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Modeling Continuance Intention of Superapps Mobile Banking: An Empirical Study of ECM Extended with Trust and Security

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Abstract

Superapps mobile banking is a new type of digital banking service that combines financial transactions and lifestyle aspects into one platform. Superapps are becoming more popular in Indonesia since more people are using the internet and smartphones. This is because there is a rising need for practical and integrated financial solutions. Many studies have looked at the early use of mobile banking, but not many have looked at what keeps people using superapps mobile banking, especially in Indonesia. Using an enhanced Expectation Confirmation Model (ECM), this study intends to look at how perceived security, trust, confirmation, perceived utility, and satisfaction affect the intention to continue using. We did a survey of 268 people who use superapps mobile banking from regular banks in Indonesia. We then used Partial Least Squares Structural Equation Modeling (PLS-SEM) to look at the data. The results show that confirmation has a beneficial effect on perceived usefulness and satisfaction. Trust and Perceived usefulness seem also to have a big effect on Satisfaction, which is a big marker of whether someone will continue using the services. Perceived security doesn't directly affect satisfaction, but it does have a big effect on trust, which then affects continuance intention. These results show how important it is to develop trust and satisfaction in order to keep users loyal in Indonesia's growing superapps mobile banking ecosystem.

Keywords: Confirmation, Perceived Usefulness, Expectation–confirmation model, Superapps Mobile Banking

INTRODUCTION

Digital transformation in the banking industry has brought about a major change in the way customers access financial services. Innovations in digital banking services, especially through mobile banking applications, have improved transaction efficiency and provided convenience for users in managing their finances (Farzin et al., 2021). The use of mobile banking continues to increase in line with the growth of internet access and high smartphone penetration (Kejela & Porath, 2022). Mobile banking applications allow customers to carry out banking transactions such as fund transfers, bill payments, investments, and account management in real time without having to visit physical branch offices (Kim et al., 2024). Along with the increasing penetration of the internet and smartphones, the adoption of mobile banking in Indonesia continues to grow rapidly, making it an essential service for the community.

In the increasingly advanced digital era, banking *super app* services have become an inseparable part of the lives of the Indonesian people. According to SDK finance (2023), a banking *super app* is a mobile application that combines various financial services in one convenient platform, designed to simplify users' financial lives as well as allow banks to build deeper relationships with customers through the automation of traditional banking functions. Major banks in the country are competing to present digital innovations that make their customers' transactions easier with their mobile banking *superapp* services. Based on data as of June 2024, there are millions of users actively using mobile banking applications, with transaction volumes reaching thousands of trillions of rupiah. PT Bank Central Asia Tbk (BCA), through *myBCA*, recorded 7.7 million users with total transactions reaching IDR 6.9 billion throughout 2024. Meanwhile, BRI with the *BRImo* application is the leader in terms of the number of users, with 35.2 million active users; the total transactions carried out reached 2 billion transactions with a transaction volume of IDR 2,574 trillion. This figure shows that *BRImo* has managed to attract many users, especially from the MSME segment and rural communities, which are the bank's main targets. PT Bank Mandiri (BMRI) with the *Livin' by Mandiri* application also recorded a strong performance, with 26 million users, 1.8 billion transactions, and a transaction volume of IDR 1,883 trillion. This proves that *Livin' by Mandiri* is one of the *super apps* that is quite popular in Indonesia (CNBC Indonesia, 2024).

In the last five years, the number of transactions through mobile and internet banking, for example at BCA bank, has continued to increase fivefold, while the number of mobile banking users increased 2.8 times. BCA continues to record significant growth in the number of customers, reaching 33.1 million customers, with an increase of 7.6% YoY. BCA's dominance in digital services is getting stronger with the achievement of record highs in mobile and internet banking transactions. The number of transactions reached 31.6 billion, an increase of 23.5% YoY, while the transaction value reached IDR 28,261 trillion, growing 13.8% YoY (PT. Bank Central Asia Tbk, 2024).

Along with the rampant launch of *superapps* by major banks in Indonesia, such as BCA with *myBCA*, BRI with the new *BRImo*, Mandiri with *Livin'*, and BNI with *Wondr*, it is evident that there has been a transformation of banking services that not only focus on basic financial transactions, but also integrate various lifestyle services into one digital platform. This phenomenon shows that modern banking seeks to increase customer satisfaction through the provision of more practical, complete, and seamless services (Bisnis.com, 2024). This high

level of satisfaction is certainly expected to encourage *continuance intention to use*—namely the desire of customers to continue using the application in a sustainable manner. The success of mobile banking is not only determined by initial adoption, but also by *continuance intention to use*, i.e., the extent to which users remain using mobile banking applications in the long term (Nguyen et al., 2022).

In addition, with this growth, cybersecurity is a major challenge in digital banking services. Cybercrimes such as hacking and social engineering are increasingly rampant, threatening the security of customer data and transactions (APTIKA Kominfo, 2019). On the other hand, the risk of personal data leakage and misuse of technology by third parties is also a serious concern for banks in developing their digital services. In this context, understanding factors such as *perceived security* and trust is crucial. *Perceived security* refers to the extent to which users feel safe when using digital services, and trust plays a role in building user confidence in the reliability of the digital banking system.

