

Analysis of Factors Affecting Continuance Intention in Indonesian Digital Banks

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Abstract—Indonesian Digital Banks are currently competing to get more customers with their own mobile application, digital finance ecosystem and their promotion method. The research aims to find out the factors that influence customer satisfaction when using the digital bank application. The variables used in this study are System Quality, Service Quality, Information Quality, Perceived Advantage Effort Expectancy, Digital Ecosystem, User Satisfaction, and Continuance Intention in the mobile application. The results of the study concluded what factors influence satisfaction to develop a better mobile application for an Indonesian digital bank. The research model and questionnaire use a modified research model of the successful information system model DeLone and McLean and in analyzing the results of the questionnaire, researchers used descriptive statistics and Structural Equation Model (SEM) analysis using SMART PLS V.4. The results of the management of these data conducted that there are 11 significant direct effects on User Satisfaction or Continuance Intention, and 6 direct effects that were not significant. There were also 8 significant indirect effects, mainly where User Satisfaction mediated the impact of other variables on Continuance Intention. The results of this study are expected to provide a better reference for Indonesian digital banks to improve their mobile app services and maintain customer loyalty.

Keywords—Digital banking; DeLone and McLean; structural equation model; continuance intention; user satisfaction

I. INTRODUCTION

The growth of information technology in Indonesia is continuing to accelerate and has significantly influenced the country's banking sector. Based on the results of the Sharing Vision Survey, mobile banking recorded the sharpest increase, rising from 34% in 2021 to 56% in 2022 [1]. This percentage was higher than the combined total of the other four channels. Additionally, users preferred mobile banking for checking transaction history, checking balances, transferring funds, and paying bills compared to other methods. This growth, coupled with digital banks' ability to lower costs, connects underserved populations to formal financial services [2]. These developments highlight the growing importance of digital banking and provide the context for examining what drives users to keep engaging with these applications over time.

Digital banks and conventional banks have key differences in operational models, functionality, services, and challenges. Digital banks primarily operate through electronic channels without physical branches [3]. In Indonesia, the regulation of digital banks and conventional banks is governed by regulations issued by Indonesia's Financial Services Authority (OJK). POJK (Financial Services Authority Regulation) No.12/POJK.03/2021. By understanding these structural and

regulatory differences, this study situates digital banking as a technology-reliant service environment where user experience becomes a key determinant of success.

Competition among digital companies has intensified due to the rapid emergence of new digital banks, while conventional banks have also begun developing digital offerings. Digital banks attract users with a variety of features and a simpler, faster registration process compared to conventional banks, which often require more complex procedures. Among the leading players, SeaBank and Bank Jago have the largest user bases and the highest ratings on both the App Store and Google Play Store. SeaBank holds a rating of 4.9 on both platforms [4][5], while Jago scores 4.5 on the App Store and 4.9 on Google Play [6][7]. Despite these high ratings, both banks still receive a substantial volume of user complaints, especially regarding application performance and stability, login and authentication issues, and transaction errors. Additional concerns include user interface challenges, customer service responsiveness, and system downtime. These recurring problems reveal a persistent gap between user expectations and actual system performance, which directly affects satisfaction and long-term loyalty. Customer satisfaction has been widely recognized as a crucial determinant of system success and continuance intention in information systems research [8]. The original DeLone & McLean IS Success Model has been widely applied to evaluate information system success through the dimensions of System Quality, Information Quality, and Service Quality. Despite its broad adoption, several limitations have been highlighted in the context of digital banking. The model was conceptualized for single-system environments and does not fully capture the value generated by platform ecosystems, which now play a central role as banks compete as orchestrators of partner services and cross-industry integrations [9]. Moreover, the model does not explicitly account for the user's benefit-effort calculus, such as the perceived advantage of using digital banking over alternative services and the perceived effort required to interact with the system. Insights from UTAUT-based studies demonstrate that these factors are strong predictors of continuance intention and complement, rather than duplicate, the traditional quality dimensions [10]. Empirical findings on the DeLone & McLean relationships are mixed, suggesting additional constructs are needed. These limitations provide the rationale for extending the model with Digital Ecosystem, Perceived Advantage, and Effort Expectancy to better capture the drivers of satisfaction and long-term use in Indonesia's digital banking sector.

The remainder of this paper is organized as follows: Section II reviews the literature and presents the research model. Section III describes the methodology. Section IV reports the

SEM results, Section V discusses implications, and Section VI concludes with recommendations and directions for future research.

A. Research Questions

In view of the research problem, this research seeks to address the following research questions:

- What factors that affects the continuance intention and customer satisfaction in Indonesian's digital banks?

B. Research Objective

This research focuses on digital banks in Indonesia, particularly in relation to customer satisfaction and continuance intention. The objects of the study are customers who use the top two Indonesian digital bank applications—PT Bank Seabank Indonesia and PT Bank Jago Tbk which have the highest ratings in Google Play and the App Store, as well as the largest user bases. The data collection method used in this research is an online questionnaire distributed via social media. The target number of respondents is 400 (four hundred), determined using the Slovin formula to obtain a valid sample size.

II. LITERATURE REVIEW

A. Digital Bank

A digital bank is a Bank with Indonesian legal entities (Bank BHI) that operates primarily through electronic channels without physical branches except for the head office, or it uses a limited number of physical offices. Digital banks can be established either by setting up a new Bank BHI specifically as a digital bank or by transforming an existing Bank BHI into a digital bank. The regulation categorizes digital banks under the framework of Bank BHI, which allows them to operate with a unique model of minimal physical presence, relying instead on electronic means to serve customers. This regulatory approach is designed to foster innovation in the banking sector, accommodating evolving consumer preferences towards digital banking solutions. This model supports the banking industry's drive towards enhancing efficiency, reducing costs, and expanding accessibility, aligning with the broader goals of increasing competitiveness and contributing to the national economy as outlined by the OJK [11].

B. System Quality, Service Quality and Information Quality

In the original DeLone and McLean IS Success Model, the critical dimensions of System Quality, Service Quality, and Information Quality are integral to evaluating the success of information systems. System Quality focuses on the usability, responsiveness, flexibility, and reliability of the system, which are essential for ensuring effective user interaction and satisfaction. Information Quality enhances decision-making and user satisfaction through its emphasis on the timeliness, completeness, relevance, and accuracy of information provided and, Service Quality reflects the efficiency and responsiveness of support services, which are crucial for maintaining user trust and encouraging continuous use of the system [12]. Together, these dimensions form the core of the DeLone and McLean model, highlighting the importance of quality in various facets of digital banking systems to achieve overall system success.

C. Perceived Advantage

Perceived advantage refers to the perceived relative advantage of an information system by the users in terms of information content, system interface, and functional services compared with other types of information systems [10]. This includes elements such as promotions, which can significantly impact a user's intention to use a digital financial product or service. Previous research indicates that these perceived advantages have a positive impact on user's intention to use and their satisfaction with the provided service [9].

