instruments, and analytical procedures. The results and analysis section delineates the study's findings, succeeded by a discussion that analyses these results, juxtaposes them with prior research, and examines their ramifications, importance, and limits. The conclusion encapsulates the principal findings, underscores the study's significance to the discipline, and presents recommendations for subsequent research.

LITERATURE REVIEW

Neobank and Digital Banking

Digitised banking offers a wide array of advantages for users, including convenience, global accessibility, availability, cost and time efficiency, transparency of information, greater choice, and enhanced customisation. Neobanks, which are independent digital financial institutions, operate without physical branches or service centres (Jaglan, 2021; Tosun, 2020). What differentiates neobanks from traditional banks is their complete independence from conventional banking infrastructures. They rely entirely on mobile platforms, removing the necessity for physical branches, and provide a full spectrum of online banking services through mobile applications. Some neobanks operate exclusively through mobile platforms, without offering desktop banking alternatives (Brockhurst, 2019). As the digital banking sector continues to evolve, neobanks are strategically positioned to leverage these opportunities and increase their market share within the industry. Figure 1 highlights the key distinctions between traditional banks that integrate digital platforms, fully digital banks, and neobanks.

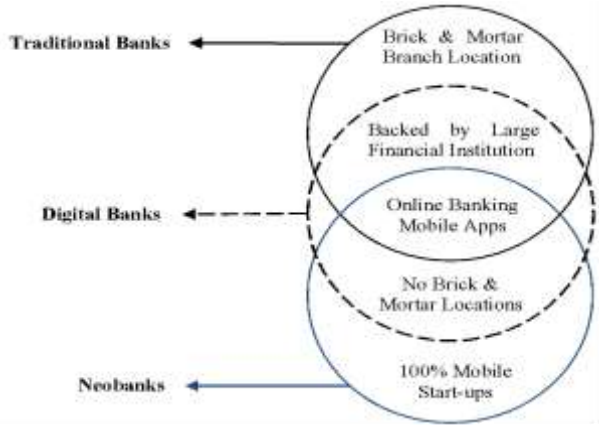

Figure 1: Intersections Characteristics of Traditional Bank, Digital Bank, and Neobank (Nielsen, 2018)

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The Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT, developed by Venkatesh et al. (2003), integrates eight research models into a framework identifying four factors affecting technology use: performance expectancy, effort expectancy, facilitating conditions, and social influence. Venkatesh et al. (2012) refined it into UTAUT-2, adding price value, habit, and hedonic motivation, with moderators such as age, gender, and experience. Their analysis showed that hedonic motivation impacts behavioural intention, and age and gender moderate price value's effect. UTAUT-2 was later extended to UTAUT-3 by (Farooq et al., 2017), incorporating personal innovativeness, behavioural intention to use, and adopt. UTAUT-3 has been applied in sectors like e-learning (Akbar, 2021; Gunasinghe et al., 2020; Kamalasena & Sirisena, 2021), virtual reality (Pinto et al., 2022) and neobanking (Bhatnagr & Rajesh, 2024). This study uses UTAUT-3 to explore technology adoption in Indonesia's digital finance and neobanking sector.

Risk and Trust

Perceived risk refers to customers' concerns about using specific technologies or services, often linked to the potential for unauthorised access to personal information in mobile environments, leading to uncertainty and insecurity (Chin et al., 2018). The risk of data and financial information breaches contributes to these feelings of uncertainty, which is particularly relevant in online banking (Chin et al., 2018; Kim & Koo, 2016). Trust plays a crucial role in neobanking adoption, as it is essential for customers to feel secure in their online transactions (Alalwan, 2020). Building trust is vital for neobank providers to enhance customer confidence and foster greater engagement over time (Kaur & Arora, 2020). Trust also influences users' willingness to accept calculated risks in digital platforms (Pavlou & Fygenson, 2006), and positively impacts online buying behaviour (Ha & Stoel, 2009; McCole et al., 2010; Palvia, 2009). The integration of neobanks within marketplace platforms enhances the mutual ecosystem, which can increase service growth, influence consumer trust, and improve users' willingness to recommend neobanking services (Alalwan, 2020; Ozturk et al., 2017; Toshtemirovich, 2020).

The Extended UTAUT-3 Model

The UTAUT-3 model offers a comprehensive framework for assessing technology adoption. It includes new variables, such as behavioural intention to recommend, marketplace application usage, and trust as a new construct. These additions better capture factors influencing neobanking acceptance, reflecting its innovative role in the banking sector. The extended UTAUT-3 model is shown in Figure 2.