Various previous studies have examined the adoption of mobile banking using various theoretical approaches, such as the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Farzin et al., 2021), and discussed the factors influencing mobile banking adoption and customer satisfaction (Nguyen et al., 2022; Madavan & Vethirajan, 2020). Although many studies have addressed the factors influencing early adoption of mobile banking, there are still limitations in studies examining the factors that encourage customers to continue using mobile banking *superapps* in the long term.

In recent decades, the Expectation-Confirmation Model (ECM) developed by Bhattacherjee (2001) has become the main theoretical model used to explain *continuance intention to use* in the context of information technology, including mobile banking *superapps*. ECM focuses on how confirmation of the user's experience of initial expectations and perceived usefulness affect satisfaction, which ultimately encourages users to stick with a system (Bhattacherjee, 2001).

Along with the development of research, the addition of new variables such as *perceived security* and trust has become relevant to the context of digital banking, which has challenges in dealing with cybercrime. *Perceived security* refers to the extent to which users feel safe when using digital services (Kumar et al., 2018), while trust plays a role in building user confidence in the reliability of the digital banking system (Nguyen & Ha, 2021).

Although various studies have addressed the *continuance intention to use* of conventional mobile banking, there are still limitations in studies that specifically examine how factors such as *perceived security*, trust, and satisfaction interact in shaping users' decisions to continue using mobile banking *superapps* in the long term. In addition, studies related to customer satisfaction with mobile banking *superapps* are still focused on other countries, so there are not many studies that specifically discuss how customers in Indonesia maintain their loyalty to mobile banking *superapps* in the era of digital transformation. Therefore, this study seeks to fill the gap in the literature by analyzing the factors that affect the *continuance intention to use* of mobile banking *superapps* applications in Indonesia, using extended ECM and considering *perceived security* and trust variables in explaining user decisions.

Given the importance of these factors, this study seeks to answer the following key questions:

RQ 1: How does confirmation affect perceived usefulness and satisfaction?

RQ 2: How do perceived usefulness and satisfaction affect *continuance intention*?

RQ3: Do trust and satisfaction mediate the relationship between *perceived security* and *continuance intention*?

By understanding the factors that affect the *continuance intention to use* of mobile banking *superapps* applications in Indonesia, it is hoped that this research can provide insights for the banking industry in designing more effective strategies to increase user satisfaction toward mobile banking *superapps* applications.

Hypothesis Development

This study focuses on the factors that affect the *continuance intention to use* in mobile banking *superapps* application services in Indonesia. The model used refers to the Expectation-Confirmation Model (ECM) (Bhattacherjee, 2001), which explains that satisfaction is the main factor that encourages users to continue using digital services. However, this study extends ECM by adding trust and *perceived security* variables to provide a deeper understanding of the factors that influence user decisions.

Confirmation

The concept of confirmation in the study of technology adoption and sustainability refers to the degree of compatibility between users' initial expectations of a system and their actual experience after use (Bhattacherjee, 2001). In the framework of the Expectation Confirmation Model (ECM), confirmation is an important foundation that determines how users' perceptions of system benefits (*perceived usefulness*) and feelings of satisfaction are formed. When users feel that actual performance of an app meets or even exceeds their initial expectations, they are more likely to find the app useful and feel satisfied with its use.

Previous research has shown that confirmation consistently has a significant effect on *perceived usefulness* (Bhattacherjee, 2001; Shiau et al., 2020; Cheng, 2020; Al Amin et al., 2023; Kumar, 2020; Rahi et al., 2023; Rahman et al., 2024). In studies on the use of information systems, it was found that users who get an experience according to expectations tend to perceive the system as more useful (*perceived usefulness*), which is the belief that the service can improve user performance (Davis, 1989).

In addition, confirmation has also been proven to have a positive effect on user satisfaction. Previous studies have stated that when users' expectations for digital services or the use of technology are met, they are more likely to feel satisfied (Bhattacherjee, 2001; Liao et al., 2009; Al Amin et al., 2023; Pandita et al., 2022; Harnadi et al., 2024).

By referring to the existing literature, the following hypotheses can be formulated:

H1: Confirmation has a positive effect on *perceived usefulness*.

H2: Confirmation has a positive effect on satisfaction.

Perceived Usefulness

Perceived usefulness is defined as the extent to which a person believes that using a system will improve his or her performance (Davis, 1989). In the context of digital services such as mobile banking *superapps*, perceived usefulness is one of the main determinants affecting user satisfaction. The greater the benefits that users feel from an app, the higher the likelihood that they will be satisfied with the user experience.

Theoretical models such as the Technology Acceptance Model (TAM) and the Expectation Confirmation Model (ECM) place *perceived usefulness* as an important factor in shaping satisfaction and sustainability of use. Bhattacherjee (2001) states that after the

confirmation process, the perception of *perceived usefulness* has a direct impact on the level of user satisfaction. This is reinforced by Liao et al. (2009) and Shiau et al. (2020), who emphasize that when users feel the app is truly helpful in completing tasks or improving efficiency, satisfaction will naturally form.