D. Effort Expectancy

Effort expectancy is a critical factor in understanding the adoption and continuous use of electronic banking services. According to [13], effort expectancy involves the perceived ease associated with using electronic banking systems. It highlights that effort expectancy significantly influences customer usage of digital banking services. The research findings suggest that when customers perceive less effort required to use these services, their actual usage increases. This relationship is noted to be having strong importance of reducing perceived effort to enhance customer adoption rates. Improving consumers' perceptions of how easy electronic banking services are to use should be a priority for banks aiming to expand their digital service utilization

E. User Satisfaction

User satisfaction is defined by [14] as the degree of ease and approval users experience during their interactions with a system through an application. This aspect is crucial because it directly influences the overall success of digital banking applications. Satisfying user experiences foster higher engagement rates, as users are more likely to continue using services that meet or exceed their expectations. Furthermore, user satisfaction is a key determinant of customer loyalty and can significantly affect word-of-mouth recommendations, which are vital for the organic growth of any service. Positive user experiences that lead to high satisfaction levels also reduce the churn rate; whereby fewer users discontinue using the service due to dissatisfaction [14]. Therefore, focusing on enhancing user satisfaction is not only about ensuring that users are pleased in the short term but also about securing their long-term commitment and advocacy.

F. Continuance Intention

Continuance intention reflects users' commitment to keep using digital banking applications regularly, avoid switching to alternatives, and even recommend them to others [14]. In Indonesia, this intention grows stronger when users feel that digital banking offers easy access, secure transactions, and practical benefits for daily financial needs, which reduces the chance of moving to other application. Other research also shows that satisfaction and the match between user expectations and actual experience play an important role, because when the app runs smoothly and reliably, people are more likely to keep using it in the long run [15].

G. Partial Least Square Structural Equation Modeling

Memon et al. [16] explain that Partial Least Squares Structural Equation Modeling (PLS-SEM) is particularly advantageous for prediction-oriented studies, exploratory

research, and theory development, especially when datasets do not satisfy the strict assumptions of covariance-based SEM. This method is capable of handling complex models involving latent constructs and effectively addresses measurement error, which is inherent in the evaluation of abstract variables. PLS-SEM offers flexibility for researchers to simultaneously evaluate measurement and structural models, making it a robust method for this research [16].

H. Extended DeLone and McLean's IS (Information Systems) Success Model

Prior studies confirm that System Quality, Information Quality, and Service Quality significantly influence user satisfaction and trust, although results vary by context [17]. Research on Digital Ecosystem emphasizes that ecosystem breadth, partner integration, and seamless cross-platform experiences are critical drivers of satisfaction and engagement in digital financial services [9]. Effort Expectancy has been consistently linked to behavioral intention in UTAUT-based models, reflecting the importance of ease of use and low cognitive burden for continuance [18]. Perceived Advantage capturing relative benefit, convenience, and cost savings has been found to be a direct and significant predictor of adoption and continued use of mobile banking services [10]. Together, these studies support the inclusion of DE, EE, and PA as extensions to the DeLone & McLean model to better explain user behavior in the competitive Indonesian digital banking landscape.

III. METHODOLOGY

A. Research Design

This study begins by explaining the general background of Indonesia's digital bank mobile applications, which have been increasingly and massively adopted by Indonesian citizens as part of their daily financial activities [1]. After identifying the problem, a literature study is carried to look for all the supporting studies related to this research topic, followed by the formulation of research questions. To collect primary data, questionnaires were distributed to randomly selected respondents who met the predetermined criteria. After the minimum sample requirements were fulfilled, the data were processed and analyzed.

After the analysis has been conducted, it will also include results that could conclude the research to be used as suggestions or as references for either future research or to improve Indonesia's current digital banking application.

B. Determine Sample

Based on data obtained from Infobanknews, PT Bank Seabank Indonesia has a total of 13.000.000 users [19], while PT Bank Jago Tbk has 12.500.000 users [20], resulting in a combined total of 25,500,000 users.

Sampling is essential in research as it is often impractical to study an entire population, making proper sampling methods critical for valid results [21]. The sample size was determined using the Slovin formula, and it is formally expressed as follows:

$$n = \frac{N}{1 + N e^2}$$

Where:

n = Sample

N = Total Population

e = Estimated error rate

Then:

$$n = \frac{13,000,000 + 12,500,000}{1 + (13,000,000 + 12,500,000)0,05^2} = 400.016$$

$\approx 400 \text{ Sample}$

Based on the proportion of the population, Seabank users represent approximately 50.98% of the total, while Bank Jago users account for 49.02%. Therefore, of the 400 targeted respondents, 204 were allocated for Seabank users and 196 for Bank Jago users. The sample criteria are based on the terms and conditions of PT Bank Seabank Indonesia and PT Bank Jago Tbk, which set the minimum age requirement for customers at 17 years old.

C. Research Model

The study was conducted using a modified DeLone and McLean model, where the results identify the factors that influence Continuance Intention. In this framework, continuance intention is affected both directly by these factors and indirectly through the mediating role of user satisfaction. The research framework is illustrated in Fig. 1:

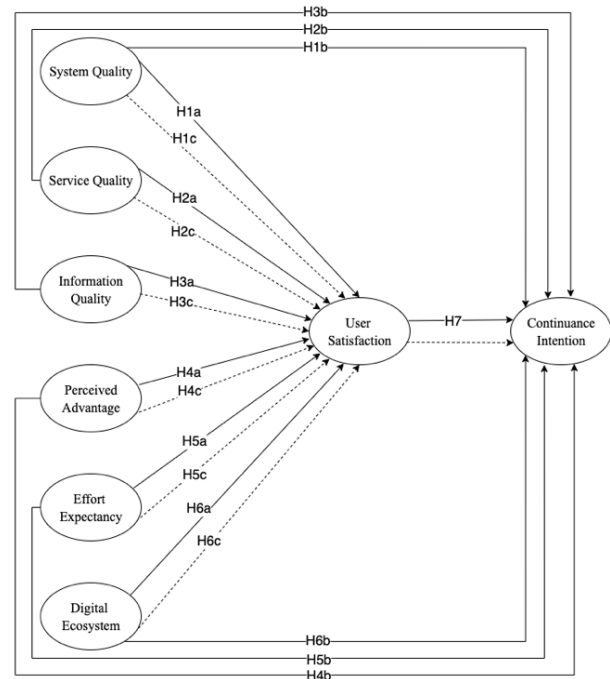


Fig. 1. Research model.

Different from previous research, this research added variables like perceived advantage, effort expectancy and digital ecosystem. The research was conducted using variables by the research model, but each variable that has been determined in the research model has questions from different indicators from previous research.