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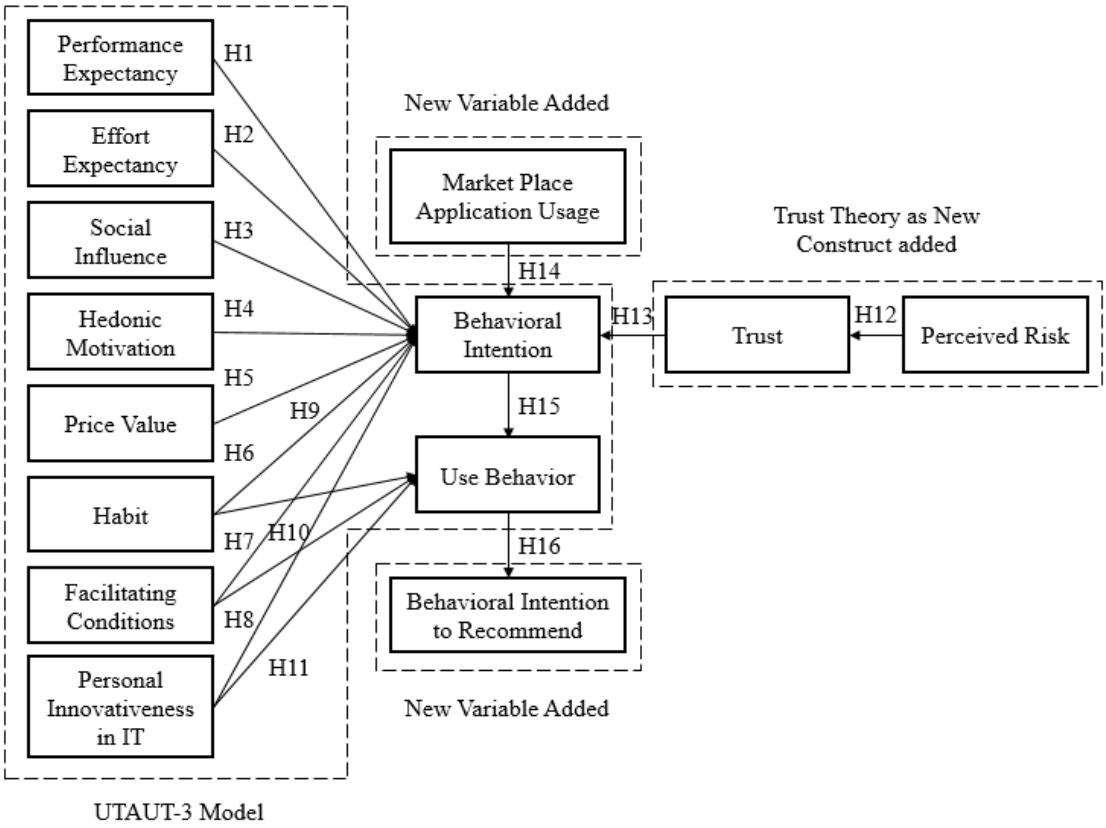

Figure 2: The Extended of UTAUT-3 Model Including Trust Theory as New Construct with Marketplace Usage and Behavioural Intention to Recommend as New Variable Added.

Hypotheses Development

Based from the UTAUT-3 framework, trust theory as new construct with the impact of marketplace utilization and behavioural intention to recommend as new variable added to build hypotheses.

H1: *Performance expectancy related to behavioural intention.*

Performance expectancy plays a crucial role in shaping an individual's intention to use a specific technology. In the context of neobanking applications, it refers to the user's belief that engaging with the neobank platform will enhance their financial management, offer greater convenience, boost efficiency, and increase overall satisfaction with their banking experience. These factors collectively influence the user's interest and drive their decision to adopt and utilise the technology (Bhatnagr & Rajesh, 2024; Pinto et al., 2022).

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H2: *Effort expectancy related to behavioural intention.*

An individual's perception of the user-friendliness of neobanking services significantly impacts their decision to adopt neobanking for all their banking activities (Bhatnagr & Rajesh, 2024).

H3: *Social influence related to behavioural intention.*

External societal pressures are closely linked to users' social influence. The popularity and perceived trustworthiness of neobanking applications are shaped by positive word-of-mouth, public endorsement, favourable online reviews, influential reputations, and prevailing social norms (Bhatnagr & Rajesh, 2024).

H4: *Hedonic motivation related to behavioural intention.*

Hedonic motivation—the pleasure or satisfaction of utilising a technology—influences technology adoption (Poong et al., 2017). Positive emotions and enjoyable experiences linked to technology can enhance the motivation to continue using it. When individuals derive fun, enjoyment, or pleasure from a technology or product, they are more likely to persist in its use. Users are more inclined to engage with a technology if it provides hedonic satisfaction and positive rewards (Bhatnagr & Rajesh, 2024).

H5: *Price value related to behavioural intention.*

Customer purchasing decisions are influenced by price value, which can significantly affect a company's competitive advantage (Tseng & Hung, 2013). Price value also plays a key role in shaping individuals' behavioural intention to adopt specific technologies (Bhatnagr & Rajesh, 2024).

H6: *Habit related to behavioural intention* & **H9:** *Habit related to use behaviour.*

Neobank apps make financial transactions easy and convenient, making people rely on them (Bhatnagr & Rajesh, 2024; Gunasinghe et al., 2020).

H7: *Facilitating conditions related to behavioural intention* & **H10:** *Facilitating conditions related to use behaviour.*

Facilitating conditions are crucial in building trust among users regarding the availability of necessary infrastructure and support when using a particular technology. These conditions encompass resources, support systems, and infrastructure that facilitate the adoption of technology (Bhatnagr & Rajesh, 2024). In the context of neobanking, favourable facilitating conditions, such as easy access to mobile services, can positively influence users' intentions to engage with neobanks.

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H8: *Personal innovativeness in IT related to behavioural intention* & **H11:** *Personal innovativeness in IT related to use behaviour.*

Personal innovativeness refers to an individual's eagerness to experiment with and embrace new technological innovations (Farooq et al., 2017). Individuals with a high degree of personal creativity are more inclined to adopt and use technologies, as they are more willing to explore and embrace novel concepts (Bhatnagr & Rajesh, 2024).

H12: *Perceived risk related to trust.*

Individuals' willingness to use neobanking services is influenced by a lower perception of risk, which in turn enhances customer trust in neobanking (Kim & Koo, 2016). Conversely, trust also affects perceived risk; users are more likely to trust neobanks when they have access to responsive and helpful support, which can reduce their perceived risk levels.

H13: *Trust related to behavioural intention.*

Trust is a critical factor in driving participation in online transactions (Kim & Koo, 2016). Individuals with higher trust in neobank services are more likely to accept and consistently use these services with greater reliance.