In recent studies, Al Amin et al. (2023) and Rahman et al. (2024) proved that *perceived usefulness* contributes significantly to shaping satisfaction in the context of digital financial services in developing countries. Cheng (2020) also found similar results in the context of cloud-based systems, where *perceived usefulness* is the main predictor of service satisfaction.

Based on these findings, the following hypothesis is formulated:

H3: *Perceived usefulness* has a positive effect on satisfaction.

Perceived Security

Perceived security refers to the extent to which users feel that the digital system or service used can protect their personal and financial information from threats or misuse (Flavián & Guinalíu, 2006). In the context of digital-based financial services such as mobile banking *superapps*, security is a key factor that greatly influences user perceptions and attitudes. The higher the perception of security, the more likely users are to feel trust and satisfaction with the services they use.

Several previous studies have shown that *perceived security* plays an important role in shaping user satisfaction. According to Liao et al. (2009), users will feel satisfied with digital services when they feel secure during transactions or while accessing application features. Research by Kumar et al. (2018) and Egala et al. (2021) in the context of information technology systems also found that the sense of security felt by users significantly impacts increased satisfaction, as users tend to evaluate satisfaction not only based on functionality but also on protection against risk.

In addition, the literature shows that *perceived security* is a major determinant of trust. Users will only trust digital platforms if they feel the system is secure and can protect their personal data (Gefen et al., 2003). Similar findings were shown in studies by Kumar et al. (2018) and Zhang (2024), who found that the perception of security has a significant effect on the formation of trust, particularly in the context of digital banking and mobile financial services. In high-risk situations, such as digital financial transactions, trust tends to be stronger when the perception of security is high.

Based on these theoretical foundations and empirical findings, the following two hypotheses are formulated:

H4: *Perceived security* has a positive effect on satisfaction.

H5: *Perceived security* has a positive effect on trust.

Trust

Trust is a key element in the interaction between users and digital systems, especially in technology-based services such as mobile banking *superapps*. Trust is defined as the belief that a service provider will act reliably, safely, and in accordance with the expectations of the user (Gefen et al., 2003). In the digital context, where interactions are indirect and involve the risk of personal information, trust is the main foundation in shaping user attitudes and behaviors.

Recent research by Joshi (2025) shows that trust significantly affects user satisfaction, especially in the adoption of chatbot-based technology. In the expanded UTAUT model, trust has been proven to be a strong predictor of satisfaction because it can reduce uncertainty and

increase comfort in using technology. These findings are in line with a study by Zhang (2024), which emphasizes that *perceived security* and trust play mediating roles in increasing behavioral intention in facial recognition-based systems, indicating that trust plays an important role in the overall user experience.

In addition, trust also has a direct influence on *continuance intention to use* (Alshurideh et al., 2021; Rahman et al., 2024), namely, the user's intention to continue using digital services in the long term (Pandita et al., 2022). A study by Gómez-Hurtado et al. (2024) in the context of e-wallets confirms that trust not only increases the perception of usability and convenience, but also encourages positive attitudes and intentions of sustainable use. This shows that building trust is the main strategy in maintaining the loyalty of digital users.

With reference to these findings, the following hypotheses are proposed:

H6: Trust has a positive effect on satisfaction.

H7: Trust has a positive effect on *continuance intention to use*.

Satisfaction

Continuance intention to use is defined as the user's intention to continue using a service after initial adoption (Bhattacherjee, 2001). According to the Expectation-Confirmation Model (ECM) (Bhattacherjee, 2001), satisfaction is the main predictor of *continuance intention to use*. Satisfied users tend to retain the use of a service because of the positive experience gained, as well as the feeling that the app meets their needs efficiently. Various studies state that the higher the level of satisfaction, the more likely users are to continue using the service consistently and voluntarily (Alalwan, 2020; Al Amin et al., 2023; Cheng, 2021; Joshi, 2025; Gómez-Hurtado et al., 2024; Pandita et al., 2022; Rahman et al., 2024).

Thus, the following hypothesis is proposed:

H8: Satisfaction has a positive effect on *continuance intention to use*.

MATERIALS AND METHODS

The data analysis in this study uses the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach via SmartPLS software. This method was chosen because it is able to handle complex models with many latent constructs, is suitable for exploratory research with limited samples, and allows simultaneous testing between measurement and structural models (Hair et al., 2018).

The analysis stage begins with a descriptive analysis to understand the characteristics of respondents and service usage patterns. Furthermore, an evaluation of the measurement model was carried out to test the validity and reliability of the constructs through factor loading values (> 0.70), Average Variance Extracted (AVE) (> 0.50), Composite Reliability (CR), and Cronbach's Alpha (CA) (> 0.70). Discriminant validity was tested using the Heterotrait-Monotrait Ratio (HTMT) method with a threshold of < 0.90 (Henseler et al., 2015).

The structural model evaluation was carried out by analyzing the path coefficient, t-statistics, and p-values through the bootstrapping technique (5,000 replications), with a significance limit of $t > 1.645$ and $p < 0.05$. The value of f-square is used to assess the effect of path contribution, and R-square is used to measure the predictive strength of endogenous constructs. Indirect effect analysis was also carried out to observe the role of mediation in the model.