D. Research Hypothesis

Based on the modification model of DeLone and McLean in Fig. 1. System quality, service quality, information quality, perceived advantage, effort expectancy, and digital ecosystem function as the independent variables. User satisfaction serves as both a dependent variable and a mediating variable, as it is influenced by the independent variables and, in turn, affects continuance intention. Continuance intention is the final dependent variable, representing the outcome that the study seeks to explain. In this research the hypothesis proposed is as follows:

H1a: System quality in Indonesian digital bank applications significantly determines user satisfaction.

H1b: System quality in Indonesian digital bank applications significantly determines continuance intention.

H1c: System quality in Indonesian digital bank applications significantly determines continuance intention through the mediation of user satisfaction.

H2a: Service quality in Indonesian digital bank applications significantly determines user satisfaction.

H2b: Service quality in Indonesian digital bank applications significantly determines continuance intention.

H2c: Service quality in Indonesian digital bank applications significantly determines continuance intention through the mediation of user satisfaction.

H3a: Information quality in Indonesian digital bank applications significantly determines user satisfaction.

H3b: Information quality in Indonesian digital bank applications significantly determines continuance intention.

H3c: Information quality in Indonesian digital bank applications significantly determines continuance intention through the mediation of user satisfaction.

H4a: Perceived advantage in Indonesian digital bank applications significantly determines user satisfaction.

H4b: Perceived advantage in Indonesian digital bank applications significantly determines continuance intention.

H4c: Perceived advantage in Indonesian digital bank applications significantly determines continuance intention through the mediation of user satisfaction.

H5a: Effort expectancy in Indonesian digital bank applications significantly determines user satisfaction.

H5b: Effort expectancy in Indonesian digital bank applications significantly determines continuance intention.

H5c: Effort expectancy in Indonesian digital bank applications significantly determines continuance intention through the mediation of user satisfaction.

H6a: Digital ecosystem in Indonesian digital bank applications significantly determines user satisfaction.

H6b: Digital ecosystem in Indonesian digital bank applications significantly determines continuance intention.

H6c: Digital ecosystem in Indonesian digital bank applications significantly determines continuance intention through the mediation of user satisfaction.

H7: User satisfaction in Indonesian digital bank applications significantly determines continuance intention.

IV. DATA ANALYSIS

From the results of the questionnaire distribution in this study, a total of 500 valid responses were used for data analysis. This number exceeded the minimum target sample size set for the study, which was 204 respondents for the Seabank application and 196 respondents for the Bank Jago application. In practice, the final dataset consisted of 276 Seabank users and 224 Bank Jago users, thus meeting and surpassing the targeted number of respondents. The data analysis was conducted using SmartPLS V.4 software.

A. Respondent Data Distribution by Respondents by Age

Based on the distributed online survey, respondent data were categorized into four age groups for both Bank Jago and Seabank users, as illustrated in Fig. 2. Most respondents were in the 17–27-year age group, comprising Bank Jago (157) and Seabank (237) users. The second-largest group was aged 28–43 years, with Bank Jago (61) and Seabank (37) users. A smaller portion of respondents were aged 44–58 years, totaling Bank Jago (5) and Seabank (2) users. The smallest age group was respondents aged 59 years and above, consisting of only Bank Jago (1) user and none from Seabank. Judging from this distribution, it can be concluded that digital banking application users in Indonesia are predominantly young adults in the 17–27-year age range, indicating a strong adoption rate of digital banking services among the younger demographic segment.

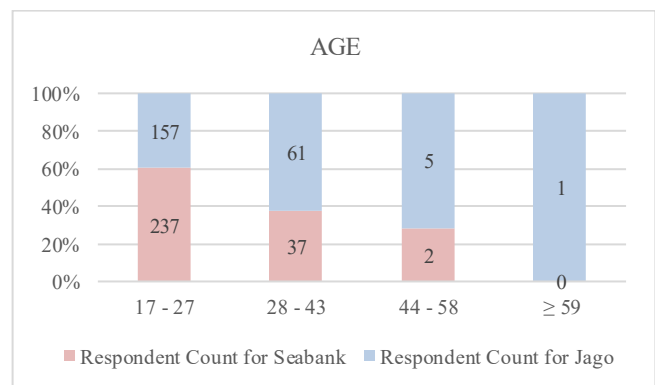


Fig. 2. Proportional distribution of respondent demographics by age.

B. Respondent Data Distribution by Respondents by Gender

Based on the survey results presented in Fig. 3, the gender distribution of respondents for digital banking users in Indonesia shows that 276 individuals (61%) are women, while 176 individuals (39%) are men. In Seabank, 213 respondents were women and 63 were men, whereas in Jago, 168 respondents were women and 56 were men. These results indicate that both men and women actively use digital banking services in Indonesia, suggesting that adoption is not limited by specific gender criteria.

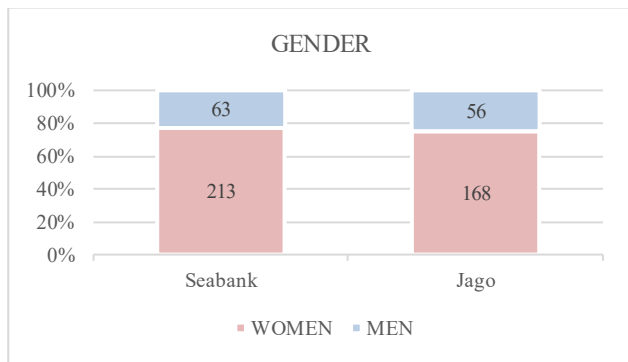


Fig. 3. Proportional distribution of respondent demographics by gender.

C. Respondent Data Distribution by Respondents by Occupation

Based on the collected questionnaire data, respondents' occupations were distributed across seven categories for both Seabank and Jago users, as illustrated in Fig. 4. For Seabank, the largest proportion of respondents were students (174), followed by private employees (75), freelance workers (16), civil servants/ASN (5), entrepreneurs (4), homemakers (1), and informal workers (1). For Jago, the highest number of respondents were also students (124 individuals), followed by private employees (64), freelance workers (16), civil servants/ASN (8), entrepreneurs (8), and no respondents in the informal worker category. These findings indicate that students and private employees form the dominant user segments for both digital banking applications, suggesting that these demographic groups are particularly engaged with such digital financial technologies.

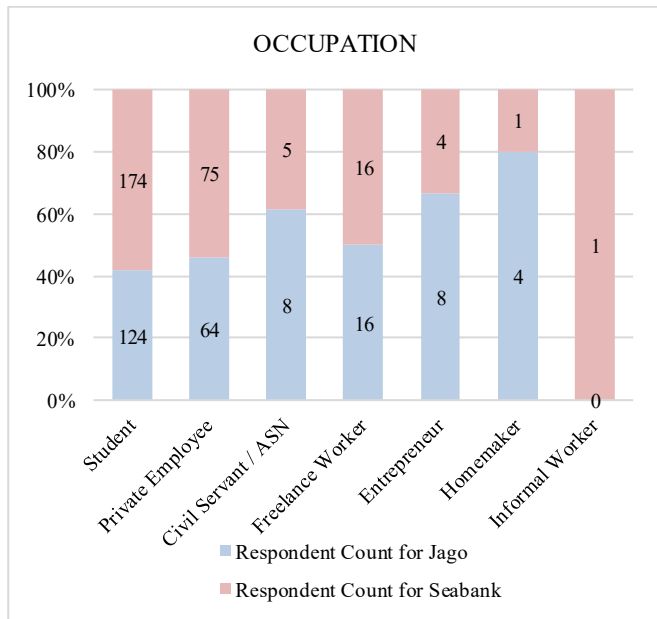


Fig. 4. Proportional distribution of respondent demographics by occupation.