H14: *Marketplace application usage related to behavioural intention.*

Neobanking services often integrate with marketplace applications to provide a more comprehensive financial management experience. These integrations enable users to participate in various financial activities, such as online payments, expense tracking, and investment management (Stegmeier & Verburg, 2022; Toshtemirovich, 2020). Individuals can easily link their neobank accounts to the payment options available within marketplace applications, resulting in a more efficient and convenient transaction process.

H15: *Behavioural intention related to use behaviour.*

The relationship between the intention to adopt technology reflects its behavioural acceptance and usage (Bhatnagr & Rajesh, 2024; Gunasinghe et al., 2020). Individuals' eagerness to actively engage with and use neobanking services demonstrates their behavioural intention and willingness to incorporate the technology into their routine financial activities.

H16: *Use behaviour related to behavioural intention to recommend.*

Individuals who embrace technology may also influence others (Lee et al., 2021).

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Behavioural intention to recommend is closely linked to usage behaviour. Users are more likely to develop a positive attitude toward neobanks and increase their likelihood of recommending them when they have a favourable and enjoyable experience using neobanking services (Bhatnagr & Rajesh, 2024). Therefore, individuals satisfied with neobanking services are more inclined to recommend them to others.

Expected Study Novelty

The novelty of this research lies in its objectives, conceptual perspective, and methodology. Unlike most previous studies, which have primarily focused on traditional and digital banking services in non-Asian countries, this study explores the adoption of neobanking services in Indonesia, an Asian context, concentrating on the experiences of neobank users during the expansion and acquisition phase. Theoretically, the study aims to promote greater acceptance of neobanking by offering deeper insights into the key factors driving user adoption. It presents a theoretical framework that identifies crucial elements affecting the use and recommendation of neobank services, helping clarify user intentions and behaviours. The study also extends the UTAUT-3 model by incorporating new constructs such as trust and the use of marketplace applications, enhancing the understanding of neobank usage. Methodologically, previous research on neobank user behaviour has largely focused on modelling and hypothesis testing. This study advances the field by combining hypothesis testing with an interdisciplinary approach, utilising techniques like structural equation modelling and partial dependence analysis to provide more comprehensive insights.

RESEARCH METHODS

Research Instrument Design

This research examines the application of survey instruments in the neobank sector. The design and development of the research instrument adhered to a systematic approach to guarantee its validity and reliability, according with the study's aims. A thorough literature analysis was performed to identify essential components and variables from established models based on the UTAUT, UTAUT-2, and UTAUT-3 frameworks. The modified UTAUT-3 model was then adjusted to include the new construct of trust and the variable of marketplace utilisation. Each component was operationalised into quantifiable elements via validated scales, employing a five-point Likert scale to evaluate respondents' agreement about the perceived value of neobank applications. The scale extended from "strongly disagree" to "strongly agree." Based on the UTAUT-3 paradigm, the questionnaire examines multiple aspects affecting acceptance and usage, including performance expectancy, social influence, and trust, with all items provided in Indonesian for cultural appropriateness. The measurement model was assessed for validity and reliability to validate the instrument. Validity was evaluated by factor loading and Average Variance Extracted (AVE), and reliability was examined using

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Cronbach's Alpha and Composite Reliability.

Research Variables and Operational Definition

The independent variables in this study are Social Influence, Personal Innovativeness in IT, Price Value, Marketplace Application Usage, Facilitating Conditions, Effort Expectancy, Performance Expectancy, Habit, Hedonic Motivation, and Perceived Risk. Trust, Behavioural Intention, and Use Behaviour serve as intervening variables, while the dependent variable is Behavioural Intention to Recommend Behaviour. Table 1 provides detailed definitions of the variables, along with the indicators and scales used for measurement.

Table 1: Variable and Operational Definition

No.	Variable	Operational Definition
1	Performance Expectancy	Performance expectancy relates to the level at which the use of technology will benefit customers in the performance of specified tasks.
2	Effort Expectancy	Effort expectancy refers to the level of perceived convenience that a user associates with the use of technology.
3	Social Influence	Social influence can be defined as the level at which individuals feel pressured to accept and use technology as a result of the influence imposed by family members or friends.
4	Hedonic motivation	Hedonic motivation refers to the enjoyment or pleasure felt when individual accepts and uses a technology.
5	Price Value	The concept of price value refers to comparing the costs spent by users with the benefits gained from adopting technology.
6	Habit	The concept of habit refers to a level at which individuals adopt behaviours automatically because of gained knowledge and experience.
7	Facilitating Conditions	The concept of facilitating conditions relates to the user's subjective judgment of the availability of resources and assistance needed in transaction activities.
8	Personal Innovativeness in IT	Personal Innovativeness in Information Technology is a concept that refers to an individual's tendency to adopt and utilize technology based on personality characteristics.
9	Behavioural Intention	Behavioural Intention refers to customers engaging in behaviours related to using neobanking services.
10	Use Behaviour	Use behaviour refers to customers adopting and using neobanking services as their primary banking solution.
11	Marketplace Application Usage	The use of marketplace applications is related to understanding user habits, specifically the frequency of digital payment usage for online shopping on marketplace platforms.
12	Trust	Trust refers to people's assurance, dependability, and confidence in a system's security, confidentiality, and authenticity as well as the protection of their personal and financial information.
13	Perceived Risk	The concept of perceived risk refers to a personal assessment and concern about potential negative outcomes or uncertainty related to their involvement in technology.
14	Behavioural Intention to Recommend	The concept of behavioural intention to recommend focuses on user intention to share their positive experiences and encourage others to use the same technology.

This research also incorporates sociodemographic and behavioural factors related to the use of marketplace and neobank applications to aid in segmentation. Sociodemographic

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factors are measured through variables such as Age, Gender, Income, Education, Duration of Neobanking, and Webrooming Experience. Specifically, the social aspect is captured through questions on education level, employment, income, and smartphone specifications, while the demographic aspect includes questions on gender, age, and residence. Behavioural aspects of marketplace and neobank usage are assessed through questions regarding the type of services used and their frequency. Table 2 provides a detailed explanation of the variables used for both sociodemographic and behavioural aspects.