This approach enables researchers to examine the relationships between variables in a

comprehensive and in-depth manner, as well as to provide a decision-making basis for the development of mobile banking *superapps* services.

This study uses a descriptive research approach that aims to explain the factors affecting the sustainability of mobile banking use. This method was chosen because the study not only describes the phenomenon but also explains the relationships between variables such as confirmation, perceived usefulness, perceived security, trust, and satisfaction with customers' decisions to continue using mobile banking *superapps* services. By understanding these relationships, the research is expected to provide a comprehensive picture of user behavior in utilizing digital banking services.

The research design employed is a cross-sectional study, as data collection is conducted only once at a specific point in time, allowing for an accurate description of the actual condition of mobile banking *superapps* users during the research period. This study is minimally invasive, meaning there is no manipulation of variables but only measures the relationships between variables as they exist. The unit of analysis is individuals—namely, active customers who use mobile banking *superapps*. The data source used was primary data, obtained through the distribution of online questionnaires to selected respondents.

The sampling technique used was purposive sampling, with the main criteria for respondents being conventional bank customers in Indonesia who use mobile banking *superapps* such as *MyBCA* (BCA), *Livin'* (Mandiri), *BRImo* (BRI), *Wondr* (BNI), or *OctoMobile* (CIMB Niaga). The selected respondents had used *superapps* for at least six months, ensuring that the assessments provided were based on sufficient experience. The population of this study consists of all users of mobile banking *superapps* in Indonesia, while the sample size was determined using the Slovin formula, with a target of at least 385 respondents.

Data collection was carried out through an online questionnaire distributed via various digital platforms such as email and social media. The research instrument is divided into two parts: the first part collects demographic data such as age, gender, and frequency of application use; the second part contains statements related to the research variables. A 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) is used to measure respondents' perceptions of the variables of confirmation, perceived usefulness, perceived security, trust, satisfaction, and *continuance intention to use* in mobile banking *superapps* services.

The data analysis in this study, again, uses the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach via SmartPLS software. This method was chosen because it is able to handle complex models with many latent constructs, is suitable for exploratory research with limited samples, and allows simultaneous testing between measurement and structural models (Hair et al., 2018). The analysis stage begins with a descriptive analysis to understand the characteristics of respondents and service usage patterns. Subsequently, an evaluation of the measurement model is conducted to test construct validity and reliability using factor loadings (> 0.70), AVE (> 0.50), Composite Reliability (CR), and Cronbach's Alpha (CA) (> 0.70). Discriminant validity is examined with the HTMT ratio using a threshold of < 0.90 (Henseler et al., 2015).

Structural model evaluation is performed by analyzing path coefficients, t-statistics, and p-values via bootstrapping (5,000 replications), with significance determined at $t > 1.645$ and $p < 0.05$. The f-square value assesses the size of path contributions, and R-square measures the

predictive power of endogenous constructs. Indirect effect analysis is also conducted to examine the mediating role within the model. This approach enables researchers to thoroughly and comprehensively analyze the relationships among variables, and provides a useful basis for decision-making in the development of mobile banking *superapps* services.

RESULTS AND DISCUSSION

Empirical results

Of the total 493 respondents who filled out the questionnaire, as many as 399 respondents met the criteria and could be analyzed further. The majority of respondents were women (54.4%), and most were in the age range of 20–29 years (40.4%) and 30–39 years (36.3%), reflecting the dominance of the productive age group in the use *of mobile banking* superapps.

Judging from their work background, the majority of respondents work as private employees (43.6%), followed by entrepreneurs (17.5%), and students/students (15.5%). This composition shows that the use of *superapps* is quite widespread among professionals and the younger generation who are still studying. In terms of education, most of the respondents were Bachelor (S1) graduates (51.6%), followed by high school graduates/equivalent (22.3%), and Postgraduate (S2/S3) graduates (12.0%).

In terms of duration of use, more than half of respondents have used *superapps* for more than 2 years (57.9%), while 25.3% have used them for 1–2 years. This data shows that the majority of respondents have sufficient experience in using *superapps services*.

The frequency of use in the past week was also relatively high, with most respondents using the app 6–10 times (34.8%), followed by 1–5 times (32.8%), and 11–20 times (20.3%). This indicates that *superapps* have become part of a routine and quite intensive digital activity for users.

In terms of average personal expenses per month, the distribution of respondents is quite even. The largest proportion was in the < category of IDR 3,000,000 (27.6%) and IDR 3,000,001 – IDR 5,000,000 (26.3%), followed by the group with higher expenditures and some who chose not to mention (15.3%). This composition illustrates the diverse economic background of *superapp users* in Indonesia.