D. Respondent Data Distribution by Respondents by Usage Duration

Based on the survey results presented in Fig. 5, the distribution of respondents by application usage duration for digital banking in Indonesia shows variation across different time periods. For Seabank, the breakdown was: less than 1 month (11), 1–6 months (70), 7–12 months (53), 1–2 years (84), and more than 2 years (58). For Jago, the figures were: less than 1 month (12), 1–6 months (57), 7–12 months (59), 1–2 years (69), and more than 2 years (27).

Notably, the group with usage duration of less than 1 month represents the smallest segment for both banks, indicating that a limited proportion of users are in the very early adoption stage. This suggests that most respondents are already beyond the initial trial phase, with a significant number maintaining usage for a year or more, reflecting relatively strong retention trends in Indonesia's digital banking sector.

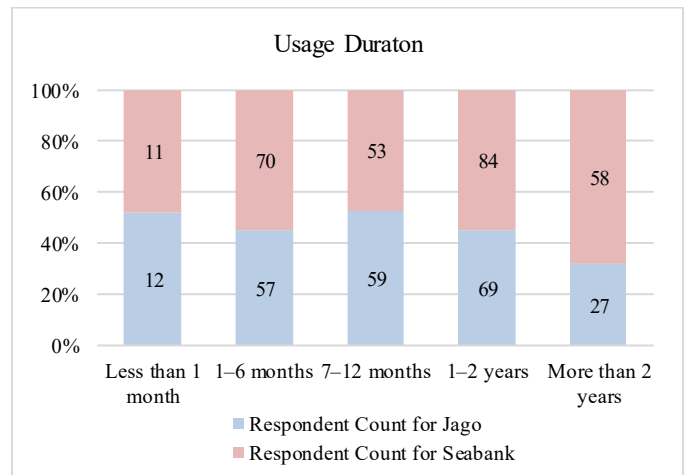


Fig. 5. Proportional distribution of respondent demographics by usage duration.

E. Respondent Data Distribution by Purpose of Using the Application

Based on the survey results presented in Fig. 6, the purposes for using digital banking applications among respondents show a clear preference for certain features. The highest proportion of responses was recorded for promotional incentives (121), highlighting that financial benefits are the most significant factor influencing usage. This was followed by a user-friendly interface (135) and exemption from monthly administrative fees (89), both of which reflect the importance of convenience and cost savings. Other purposes included ease of account opening (44), comprehensive functionality (28), and financial and investment features (26), which indicate interest in broader service capabilities. Security and information-related aspects, such as secure application environment (17) and clear and concise information (14), were less frequently selected. Meanwhile, attractive design (15) and fast, reliable access (11) received the lowest counts.

Overall, these findings suggest that while usability and functionality are valued, the strongest motivator for adopting digital banking applications in Indonesia lies in the financial benefits offered particularly financial related promotional incentives.

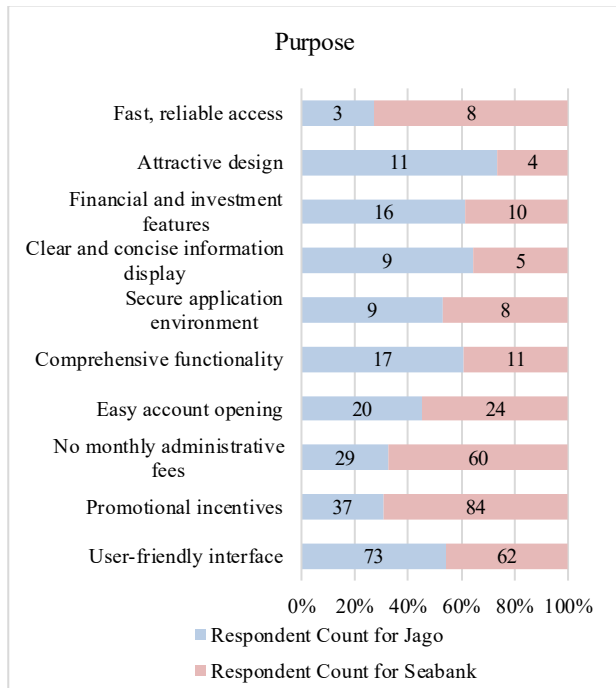


Fig. 6. Proportional distribution of respondent demographics by purpose of application use.

F. Respondent Data Distribution by Usage Frequency

Based on the survey results shown in Fig. 7, the distribution of respondents by application usage frequency for digital banking in Indonesia reflects varied engagement levels. The highest proportion reported using the application once a week (85), followed by every 2–3 days (110) and more than once a day (72). Other usage patterns included once a day (72), every 4–6 days (36), once a month (51), more than a week and less than two weeks (38), and every two weeks (28).

Although a notable share of users accesses the application multiple times per week or more frequently, the data also reveal that a significant portion of users engage less regularly. This lower usage frequency may indicate that some customers still prefer alternative banking channels or payment methods, suggesting both a potential challenge in fostering daily reliance and an opportunity for further growth through increased user retention strategies.

G. Validity Test

This research utilizes questionnaires; it is necessary to conduct a validity test to ensure that the distributed instruments are appropriate and capable of accurately measuring the intended constructs. A valid instrument indicates that the questionnaire items effectively represent the variables under study. In this research, validity testing was performed using SmartPLS v4 based on the preliminary questionnaire tabulation results. The validity of each indicator was evaluated through the factor loading values generated by SmartPLS. An indicator is considered valid if its standardized loading factor exceeds the recommended threshold of 0.70, while items below this cutoff are discarded as they do not sufficiently capture the construct [22]. The results of the validity testing for each research variable are presented in Table I.

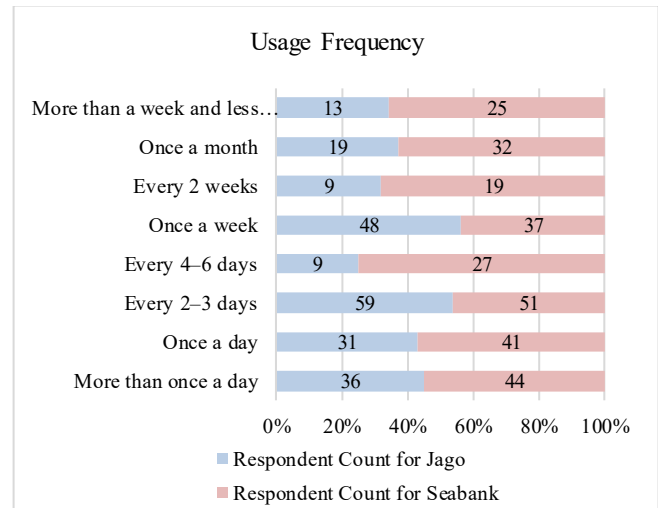


Fig. 7. Proportional distribution of respondent demographics by usage frequency.