Table 2: Sociodemographic Variables

Variables	Variables Definition	Data Type
Age (Wang et al., 2020)	Respondent's Age	Ordinal
Gender (Wang et al., 2020)	Respondent's Gender	Nominal
Income (Rahi et al., 2019)	Respondent's Monthly Income	Ordinal
Education (Rahi et al., s2019)	Respondent's Latest Education	Ordinal
Residence	Respondent's Living Place	Nominal
Neobanking Experience	Frequency of Using Neobank Application	Ordinal
Webrooming Experience	Frequency of Using Marketplaces and Digital Payment Application	Ordinal

Before analysis, the questionnaire underwent thorough validation and reliability testing to ensure accurate measurement. This study employs PLS-SEM to identify the primary factors influencing user behaviour and intentions. Additionally, machine learning models and Partial Dependence Analysis (PDA) are utilised to examine how these factors affect users' likelihood to adopt and recommend neobanking services.

Sampling and Data Collection

The data for this study were collected as primary data from December 2023 to February 2024 via online questionnaires distributed through survey platforms, Tsurvey and Lime Survey. The target population consists of users of neobanking mobile applications in Indonesia. The sample size calculation, based on the confidence interval for a population proportion, was conducted using the following equation:

$$n^{\prime}=n/(1+(z^2\times p\hat{}(1-p\hat{}))/(\varepsilon^2 N)) \quad (1)$$

The sample size n was determined using the following equation:

$$n=(z^2\times p\hat{}(1-p\hat{}))/\varepsilon^2 \quad (2)$$

The sample size n was determined using the formula: Z = confidence level score, ε = margin of error, N = population size, and $p\hat{}$ = estimated population percentage. A population of 97 million digital banking customers was studied with a 95% confidence level and 5% margin of error (Similarweb, 2024). These parameters required 385 replies as a minimum sample size. Indonesian neobank users provided 386 responses.

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Purposive sampling was utilised to choose respondents who have used neobank apps such BNC, Bank Jago, Allo Bank, Sea Bank, and Bank Aladin at least eight times each month for three months.

Respondents Demographic

The majority of the respondents were female, predominantly from Generation Z, a group typically more adept with banking technology compared to older generations like Generation X and Y. Additionally, 55.4% of respondents owned high-end smartphones, which offer advanced security features and improved functionality, enhancing their neobank experience. About 36.8% of respondents reported a monthly income between 5 to 9.9 million rupiah, with most residing in the DKI Jakarta area. In terms of education, 41.5% held bachelor's degrees, 38.3% had completed high school, and 12.2% held diplomas. Around 67.1% of respondents indicated a preference for neobank services. Most users had engaged with two or more neobank applications for approximately 7 to 12 months, with 65% primarily using SeaBank and 40% preferring Bank Jago. Table 3 provides a detailed respondents demographic.

Table 3: Respondents Demographic

Characteristics	Group	Frequency	Percentage (%)
Gender	Male	165	42,7%
	Female	221	57,3%
Age	18-27 Years Old	204	52,8%
	28-42 Years Old	147	38,1%
	43-58 Years Old	35	9,1%
Smartphone	Low-End	17	4,4%
	Mid-End	155	40,2%
	High-End	214	55,4%
Income	Less than 2,5 Million IDR	90	23,3%
	2,5 – 4,9 Million IDR	114	29,5%
	5 – 9,9 Million IDR	142	36,8%
	More than 10 Million IDR	40	10,4%
Education	Senior High School	148	38,3%
	Diploma	47	12,2%
	Bachelor	160	41,5%
	Master	27	7,0%
	Doctoral	4	1,0%
Neobank Application	Seabank	255	66,1%
	Bank Jago	153	39,6%
	Allo Bank	112	29,0%
	Bank Aladin	86	22,3%
	BNC	34	8,8%
Neobank Usage Longevity	3-6 Months	70	18,1%
	7-9 Months	123	31,9%
	10-12 Months	140	36,3%
	More than 12 Months	53	13,7%

METHODOLOGIES

In this research, four methodologies were chosen to address the research questions:

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Structural Equation Modelling (SEM)

The statistical method SEM combines regression and confirmatory factor analysis. SEM examines latent variable-indicator connections, according to (Hair et al., 2013). SEM was used to test hypotheses and validate variable connections in this study. In this study, hypothesis testing examined whether independent variables significantly affect behavioural intention and neobanking service recommendation. It also examined the indirect relationships between independent and dependent variables through intervening variables. Furthermore, SEM was used to evaluate the significance of the latent variables' indicators. SEM offers several advantages over traditional analysis, such as greater flexibility in assumptions, which allows for interpretation even when multicollinearity is present. It also enables confirmatory factor analysis, which reduces measurement error by testing multiple indicators for each latent variable, and provides enhanced model visualisation through its graphical interface.

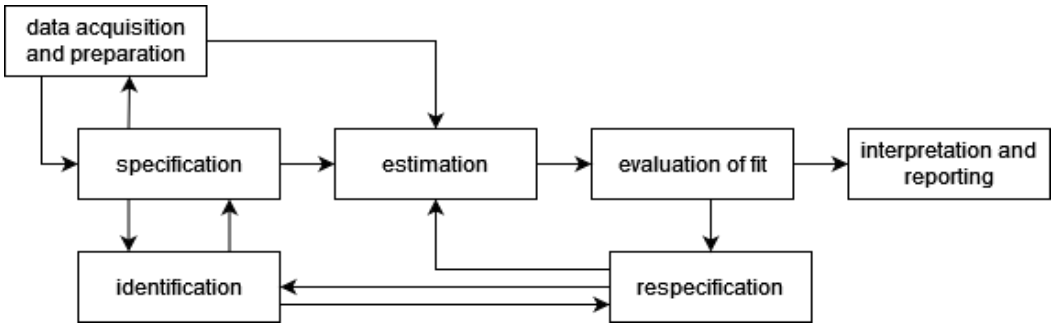

Figure 3: Implementation Framework in SEM Adopted from (Gutterres et al., 2009).