Evaluation of the Measurement Model

Based on the results of the validity and reliability test measurements, it can be concluded that the entire construct has met the criteria of good validity and reliability in accordance with the guidelines from Hair et al. (2018). The *loading factor* value for all items is above the minimum threshold value of 0.70, which indicates that each indicator has a fairly strong contribution to the construct it represents. In addition, Cronbach's Alpha (CA) and Composite Reliability (CR) values for all constructs were also above 0.70, indicating that the instrument had good internal reliability and was consistent in measuring the construct in question. The Average Variance Extracted (AVE) value for all constructs also exceeded the minimum limit of 0.50, indicating the presence of adequate *convergent validity*. With an AVE > 0.50, it means that more than 50% of the variance of the indicator is successfully explained by the latent construct being measured. This shows that each construct has succeeded in explaining the variance of its measuring items substantially.

As explained by Hair et al. (2018), reflective indicators that meet the criteria of factor

loading > 0.708, AVE > 0.50, and CR and CA values between 0.70–0.90 indicate good measurement quality. Therefore, it can be concluded that the measurement model in this study has met the criteria of convergent validity and internal reliability, and is feasible to continue at the structural *model assessment stage*.

Table 1. the criteria of convergent validity and internal reliability

Variable	Kode Items	Factor Loading (>0,7)	CA (>0.7)	CR (>0.7)	AVE (>0.5)
Confirmation	CON1	0,826	0,758	0,846	0,578
	CON2	0,796			
	CON3	0,856			
	CON4	0,835			
Perceived Usefulness	PU1	0,734	0,814	0,870	0,573
	PU2	0,819			
	PU3	0,742			
	PU4	0,744			
	PU5	0,734			
Perceived Security	PS1	0,740	0,834	0,883	0,602
	PS2	0,838			
	PS3	0,783			
	PS4	0,780			
	PS5	0,787			
Trust	TR1	0,722	0,831	0,881	0,596
	TR2	0,734			
	TR3	0,758			
	TR4	0,783			
	TR5	0,787			
Satisfaction	SAT1	0,773	0,844	0,889	0,616
	SAT2	0,772			
	SAT3	0,781			
	SAT4	0,809			
	SAT5	0,783			
Continuation Intention to Use	CI1	0,738	0,847	0,897	0,686
	CI2	0,763			
	CI3	0,788			
	CI4	0,786			

Note: Cronbach's Alfa (CA), Composite Reliability (CR), dan Average Variance Extracted (AVE)

The results of the correlation analysis between constructs show a positive and strong relationship between most variables. Perceived Security had the highest correlation with Trust (r = 0.866), followed by Satisfaction and Continuation Intention to Use (r = 0.865), which confirmed the important role of these three constructs in driving loyalty to superapps usage.

According to Hair et al. (2018), correlations between constructs that are high but still below the threshold of discriminant validity (e.g. HTMT < 0.90) are acceptable, as long as each

construct still has adequate validity and reliability. Therefore, these correlation results not only strengthen the theoretical assumptions, but also show that the constructs in the model have a logical relationship and support the sustainability of the use of superapps.

Table 2. Discriminant Validity Test (HTMT Matrix)

Construct	CON	CI	PS	PU	SAT	TR
CON						
CI	0,440					
PS	0,134	0,637				
PU	0,576	0,744	0,514			
SAT	0,633	0,865	0,621	0,819		
TR	0,285	0,855	0,866	0,684	0,809	

Structural Model Evaluation

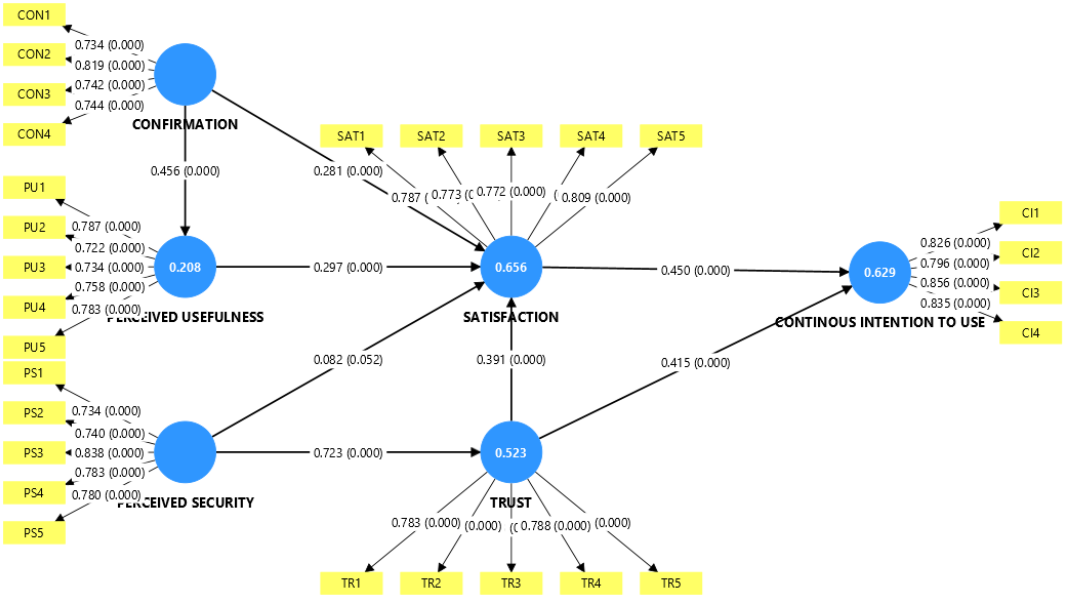

Figure 1. PLS Results and Structural Model (Factor Loading & R-Square)