TABLE I. VALIDITY TEST

Variable	Question	Result	Explanation
System Quality	SQ1	0.790	Valid
System Quality	SQ2	0.819	Valid
System Quality	SQ3	0.842	Valid
Service Quality	EQ1	0.753	Valid
Service Quality	EQ2	0.637	Invalid
Service Quality	EQ3	0.810	Valid
Service Quality	EQ4	0.738	Valid
Service Quality	EQ5	0.785	Valid
Information Quality	IQ1	0.770	Valid
Information Quality	IQ2	0.733	Valid
Information Quality	IQ3	0.794	Valid
Information Quality	IQ4	0.790	Valid
Information Quality	IQ5	0.752	Valid
Perceived Advantage	PA1	0.742	Valid
Perceived Advantage	PA2	0.804	Valid
Perceived Advantage	PA3	0.746	Valid
Effort Expectancy	EE1	0.826	Valid
Effort Expectancy	EE2	0.803	Valid
Effort Expectancy	EE3	0.839	Valid
Effort Expectancy	EE4	0.787	Valid
Digital Ecosystem	EC1	0.802	Valid
Digital Ecosystem	EC2	0.788	Valid
Digital Ecosystem	EC3	0.779	Valid
Digital Ecosystem	EC4	0.609	Invalid
User Satisfaction	US1	0.841	Valid
User Satisfaction	US2	0.841	Valid
User Satisfaction	US3	0.779	Valid
Continuance Intention	CI1	0.866	Valid
Continuance Intention	CI2	0.846	Valid
Continuance Intention	CI3	0.844	Valid

Based on the results of the SmartPLS analysis shown in Table I, all indicators have loading factor values above the minimum validity threshold of 0.70, with the exception of indicator EQ2 (0.637) and EC4 (0.609), which do not meet the criteria and are therefore considered invalid. Consequently, the remaining indicators that meet or exceed the 0.70 threshold are deemed valid, and the evaluation of the measurement model can be continued without the invalid indicators.

H. Reliability Test

To evaluate the reliability of the constructs, a construct reliability assessment was carried out after the indicator validity test. As described in the previous section, indicators EQ2 (0.637) and EC4 (0.609) did not meet the minimum validity threshold of 0.70 and were therefore removed from the model. The reliability test was then conducted using only the valid indicators that met the threshold.

TABLE II. RATIO RELIABILITY ASSESSMENT

Construct	Result	Explanation
System Quality	0.858	Reliable
Service Quality	0.871	Reliable
Information Quality	0.878	Reliable
Perceived Advantage	0.808	Reliable
Effort Expectancy	0.887	Reliable
Digital Ecosystem	0.860	Reliable
User Satisfaction	0.861	Reliable
Contiuance intention	0.888	Reliable

As shown in Table II, the calculations' results show that all the constructs are reliable as there is no construct whose reliability value is below 0.7, which shows that all the constructs are deserving to be used in the research model.

For reproducibility and clarity, the complete list of variables, codes, and measurement indicators is provided in Table VII (Appendix A). The full wording of all questionnaire items, including demographic and usage-experience questions, is presented in Table VIII (Appendix A).

I. Structural Equation Modeling (SEM)

The research structural model was assessed using SmartPLS v4 to examine the relationships between the exogenous variables System Quality (SQ), Service Quality (EQ), Information Quality (IQ), Perceived Advantage (PA), Effort Expectancy (EE), and Digital Ecosystem (EC) and the endogenous variables User Satisfaction (US) and Continuance Intention (CI).

The evaluation focused on both direct and indirect effects, with path coefficients (β), t-values, and p-values obtained through the bootstrapping procedure (5000 subsamples). In the measurement model assessment, indicators with standardized loading factors below the 0.70 threshold were discarded to improve construct validity and reliability, ensuring that only valid items contributed to the final analysis. Fig. 8 presents the path diagram of the structural model as generated in SmartPLS Analysis of Direct Effects, Indirect Effects and Total Effects.

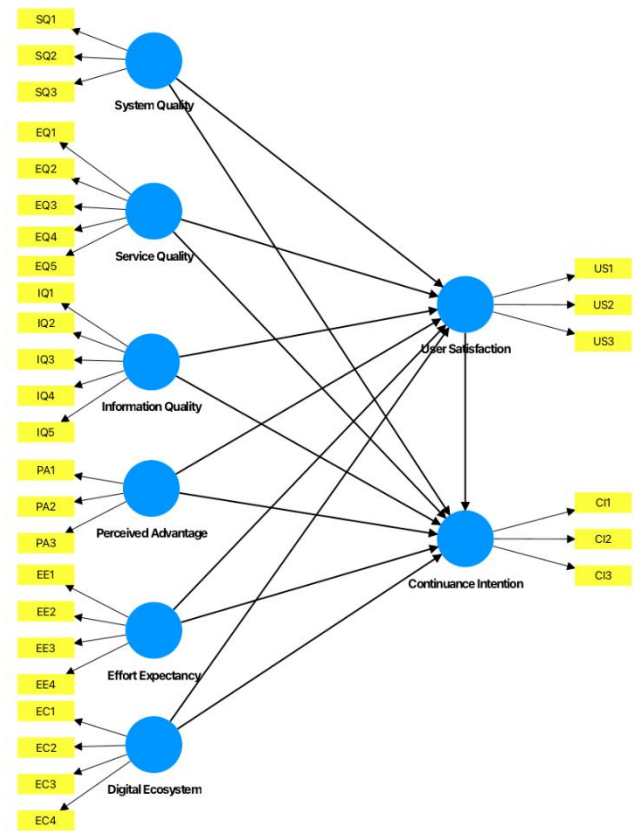


Fig. 8. Path diagram SmartPLS.

In this study, structural equation modeling was used to illustrate and evaluate the relationships among the variables in the proposed research model. The analysis distinguishes between three types of effects: direct effects, which represent the immediate influence of one variable on another; indirect effects, which capture the mediated influence through one or more intermediary variables; and total effects, which represent the combined magnitude of both direct and indirect effects.

TABLE III. STANDARD DIRECT EFFECTS

	US	CI
SQ	0.196	-0.040
EQ	0.193	0.111
IQ	-0.006	0.008
PA	0.197	0.237
EE	0.201	0.169
EC	0.157	-0.038
US		0.292

The results of the direct effect analysis are presented in Table III. Among the predictors of User Satisfaction (US), Effort Expectancy (EE) shows the largest direct effect with a standardized path coefficient of 0.201, followed by System Quality (SQ, 0.196) and Perceived Advantage (PA, 0.197). For Continuance Intention (CI), the variable with the strongest direct effect is User Satisfaction, with a coefficient of 0.292, confirming its mediating role between system-related constructs and behavioral intention.