Figure 3 illustrates the SEM framework, which comprises four key processes: specification, estimation, evaluation of fit, and interpretation and reporting. Additionally, data collection, preparation, and identification are crucial steps that support the successful execution of these phases.

According to Martínez Avila *et al.* (2021), SEM consists of three components:

Weight Relation

The weight relation indicates the connection between the variance score and its corresponding latent variables. This relationship between the weight and other factors can be represented by the following equations:

$$\xi_b = \sum_k w_k x_k \quad (3)$$

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$$\eta_i = \sum_k \quad w_k y_k \tag{4}$$

Where w_b and w_i represent the weight of k that is used to estimate latent variables of b and i.

Inner Model

The structural model, also known as the inner model, outlines the relationship structure between latent variables derived from the underlying theory. Latent variables are categorised into two types: exogenous constructs, representing independent variables, and endogenous constructs, representing dependent variables. The equation for the structural model is as follows:

$$\eta_i = \sum \quad \beta_j \eta_i + \sum \quad \Upsilon_j \xi_b + \zeta_j \tag{5}$$

Where:

j = Total endogenous latent variable
β_{ji} = Path coefficient relating endogenous latent variables among themselves (η)
Υ_{jb} = Path coefficient relating endogenous latent variables among exogenous (ξ)
ζ_j = Residual of latent variable left unexplained by corresponding exogenous latent variables (Inner Residual Variables).

Outer Model

The measurement model, or outer model, defines the relationship between the latent variable and its observed indicators (measured variables). There are two types of outer models: reflective indicator models and formative indicator models. In reflective models, each indicator is seen as a reflection of the underlying latent variable. In contrast, in formative models, the indicators are assumed to cause or influence the latent variable, with a directional causality from the indicators to the latent construct.

Partial Dependence Analysis

Partial dependence is a method used to understand the impact of a specific variable on a predicted outcome while keeping other variables constant (Relova, 2021). This study applies partial dependence analysis to explore how independent variables influence users' intentions to adopt and recommend neobanking services. It provides a clearer view of which features significantly affect users' willingness to engage with neobanks. Partial dependence offers a more detailed perspective than traditional regression methods by isolating individual variables to assess their impact independently. It requires a model that fits the data, and the resulting plots can reveal the nature of the relationship between the dependent and independent variables—whether linear, monotonic, or more complex. In these plots, the y-axis shows the predicted outcome,

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while the x-axis represents the range of values for the independent variable.

RESEARCH FINDINGS

Table 4 displays the measurement model assessed through validity and reliability tests, ensuring the survey's quality and consistency. The table shows that all constructs were evaluated using Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). It was demonstrated that all variables had AVE values exceeding 0.5, indicating acceptable validity (Shrestha, 2021). Additionally, both Cronbach's Alpha and Composite Reliability values surpassed 0.6, suggesting satisfactory reliability (Kholed et al., 2021)

Table 4: Result of the Validity and Reliability Test

Variable	Cronbach's Alpha	Composite Reliability	AVE
Effort Expectancy	0.79	0.86	0.61
Facilitating Condition	0.68	0.82	0.61
Habit	0.78	0.87	0.69
Hedonic Motivation	0.7	0.85	0.66
Marketplace Usage	1.00	1.00	1.00
Perceived Risk	0.80	0.87	0.62
Performance Expectancy	0.70	0.83	0.63
Personal Innovativeness in IT	0.76	0.86	0.68
Price Value	0.75	0.86	0.67
Social Influence	0.72	0.84	0.64
Trust	0.75	0.86	0.66
Behavioural Intention	0.72	0.84	0.64
Use Behaviour	0.84	0.89	0.61
Behavioural Intention to Recommend	0.73	0.85	0.65

Table 5 shows that social influence, personal innovativeness in IT, facilitating conditions, price value, performance expectancy, habit, effort expectancy, trust, hedonic motivation, and marketplace use explained 77% of the variation in behavioural intention. Perceived risk accounted for 4% of the variation in trust. Additionally, behavioural intention, habit, facilitating conditions, and personal innovativeness in IT explained 79% of the variation in usage behaviour. Ultimately, usage behaviour explained 64.4% of the variation in the intention to recommend neobank services.

Table 5: Coefficient of Determination

Construct	R Square	R Square Adjusted
Behavioural Intention	0.77	0.76
Trust	0.04	0.04
Use Behaviour	0.79	0.78
Behavioural Intention to Recommend	0.64	0.64