Table 3. Hypothesis Testing Results

Hypothesis	Path	Path Coefficient	T Statistic	F Square	P Values	Result
H1	CON → PU	0,456	10,092	0,263	0,000	Accepted
H2	CON → SAT	0,281	8,406	0,179	0,000	Accepted
H3	PU → SAT	0,297	6,839	0,144	0,000	Accepted
H4	PS → SAT	0,082	1,624	0,009	0,052	Not Accepted
H5	PS → TR	0,723	24,937	1,097	0,000	Accepted
H6	TR → SAT	0,391	6,943	0,176	0,000	Accepted
H7	TR → CI	0,415	8,362	0,248	0,000	Accepted
H8	SAT → CI	0,450	9,518	0,292	0,000	Accepted

Based on the results of structural model testing, all the hypotheses proposed were proven to be significant, except for one track. The results of the first hypothesis test (H1) showed that

Confirmation had a significant effect on Perceived Usefulness with a path coefficient of 0.456, a t-statistic value of 10.092, and a p-value of 0.000. An f-square value of 0.263 indicates a moderate influence (Hair et al., 2018), which indicates that the higher the correlation between the initial expectations and the actual user experience, the higher the perception of the usefulness of the superapps application.

The second hypothesis (H2) also shows that Confirmation has a positive and significant influence on Satisfaction ($\beta = 0.281$; $t = 8.406$; $p < 0.001$), with an f-square value of 0.179. These findings confirm that user satisfaction is formed not only from the functional benefits of the app, but also from the confirmation of the expectations felt after use.

In the third hypothesis (H3), Perceived Usefulness was shown to have a positive and significant effect on Satisfaction ($\beta = 0.297$; $t = 6.839$; $p < 0.001$), with an f-square value of 0.144. This reinforces the argument that users' perception of the usability value of an app contributes significantly to their satisfaction rate.

However, the results of the fourth hypothesis test (H4) showed that the direct effect of Perceived Security on Satisfaction was not statistically significant ($\beta = 0.082$; $t = 1.624$; $p = 0.052$), with a very small f-square of 0.009. These findings indicate that perceptions of security are not yet strong enough to directly affect satisfaction, but can play a role through other constructs such as trust.

On the other hand, in the fifth hypothesis (H5), Perceived Security was shown to have a great effect on Trust ($\beta = 0.723$; $t = 24.937$; $p < 0.001$), with a f-square value of 1.097 which was very large. This makes it clear that a sense of security is the main foundation in building trust in the mobile banking superapps platform.

The sixth hypothesis (H6) shows that Trust has a significant effect on Satisfaction ($\beta = 0.391$; $t = 6.943$; $p < 0.001$), with a moderate effect (f-square = 0.176). This means that the higher the user's trust in the service provider, the greater the level of satisfaction felt.

Furthermore, testing of the seventh (H7) and eighth (H8) hypotheses showed that Trust and Satisfaction had a significant influence on Continuation Intention to Use, respectively, with coefficients of 0.415 and 0.450, t-statistical values of 8.362 and 9.518, and f-squares of 0.248 and 0.292. These two paths affirm the important role of trust and satisfaction in encouraging users' intention to continue using mobile banking superapps services.

Overall, these findings strengthen the conceptual framework that connects perceptual variables such as confirmation, perceived usefulness, and perceived security through trust and satisfaction in explaining continuance intention. (See Table 5)

Mediation Effect and Indirect Effect

The results of the mediation pathway analysis provide a deeper understanding of the psychological mechanisms underlying the continuance *intention of mobile* banking superapps. Based on the test, it was found that *confirmation* had a significant indirect effect on *satisfaction* through *perceived usefulness* ($\beta = 0.135$; $t = 5.447$; $p < 0.001$). In addition, *confirmation* also contributes to *continuance intention* indirectly through *satisfaction* ($\beta = 0.126$; $t = 6.533$; $p < 0.001$), as well as through the chain path of *perceived usefulness* → *satisfaction* ($\beta = 0.061$; $t = 4.385$; $p < 0.001$). These findings indicate that the match between initial expectations and actual experience plays a role in increasing the perception of benefits, which in turn shapes satisfaction and strengthens users' intention to continue using the service.

Furthermore, *perceived usefulness* has also been shown to affect *continuance intention* indirectly through *satisfaction* (β = 0.133; t = 5.196; p < 0.001), confirming the important role of perceived usefulness in creating user satisfaction. On the other hand, *trust* showed an indirect influence on *continuance intention* through *satisfaction* (β = 0.176; t = 6.106; p < 0.001), which reinforces the assumption that the level of trust in digital services can increase satisfaction, which further impacts user loyalty.

The results of the test on the influence *of perceived security* showed that the mediation path through *satisfaction* alone was not significant (β = 0.037; t = 1.540; p = 0.062). However, when mediated by *trust* (β = 0.300; t = 7.664; p < 0.001) or by the *trust* → *satisfaction* chain (β = 0.127; t = 5.693; p < 0.001), the effect became significant. This shows that *trust* is a key mediator that transforms the perception of security into user satisfaction and loyalty. Thus, these results strengthen a theoretical model that places *trust* and *satisfaction* as important mediating variables in bridging users' initial perceptions of the system with the intention to continue using mobile banking superapps.