TABLE IV. STANDARD INDIRECT EFFECTS

	CI
SQ	0.057
EQ	0.056
IQ	-0.002
PA	0.058
EE	0.059
EC	0.046

The results of the indirect effect analysis are shown in Table IV. The largest indirect effect on CI is contributed by Effort Expectancy (EE) with a coefficient of 0.059, closely followed by PA (0.058) and SQ (0.057). This indicates that these variables primarily influence CI through their effect on US, rather than directly.

TABLE V. STANDARD TOTAL EFFECTS

	US	CI
SQ	0.196	0.017
EQ	0.193	0.168
IQ	-0.006	0.007
PA	0.197	0.295
EE	0.201	0.228
EC	0.157	0.007
US		0.292

The total effects are summarized in Table V, which combines both direct and indirect effects. The findings reveal that PA has the strongest overall influence on CI (0.295), followed by EE (0.228) and EQ (0.168). These results highlight the importance of enhancing users' perceived benefits and ease of effort to improve both satisfaction and intention to continue using the system.

J. Hypothesis Test

The result of Structural Equation Modeling analysis using the SmartPLS V.4 application is shown in Table VI.

TABLE VI. HYPOTHESIS TEST

	O	T	P	Label
SQ→US	0,196	3,629	0	Significant
SQ→CI	-0,04	0,66	0,510	Not significant
SQ→US→CI	0,057	2,827	0,005	Significant
EQ→US	0,193	4,463	0	Significant
EQ→CI	0,111	1,768	0,077	Not significant
EQ→US→CI	0,056	3,191	0,001	Significant
IQ→US	-0,006	0,094	0,925	Not significant
IQ→CI	0,008	0,113	0,910	Not significant
IQ→US→CI	-0,002	0,092	0,927	Not significant
PA→US	0,197	3,357	0,001	Significant
PA→CI	0,237	3,834	0	Significant
PA→US→CI	0,058	2,488	0,013	Significant
EE→US	0,201	3,291	0,001	Significant
EE→CI	0,169	2,543	0,011	Significant
EE→US→CI	0,059	2,396	0,017	Significant
EC→US	0,157	2,468	0,014	Significant
EC→CI	-0,038	0,59	0,555	Not significant
EC→US→CI	0,046	2,187	0,029	Significant
US→CI	0,292	4,303	0	Significant

H1a. Based on Table VI, summarizing the structural model evaluation, the path from System Quality (SQ) to User Satisfaction (US) shows a t-value of 3.629 with a p-value < 0.05, indicating a significant positive effect ($\beta = 0.196$). This means that higher system quality reflected in faster response times, system flexibility, and high availability contributes significantly to increased satisfaction among digital banking users. These findings highlight that technical reliability and smooth system performance are essential for improving positive user experience.

H1b. Based on Table VI, the path from System Quality (SQ) to Continuance Intention (CI) yields a t-value of 0.660 with a p-value of 0.510 (> 0.05), indicating no significant effect ($\beta = -0.040$). This suggests that while system quality influences satisfaction, it does not directly drive users' intention to continue using the mobile banking app. Instead, its influence may be more indirect, mediated by satisfaction.

H1c. Based on Table VI, the indirect effect of System Quality (SQ) on Continuance Intention (CI) through User Satisfaction (US) is significant ($t = 2.827$, $p = 0.005$, $\beta = 0.057$). This indicates that system quality impacts continuance intention indirectly by first enhancing user satisfaction, which then increases the likelihood of continued usage.

H2a. Based on Table VI, the path from Service Quality (EQ) to User Satisfaction (US) shows a t-value of 4.463 with a p-value < 0.05, indicating a significant positive effect ($\beta = 0.193$). This suggests that service attributes such as reliability, responsiveness, assurance, empathy, and tangibility play an important role in building user satisfaction with the mobile banking app.

H2b. Based on Table VI, the path from Service Quality (EQ) to Continuance Intention (CI) yields a t-value of 1.768 with a p-value of 0.077 (> 0.05), showing no direct significant effect ($\beta = 0.111$). This means that high-quality service alone may not directly encourage continued use unless it first enhances satisfaction.

H2c. Based on Table VI, the indirect effect of Service Quality (EQ) on Continuance Intention (CI) via User Satisfaction (US) is significant ($t = 3.191$, $p = 0.001$, $\beta = 0.056$). This shows that service quality drives continuance intention indirectly through its effect on satisfaction.

H3a. Based on Table VI, the path from Information Quality (IQ) to User Satisfaction (US) is not significant ($t = 0.094$, $p = 0.925$, $\beta = -0.006$), suggesting that timeliness, relevance, completeness, understandability, and consistency of information do not strongly influence satisfaction in this context.

H3b. Based on Table VI, the path from Information Quality (IQ) to Continuance Intention (CI) is also not significant ($t = 0.113$, $p = 0.910$, $\beta = 0.008$), indicating minimal influence of information quality on continued use of the app.

H3c. Based on Table VI, the indirect effect of Information Quality (IQ) on Continuance Intention (CI) via User Satisfaction (US) is not significant ($t = 0.092$, $p = 0.927$, $\beta = -0.002$), confirming that this variable does not play a substantial role in influencing continuance intention.

H4a. Based on Table VI, the path from Perceived Advantage (PA) to User Satisfaction (US) is significant ($t = 3.357$, $p = 0.001$, $\beta = 0.197$). This suggests that promotional benefits, attractive functionalities, and visual appeal contribute meaningfully to higher satisfaction levels.

H4b. Based on Table VI, the path from Perceived Advantage (PA) to Continuance Intention (CI) is significant ($t = 3.834$, $p < 0.05$, $\beta = 0.237$), indicating that perceived advantages directly encourage continued use of the digital banking app.

H4c. Based on Table VI, the indirect effect of Perceived Advantage (PA) on Continuance Intention (CI) via User Satisfaction (US) is also significant ($t = 2.488$, $p = 0.013$, $\beta = 0.058$), meaning that perceived advantages affect continuance intention both directly and indirectly.

H5a. Based on Table VI, the path from Effort Expectancy (EE) to User Satisfaction (US) is significant ($t = 3.291$, $p = 0.001$, $\beta = 0.201$), showing that ease of use, ease of learning, feature clarity, and language clarity play an important role in satisfaction.

H5b. Based on Table VI, the path from Effort Expectancy (EE) to Continuance Intention (CI) is significant ($t = 2.543$, $p = 0.011$, $\beta = 0.169$), suggesting that users who find the app easy to use are more likely to keep using it.

H5c. Based on Table VI, the indirect effect of Effort Expectancy (EE) on Continuance Intention (CI) via User Satisfaction (US) is significant ($t = 2.396$, $p = 0.017$, $\beta = 0.059$), reinforcing the role of satisfaction as a mediator.