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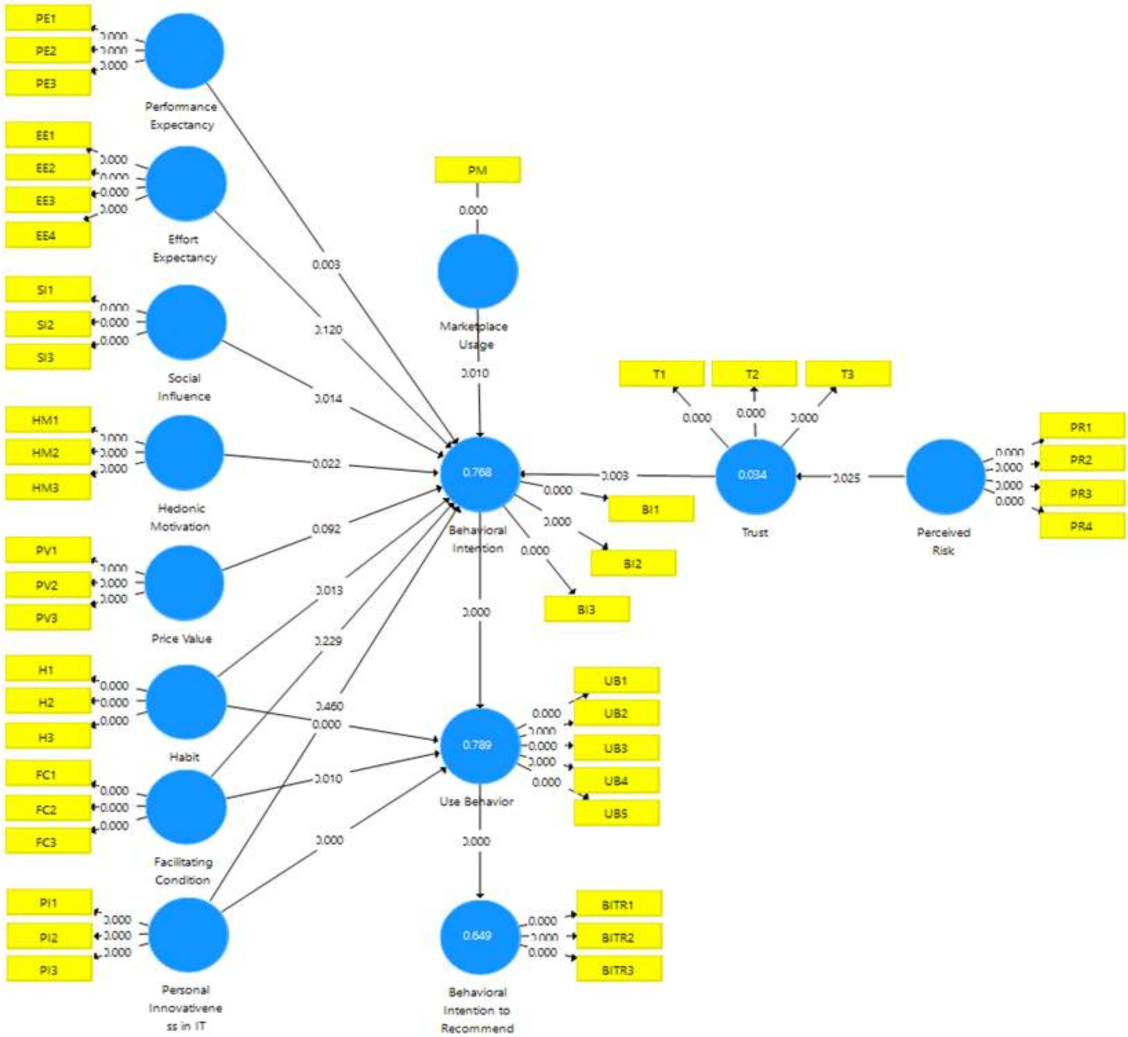

Figure 4: Result of Structural Model

We employed the bootstrap method with 500 replications to calculate path coefficients, standard errors, and p-values for each hypothesis (H1 - H16) as depicted in Figure 4. Table 6 presents the estimated results for each hypothesis test.

The hypothesis test indicated that performance expectancy, social influence, hedonic motivation, habit, marketplace usage, and trust are significant factors influencing users' intentions to adopt the neobank application. Moreover, perceived risk was found to have a significant impact on trust. Habits, facilitating conditions, personal innovativeness in IT, and behavioural intentions were found to significantly affect usage behaviour, while usage behaviour significantly influenced the intention to recommend neobank services.

Table 6: Result of Hypotheses Test

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Hypotheses		Coefficient	P-Values
H_1	Performance Expectancy Influences Behavioural Intention	0.15	0.00*
H_2	Effort Expectancy Influences Behavioural Intention	0.08	0.13
H_3	Social Influence Influences Behavioural Intention	0.14	0.02*
H_4	Hedonic Motivation Influences Behavioural Intention	0.12	0.02*
H_5	Price Value Influences Behavioural Intention	0.10	0.09
H_6	Habit Influences Behavioural Intention	0.16	0.01*
H_7	Facilitating Condition influences Behavioural Intention	0.06	0.25
H_8	Personal Innovativeness in IT Influences Behavioural Intention	0.04	0.43
H_9	Habit Influences Use Behaviour	0.26	0.00*
H_{10}	Facilitating Condition Influences Use Behaviour	0.11	0.02*
H_{11}	Personal Innovativeness in IT Influences Use Behaviour	0.27	0.00*
H_{12}	Perceived Risk Influences Trust	-0.19	0.02*
H_{13}	Trust influences Behavioural Intention	0.16	0.00*
H_{14}	Marketplace Usage influences Behavioural Intention	0.05	0.01*
H_{15}	Behavioural Intention Influences Use Behaviour	0.34	0.00*
H_{16}	Use Behaviour Influences Behavioural Intention to Recommend	0.80	0.00*

Figure 5 shows how factors like performance expectancy, marketplace usage, and trust positively impact behavioural intention to use neobanking. Trust also increases the likelihood of recommending neobank services. Personal innovativeness and behavioural intention are linked to continued usage, and positive usage behaviour boosts recommendations.