Table 4. Mediation Effect Results

Path	Path Coefficient	T statistics	P values	Result
CON → PU → SAT	0,135	5,447	0,000	Significant
CON → SAT → CI	0,126	6,533	0,000	Significant
CON → PU → SAT → CI	0,061	4,385	0,000	Significant
PU → SAT → CI	0,133	5,196	0,000	Significant
PS → TR → SAT	0,283	6,343	0,000	Significant
PS → TR → CI	0,300	7,664	0,000	Significant
PS → SAT → CI	0,037	1,540	0,062	Unsignificant
PS → TR → SAT → CI	0,127	5,693	0,000	Significant
TR → SAT → CI	0,176	6,106	0,000	Significant

This study developed *the Expectation-Confirmation Model* (ECM) by incorporating trust and *perceived security constructs* into the analysis of the use of mobile banking superapps in Indonesia. The empirical findings obtained generally support the hypothesis put forward and are in line with established theories as well as previous empirical evidence.

The results showed that *confirmation* had a significant effect on *perceived usefulness* (H1) and *satisfaction* (H2), emphasizing the importance of matching user expectations and the actual experience they experienced. When the experience meets or even exceeds expectations, users tend to view the service as something valuable and satisfying. These findings are consistent with the basic concept of ECM (Bhattacherjee, 2001), and are supported by research by Al Amin et al. (2023) and Shiau et al. (2020) which states that the alignment of digital experiences with user expectations will strengthen the perception of service benefits.

In addition, there was a significant positive relationship between *perceived usefulness* and *satisfaction* (H3), suggesting that users who felt practical benefits from the app were more likely to be satisfied. This relationship reflects the core of the *Technology Acceptance Model* (TAM) introduced by Davis (1989), which places *perceived usefulness* as a key factor in shaping *user satisfaction*. These findings are also in line with the results of studies by Cheng

(2020) and Al Amin et al. (2023), especially in the context of digital financial services.

However, the analysis also showed that *perceived security* did not have a significant direct effect on *satisfaction* (H4). This indicates that the safety aspect is seen more as a *baseline expectation* than as an element that positively increases satisfaction. In this context, *perceived security* can be considered as a *hygiene factor*, as described in the *Two-Factor Theory* by Herzberg et al. (1959). This means that while security is important to avoid dissatisfaction, its presence alone is not enough to create a sense of satisfaction without the support of other factors such as *trust* or *perceived usefulness*. This view is supported by the studies of Zhang (2024) and Gómez-Hurtado et al. (2024), which highlight that security is a minimum expectation in digital services.

Although its direct effect on *satisfaction* is limited, *perceived security* has been shown to have a significant impact on *trust* (H5). These findings reinforce the notion that the perception of security is an important foundation in building trust in digital financial platforms, especially in the context of high-risk services such as mobile banking. This relationship is also consistent with the research of Gefen et al. (2003) and Kumar et al. (2018) which emphasizes the importance of *perceived security* in forming *trust* in digital systems.

Furthermore, *trust* has been shown to have a significant effect on *satisfaction* (H6) and *continuation intention* (H7), suggesting that building trust is not only important to create satisfaction, but also to encourage long-term use commitments. These findings support *trust transfer theory* (Lu et al., 2011), which explains that trust in service providers can extend to the digital platforms they manage. Studies from Nguyen & Ha (2021) and Gómez-Hurtado et al. (2024) also confirm that *trust* is key to sustaining the sustainable use of technology.

In addition, *satisfaction* has a significant direct influence on *continuation intention* (H8), which confirms its position as a major predictor in maintaining user engagement. These findings are consistent with the basic principles of ECM and are reinforced by the research of Al Amin et al. (2023), Cheng (2021), and Joshi (2025), which suggests that satisfied users tend to continue to use digital services consistently.

The results of the mediation analysis in this study provide deeper insight into satisfaction and trust as a form of affective and relational constructs that contribute significantly to shaping the *continuance intention to use digital services (continuance intention to use*) mobile banking superapps. In general, the findings show that the influence of perceptual constructs such as *confirmation*, *perceived usefulness*, and *perceived security* on sustainability intentions does not occur directly, but is significantly mediated by *satisfaction* and *trust*.

First, *confirmation* has been proven to affect *continuance intention* indirectly through *the path of perceived usefulness* and *satisfaction*. These findings support the *Expectation-Confirmation Model* framework (Bhattacherjee, 2001), which states that when users' expectations of digital services are met, they tend to perceive the service as useful, which ultimately results in satisfaction and increases the desire to continue using the service. This emphasizes the importance of meeting initial expectations in encouraging the sustainability of digital application use.

Furthermore, *perceived usefulness* also contributes indirectly to sustainability intentions through *satisfaction*. This is in line with the proposition in the *Technology Acceptance Model* (Davis, 1989), which places perceived benefits as one of the main cognitive factors in shaping user satisfaction. In the context of superapps, practical benefits such as transaction efficiency

and ease of access seem to be the main drivers of satisfaction leading to user loyalty.