H6a. Based on Table VI, the path from Digital Ecosystem (EC) to User Satisfaction (US) is significant ($t = 2.468$, $p = 0.014$, $\beta = 0.157$), indicating that lifestyle integration, multi-service access, and partner benefits positively influence satisfaction.

H6b. Based on Table VI, the path from Digital Ecosystem (EC) to Continuance Intention (CI) is not significant ($t = 0.590$, $p = 0.555$, $\beta = -0.038$), suggesting no direct influence on continuance intention.

H6c. Based on Table VI, the indirect effect of Digital Ecosystem (EC) on Continuance Intention (CI) via User Satisfaction (US) is significant ($t = 2.187$, $p = 0.029$, $\beta = 0.046$), indicating that ecosystem features still contribute indirectly by first improving satisfaction.

H7. Based on Table VI, the path from User Satisfaction (US) to Continuance Intention (CI) is significant ($t = 4.303$, $p < 0.05$, $\beta = 0.292$), confirming that satisfaction is a strong predictor of continued use of the mobile banking app.

V. RESULT AND DISCUSSION

A. Result

The analysis of the structural model reveals that five variables—System Quality (SQ), Service Quality (EQ), Perceived Advantage (PA), Effort Expectancy (EE), and Digital Ecosystem (EC)—exert significant positive effects on User Satisfaction (US), with p -values < 0.05 . Among them, Effort Expectancy demonstrates the strongest effect ($\beta \approx 0.201$),

highlighting that ease of use and clarity of features are the most critical determinants of satisfaction. Perceived Advantage ($\beta \approx 0.197$) follows closely, indicating that users place high value on promotions, special features, and cost-saving benefits offered by digital banks. System Quality ($\beta \approx 0.196$) and Service Quality ($\beta \approx 0.193$) also play significant roles, showing that technical reliability and responsive support are key enablers of a satisfying experience.

However, Information Quality (IQ) does not show a statistically significant effect on User Satisfaction ($p > 0.05$), suggesting that accuracy and completeness of information alone do not guarantee a better experience unless coupled with usability and relevance. When assessing Continuance Intention (CI), User Satisfaction emerges as the strongest direct predictor ($\beta \approx 0.292$, $p < 0.05$). Direct effects from SQ, EQ, IQ, and EC to CI are not significant, which indicates that these variables influence continued usage only through their contribution to satisfaction. Mediation analysis confirms that SQ, EQ, PA, EE, and EC all have significant indirect effects on CI through US, whereas IQ has neither direct nor meaningful mediated effect.

B. Discussion

These findings reinforce that User Satisfaction is the central mechanism driving continued use of digital banking applications. The dominant role of Effort Expectancy highlights the importance of designing seamless, intuitive interfaces—clear navigation, simple registration flows, and low-effort transactions strongly influence satisfaction.

Perceived Advantage is the next critical driver, underscoring that promotional benefits, competitive interest rates, and feature-rich offerings meaningfully improve user perceptions and satisfaction. This confirms that customers are motivated not just by functionality but by tangible value received.

System Quality and Service Quality contribute significantly as well. Reliable system performance, low downtime, and fast response times foster confidence, while responsive, helpful customer support ensures users feel supported. Service personalization and 24/7 assistance can further strengthen satisfaction levels.

Although Information Quality did not significantly impact satisfaction, this finding suggests that users may perceive information as a basic expectation rather than a differentiator. Digital banks should focus on contextualizing and personalizing information turning raw data into actionable insights that enhance decision-making to make it more influential.

Finally, the Digital Ecosystem plays a supportive but meaningful role, with its positive effect showing that integration with lifestyle services (QRIS payments, bill payments, e-commerce, insurance, investments) enhances satisfaction. Strengthening this ecosystem may deepen user engagement, especially when combined with superior usability and service quality.

Collectively, these results demonstrate that customer satisfaction is the linchpin variable, mediating most effects on continuance intention. This implies that improvements in technical, service, and functional dimensions will only translate into loyalty if they first enhance user satisfaction.

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

This study result shows that there are significant or insignificant factors that affect with the Indonesian digital bank application. Based on the result of the analysis and hypothesis that has been done by researchers, the following conclusion is drawn,

1) The results show that System Quality has a significant effect on the User Satisfaction. By accepting this hypothesis, it can be interpreted that a responsive, reliable, and user-oriented system can increase customer satisfaction.

2) The results show that System Quality has no significant effect on Continuance Intention. This indicates that System Quality alone does not directly influence customers' intention to keep using the application.

3) The results show that System Quality, mediated by User Satisfaction, has a significant effect on Continuance Intention. This proves that better system quality improves satisfaction, which in turn increases customers' intention to continue using the application.

4) The results show that Service Quality has a significant effect on User Satisfaction. This proves that fast, reliable, and empathetic customer service can improve customer satisfaction in digital bank.

5) The results show that Service Quality has no significant effect on Continuance Intention. This indicates that high service quality does not directly guarantee customers' intention to keep using the application.

6) The results show that Service Quality, mediated by User Satisfaction, has a significant effect on Continuance Intention. This proves that high service quality increases satisfaction, which then strengthens the intention to continue using the app.

7) The results show that Information Quality has a significant effect on User Satisfaction. This proves that accurate, clear, and relevant information can increase customer satisfaction.

8) The results show that Information Quality has no significant effect on Continuance Intention. This indicates that information quality alone does not directly influence customers' intention to keep using the application.

9) The results show that Information Quality, mediated by User Satisfaction, has a significant effect on Continuance Intention. This proves that good information quality improves satisfaction, which in turn increases continued usage intention.

10) The results show that Perceived Advantage has a significant effect on User Satisfaction. This proves that integrated features, useful benefits, and practical functionality can increase satisfaction in digital banking apps.

11) The results show that Perceived Advantage has a significant effect on Continuance Intention. This proves that tangible benefits and convenience encourage customers to keep using the application.

12) The results show that Perceived Advantage, mediated by User Satisfaction, has a significant effect on Continuance

Intention. This proves that perceived benefits raise satisfaction, which then increases continued usage intention.

13) The results show that Effort Expectancy has a significant effect on User Satisfaction. This proves that ease of use, clear features, and simple navigation can improve customer satisfaction.

14) The results show that Effort Expectancy has a significant effect on Continuance Intention. This proves that a simple and user-friendly application design motivates customers to keep using the application.

15) The results show that Effort Expectancy, mediated by User Satisfaction, has a significant effect on Continuance Intention. This proves that ease of use raises satisfaction, which then influences continued usage.

16) The results show that Digital Ecosystem has a significant effect on User Satisfaction. This proves that integration with lifestyle services and partner platforms increases customer satisfaction.

17) The results show that Digital Ecosystem has a significant effect on Continuance Intention. This proves that a strong and integrated digital ecosystem directly motivates customers to keep using the application.