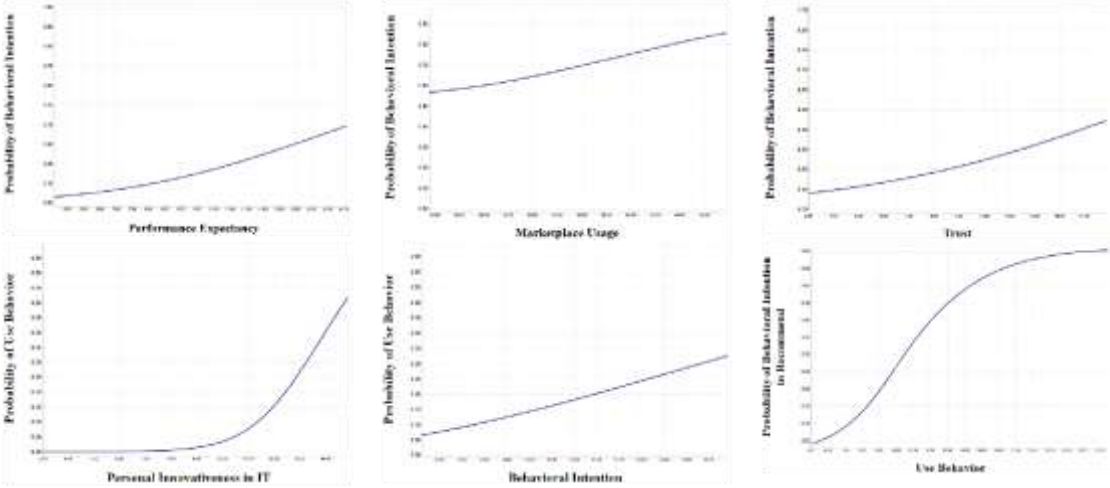

Figure 5: Partial Dependence Analysis (PDA) Output of Factors that Significantly Impacted Behavioural Intention.

Table 7 reveals a combination of strengths, weaknesses, opportunities, and threats that affect their position in the market. Neobanks are distinguished by user-friendly applications, a wide range of features, instant services, higher savings rates, and lower

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administrative fees compared to traditional banks. However, the use of services such as loans, credit, and investments remain limited, as they are not considered essential for everyday financial needs. The lack of physical branches and high customer acquisition costs also present challenges. Opportunities for growth lie in the increasing adoption of QRIS, digital wallets, online marketplaces, and active engagement through social media. Despite these opportunities, neobanks face significant challenges, including security concerns, customer preference for traditional banking, and issues related to low user adoption and high churn rates, which may hinder long-term growth and stability.

Table 7: SWOT Analysis

Strengths	**Weaknesses**
1. Convenient and user-friendly application 2. Wide range of features offered 3. Real-time service 4. Higher rates on saving **5.** Lower administrative fees compared to conventional banks	. The use of some existing neobank services (loan, credit, investment) is still relatively low because respondents feel that the current offerings or services are not very helpful in their daily lives 2. No branch services 3. Requires high cost to acquire user
Opportunities	**Threats**
1. High use of QRIS and digital wallets 2. High use of marketplaces 3. Good engagement on social media	1. High perception of security risks A large portion of customers continues to favour and rely on traditional banks 3. Low user penetration rate 4. High churn rate

DISCUSSION

This paper employs the UTAUT-3 model, building upon prior research (Bhatnagr & Rajesh, 2024), to examine user behaviour in the context of neobanking. The UTAUT-3 framework clarifies technology acceptance in neobanking user actions, with particular emphasis on user trust (Kim & Koo, 2016) and the integration of marketplace services within neobanks (Toshtemirovich, 2020). The combination of these three research frameworks forms the UTAUT-3 model, which aims to explore the relationship between trust and the services provided through marketplaces. The study is structured around hypotheses (H1–H16) to investigate the relationships and impacts of various indicators. Most hypotheses were supported (H1, H3, H4, H6, H9, H10, H11, H12, H13, H14, H15, and H16), indicating that performance expectancy, social influence, hedonic motivation, habit, trust, marketplace application usage, and user behaviour are significantly linked to behavioural intentions. Moreover, behavioural intention, facilitating conditions, personal innovation, and perceived risk were found to be associated with user behaviour, while trust was related to perceived risk. However, hypotheses H2, H5, H7, and H8 showed no significant relationships, leading to their rejection.

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After examining the relationships between the variables, PDA was used to visualise their effects on the hypotheses through line plots (Taylor, 2022). The analysis revealed that performance expectancy, marketplace usage, and trust all positively influenced behavioural intention, indicating that increases in these factors strengthen the intention to use neobanking. Additionally, personal innovativeness in IT and behavioural intention both showed an upward trend with usage behaviour. Users with higher personal innovativeness and familiarity with user-friendly interfaces are more likely to continue using neobank services. Furthermore, positive usage behaviour correlates with a higher likelihood of recommending neobank services to others. The results from hypothesis testing and PDA suggest that the extended structural model, incorporating additional factors such as trust and marketplace usage, significantly impacts the intention to use neobank services. The findings emphasise that trust is a crucial determinant in the adoption of neobanking. Confidence in the platform enhances users' likelihood of engaging with neobank services, particularly when integrated into broader digital ecosystems like marketplaces, which further enriches the user experience. Users who exhibit higher levels of trust and engagement with marketplace applications are more inclined to use neobank services and are more willing to recommend them to others.

This study corroborates and expands upon prior research regarding technology adoption behaviour, affirming the critical roles of performance expectancy, facilitating conditions, and social influence in influencing behavioural intention and technology utilisation, as delineated by Venkatesh et al. (2003) in the UTAUT model. It underscores the significance of supplementary variables such as hedonic motivation, price value, and habit, as indicated in UTAUT-2 (Venkatesh et al., 2012), where user happiness and enjoyment are pivotal elements for adoption. This study enhances the UTAUT-3 model (Farooq et al., 2017) by illustrating the influence of personal innovativeness in information technology, consistent with the findings of (Farooq et al., 2017) and (Pinto et al., 2022), which indicate that innovative persons are more predisposed to adopt new technologies.