The most prominent finding is the role of *trust mediation* in bridging the relationship between *perceived security* and *continuance intention*. Although system security does not directly increase satisfaction, users who feel secure are likely to form a strong trust in the platform. It is this trust that further contributes to satisfaction and intention to continue using the service. This pattern is consistent with *trust transfer* theory (Lu et al., 2011; Gefen et al., 2003), who state that in a high-risk digital environment, trust does not arise automatically from technical perceptions such as security, but rather through psychological processes that form a sense of comfort and emotional attachment to the platform.

Furthermore, the chain mediation pathway involving *trust* and *satisfaction* simultaneously confirms the importance of complex psychological dynamics in shaping the user's sustainable behavior. When users feel that the platform is secure, builds trust, and provides a satisfying experience, they will be more likely to continue using the app in the long run. These findings support the view in *the Theory of Planned Behavior* (Ajzen, 1991), that an individual's attitudes and beliefs toward the system influence repetitive behavior intentions.

Overall, these results reinforce the argument that perceptual factors such as security and service benefits do not stand alone, but rather operate through complex affective and relational pathways. In the context of mobile banking superapps, building trust and creating satisfaction is the main key to maintaining the sustainability of use, not solely relying on the technical or functional advantages of the application.

CONCLUSIONS

This study concludes that the *continuance intention to use superapps* mobile banking in Indonesia is significantly influenced by a combination of cognitive, affective, and relational factors. The variables of confirmation, *perceived usefulness*, and trust are proven to play a crucial role in shaping satisfaction, which ultimately serves as the primary determinant of users' intention to continue using the service. These findings reinforce the Expectation-Confirmation Model (ECM), which places satisfaction at the core of post-adoption behavior. In particular, confirmation strongly contributes to enhancing *perceived usefulness* and satisfaction, underscoring that the alignment between initial expectations and actual experiences forms the foundation of positive perceptions toward the application. Moreover, *perceived usefulness* not only directly affects satisfaction but also indirectly influences *continuance intention* through the mediation of satisfaction, highlighting the importance of perceived practical benefits in maintaining user engagement with digital banking services. While *perceived security* does not have a direct impact on satisfaction, it significantly contributes indirectly to *continuance intention* through the mediating roles of trust and satisfaction, illustrating the layered influence of security perception on user loyalty. Trust emerges as a key relational construct that bridges *perceived security* with users' emotional experiences, directly influencing both satisfaction and *continuance intention*. Thus, these findings emphasize that affective factors (such as satisfaction) and relational factors (such as trust) hold a central role in explaining users' ongoing engagement with *superapps* mobile banking services. Overall, the study highlights that users' decisions to continue using mobile banking *superapps* are driven more by perceived value and trust in the platform rather than technical security assurances alone, expanding the theoretical understanding of ECM by incorporating trust as a crucial element in the digital

financial services context.

The research findings offer several strategic implications for *superapps* mobile banking providers, particularly in designing holistic approaches that go beyond technical aspects to include users' affective and relational dimensions. Since trust mediates the relationship between *perceived security* and *continuance intention*, while also directly influencing satisfaction, building and maintaining user trust must become a top priority. Service providers should ensure transparent security and privacy policies, maintain data integrity, and deliver responsive, communicative customer support. Proactive communication regarding data policies and digital risk protection can also strengthen trust perceptions. Additionally, confirmation and *perceived usefulness* play a vital role in shaping satisfaction, indicating that providers should align app features and functionality with users' initial expectations. Optimizing the user experience can be achieved through intuitive interface design, improved app stability, and the inclusion of features that genuinely assist with everyday financial activities, such as automated expense tracking, bill reminders, or integrations with e-commerce and transportation services. As *perceived usefulness* indirectly affects *continuance intention* through satisfaction, feature development must not only be functional but also provide added value—enhanced through user co-creation initiatives, such as need-based surveys, beta testing, or user community engagement.

Furthermore, satisfaction emerges as the strongest determinant of *continuance intention*, highlighting the importance of delivering a pleasant and consistent user experience. Post-service support, AI-driven customer service, and integrated feedback systems can enhance user satisfaction perceptions. Regular measurement of customer satisfaction metrics, such as the Customer Satisfaction Score (CSAT) or Net Promoter Score (NPS), should be utilized as tools for evaluation and data-driven decision-making. Considering the predominantly young and tech-savvy demographic of users, service providers should strengthen segmentation and content personalization through behavior-based marketing campaigns, transaction reminders, and lifestyle features like loyalty points, merchant discounts, or financial calendar integrations to foster emotional engagement with the platform.

Ultimately, because *continuance intention* is shaped by the interplay of confirmation, *perceived usefulness*, satisfaction, and trust, a fragmented approach is insufficient. A fully integrated and sustainable digital service strategy is required—encompassing financial literacy education, feature simplification, security enhancement, and memorable user experiences. *Superapps* providers must position themselves not only as transaction platforms but also as trusted financial partners capable of addressing the digital needs of society in a comprehensive and long-term manner.

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