The findings of this study align with research in the financial sector, particularly (Bhatnagr & Rajesh, 2024), who highlight perceived risk as a key factor influencing behavioural intention and technology adoption. Performance expectancy, social influences, facilitating conditions, hedonic motivation, habit, and personal innovativeness in IT were found to significantly affect neobank adoption. Bhatnagr and Rajesh (2024) confirm that perceived risk strongly impacts user acceptance, emphasising that user confidence and usage can be enhanced by addressing risk-related factors, particularly in fintech services. These findings underscore the importance of trust and security in technology adoption and call for strategies to minimise risks and increase user trust. The study also highlights the need for demographically tailored approaches, as behavioural intentions vary by age, gender, and experience. Neobanks

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in Indonesia, established in 2017, have seen slow growth, mainly attracting younger users (under 39) (Statista, 2024). This slow adoption is partly due to the reliance on conventional banks. Compared to South Korea, Indonesia's neobank expansion is slower (Louis & Jang, 2022). To boost adoption across age groups, it is crucial to strengthen user trust and leverage marketplaces, enhancing factors like performance expectancy, effort expectancy, and social influence.

To increase neobank usage and build trust, performance expectancy is a key factor. This refers to users' beliefs about a technology's ability to support their tasks, which can influence their intentions to use neobanks for greater comfort, security, and efficiency. In Indonesia, respondents show positive performance expectancy towards neobank services, which enhances their willingness to adopt them. Younger individuals, particularly those under 28, are more easily influenced by factors such as proximity, social status, and influencer endorsements. Their high social media usage further aids in discovering neobank-related information. The ongoing use of neobanks encourages providers to innovate and introduce new features. Improving infrastructure, security, skills, and resources, alongside offering responsive 24/7 support, can increase trust and expand the user base. Meeting these expectations, along with targeted marketing efforts, will motivate users to continue using the services. The more interested and trusting respondents are, the more likely they are to become loyal customers. Therefore, neobank providers must develop strategies to build trust, deliver optimal services, and listen to user needs to foster long-term customer loyalty.

To build trust and expand the marketplace user base, a strategic approach is required, which can be developed through SWOT analysis. The strengths of neobanks, identified through customer surveys and literature reviews, include their user-friendly applications, a broad range of features, real-time services, higher interest rates on savings, and lower administrative fees compared to traditional banks. However, neobanks also face weaknesses, such as low usage of services like loans, credit, and investments, as they are perceived as less relevant to users' daily financial needs. The absence of physical branches and high customer acquisition costs also present challenges. Neobanks have significant opportunities, such as the growing adoption of QRIS and digital wallets, supported by high engagement on online marketplaces and social media, particularly among younger generations. Nonetheless, they face threats, including security concerns surrounding digital banking, with many customers still preferring conventional banks. Additionally, the slow user adoption and high churn rates pose risks to the long-term growth and stability of neobanks.

Several strategic initiatives can address the challenges identified in the SWOT analysis, focusing on effective customer management. Two strategies leverage neobanks' strengths and opportunities: First, create marketing content highlighting the ease of use, diverse features, and low administrative fees, with strong engagement on social media.

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Second, integrate neobanks with online marketplaces, aligning their real-time access and low costs with marketplace dynamics. To tackle threats, neobanks should focus on improving security, adding features like account locking and freezing, and partner with reputable institutions to strengthen cybersecurity. Addressing weaknesses and opportunities, neobanks can integrate their services with popular marketplaces to reduce user acquisition costs and collaborate on offering loans and credit, diversifying financial solutions. Lastly, to mitigate weaknesses and threats, neobanks should introduce premium products not offered by conventional banks and a card less cash withdrawal feature at Prima ATM outlets, enhancing convenience for customers.

The strategies outlined below aim to reinforce the strengths and opportunities of neobanks while addressing their weaknesses and mitigating potential threats. By implementing these strategies, neobank providers can enhance customer engagement and satisfaction. According to survey data and overall analysis, the primary barrier to neobank adoption is users' fear of potential risks. This concern primarily stems from the perception that neobanks may lead to financial losses or pose data security threats. Users often feel that neobanks have yet to fully establish trust in their systems and security measures for protecting assets. To overcome this challenge, neobanks must build credibility and trust with their customers. This can be achieved through robust data security, transparency, and seamless user experiences. Additionally, neobanks can leverage the established trust and brand recognition of prominent digital marketplaces to strengthen their own credibility. By integrating their services deeply within these platforms, neobanks can benefit from the trust customers already place in these well-known ecosystems.

CONCLUSIONS AND RECOMMENDATION

This study extends the UTAUT-3 framework to better understand neobank adoption in Indonesia. The extended model incorporates new constructs such as trust and variables like marketplace application usage, along with the intention to use and recommend neobanking services. Key factors significantly influencing individuals' intention to adopt neobanking services include trust, performance expectancy, effort expectancy, social influence, hedonic motivation, price value, habit, facilitating conditions, personal innovativeness in IT, and marketplace usage. Additionally, the usage behaviour variable significantly impacts the likelihood of recommending neobanks to others.

PDA further supports the structural model, highlighting positive trends for trust, marketplace usage, and other critical factors, while showing flat relationships for effort expectancy, personal innovativeness, price value, and facilitating conditions. Trust and integration with digital ecosystems, such as marketplaces, are crucial for neobank adoption. Neobanks that build trust and integrate seamlessly with popular digital ecosystems are more likely to attract, engage, and retain customers seeking secure,

convenient financial services. Strategies focusing on these key factors can enhance marketing efforts and influence the pre-sales phase. Future research should explore additional variables that may influence neobank adoption, thereby providing a more comprehensive understanding of the factors affecting this phenomenon.

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