18) The results show that Digital Ecosystem, mediated by User Satisfaction, has a significant effect on Continuance Intention. This proves that a strong and integrated digital ecosystem boosts satisfaction, leading to higher user retention.

19) The results show that User Satisfaction has a significant effect on Continuance Intention. This proves that overall customer satisfaction directly influences the intention to keep using the digital banking application.

B. Recommendation

Based on the results of this research, Indonesian digital bank mobile applications can be further improved to increase customer satisfaction, which in turn will encourage customers' continuance intention. Improvement efforts should be prioritized according to their level of impact on user satisfaction, starting with Service Quality as the most influential factor, followed by Effort Expectancy, Perceived Advantage, System Quality, and finally Digital Ecosystem. This prioritization ensures that resources are focused on the areas with the highest potential to strengthen satisfaction and loyalty. Some suggestions are as follows:

1) Since customer satisfaction has a very high significant effect on continuance intention and serves as a key mediator, focusing on improving all variables that influence customer satisfaction will help ensure customers remain loyal to the company. In addition, efforts should be made to enhance information quality so that it can also contribute positively to customer satisfaction.

2) Given that Service Quality demonstrated the strongest influence on User Satisfaction, digital banks should prioritize improving responsiveness, reliability, and personalization of their services. This can be achieved through the provision of 24/7 customer support.

3) Given that Effort Expectancy have the second strongest influence on User Satisfaction, digital banks also need to improve their user interface by streamline application navigation, simplify account registration processes, and introduce features that minimize cognitive effort, such as biometric authentication, one-click transactions, and intuitive menu structures.

4) To strengthen perceived advantage, banks should actively communicate and expand unique benefits such as high-yield savings products, cashback and referral campaigns, and free transfers. They should also introduce advanced financial management tools such as budgeting dashboards and spending analysis, turning the app into a comprehensive financial management platform that keeps users engaged and loyal.

5) Although digital ecosystem had the smallest direct effect, it still contributes to user satisfaction and overall experience. Expanding integration with external services such as e-commerce platforms, insurance providers, and investment products can turn the app into a “one-stop” financial hub, increasing user engagement and reducing the need for multiple apps.

Future suggestions for subsequent research are to include aspects of information technology indicators or questions, as well as additional factors related to security. The study could also be continued using an updated research model with other variables that are more relevant to the digital banking services implemented by Indonesian digital banking applications.

DATA AVAILABILITY STATEMENT

All the data of this research are available here (<https://data.mendeley.com/datasets/6s94mxd5t/2>). The link contains the respondent's answer data. The illustrative result of the study analysis is fully disclosed in the tables and figures in this research.

AUTHOR'S CONTRIBUTION STATEMENT

In this research, Soros Lie contributed to conceptualization, methodology, formal analysis, investigation, and writing. Viany Utami Tjhin contributed to supervision, project administration, funding acquisition, and writing review and editing. All authors have read and approved the submitted version of the manuscript and agree to be accountable for all aspects of the work.

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APPENDIX A QUESTIONNAIRE ITEMS

Table VII lists the variables included in the research model along with their corresponding codes and indicators. This table provides a clear mapping between each variable and the specific measurement items used in the questionnaire, ensuring transparency and reproducibility of the research instrument. The complete wording of these measurement items, along with demographic and usage-experience questions, is presented in Table VIII.

TABLE VII. CONSTRUCT AND MEASUREMENT ITEMS

Variable	Code	Indicator
System Quality	SQ1	Response Time
	SQ2	Flexibility
	SQ3	Availability
Service Quality	EQ1	Tangibility
	EQ2	Reliability
	EQ3	Responsiveness
	EQ4	Assurance
	EQ5	Empathy
Information Quality	IQ1	Timeliness
	IQ2	Relevance
	IQ3	Completeness
	IQ4	Understandability
	IQ5	Consistency
Perceived Advantage	PA1	Promotional Benefit
	PA2	Functionalities
	PA3	Visual Appeal
Effort Expectancy	EE1	Ease of Use
	EE2	Ease of Learning
	EE3	Feature Clarity
	EE4	Language Clarity
Digital Ecosystem	EC1	Lifestyle Integration
	EC2	Multiservice Access
	EC3	Multi-Partner Access
	EC4	Partner Benefit Access
User Satisfaction	US1	System Satisfaction

	US2	Information Satisfaction
	US3	Recommendation Intention
Continuance Intention	CI1	Continuance Intention
	CI2	Actual Usage
	CI3	Preference Over Alternatives

Table VIII presents the full set of survey questions administered to respondents. Construct measurement items were rated on a 7-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6 = Agree, 7 = Strongly Agree) to capture the degree of agreement with each statement. Demographic and usage-experience questions were included for descriptive analysis only and were not part of the structural model.

TABLE VIII. SURVEY QUESTIONS

Section	Survey Question	Response Options / Scale
Profile / Demographic Questions	Gender	Male, Female
	Age	17 – 27 years, 28 – 43 years, 44 – 58 years, ≥ 59 years
	Occupation	Student, Private Employee, Civil Servant (PNS/ASN), Freelancer/Independent Worker, Entrepreneur, Homemaker, Informal Sector Worker (e.g., online driver, small trader, daily laborer), Retired
	Most Frequently Used Application	Bank Jago, SeaBank
Digital Bank Application Usage Experience	Duration of Use	Less than 1 month, 1–6 months, 7–12 months, 1–2 years, More than 2 years
	Frequency of Use	More than once a day, Once a day, Every 2–3 days, Every 4–6 days, Once a week, More than a week but less than two weeks, Every two weeks, Once a month
	Main Reason for Use	Comprehensive features, Promotional benefits (interest rate promos, free transfers, cashback), Easy account opening process, Application security & data privacy protection, No monthly admin fees, Attractive app design, Investment & financial management features, User-friendly interface, Clear & comprehensive information, Fast access and rarely encounters errors
Construct Measurement Items	SQ1 – The waiting time between pages or features in this application is very short	7-point Likert scale
	SQ2 – This application is easily adaptable to my financial needs	7-point Likert scale
	SQ3 – This application is easily accessible whenever I need it	7-point Likert scale
	EQ1 – The online customer service feature in this application is easy to use	7-point Likert scale
	EQ2 – Important features such as transfers and payments always work properly when I use them	7-point Likert scale
	EQ3 – The online customer service in this application provides quick assistance when I encounter problems	7-point Likert scale
	EQ4 – This application ensures the security of my banking data and transactions	7-point Likert scale
	EQ5 – I feel heard when I contact the online customer service in this application	7-point Likert scale

IQ1 – Transaction and promotion information in this application is available promptly when needed	7-point Likert scale
IQ2 – Information about promotions, transactions, and accounts provided by this application meets my needs	7-point Likert scale
IQ3 – This application provides all information about my account and transactions completely	7-point Likert scale
IQ4 – The information displayed by this application is clear and easy to understand	7-point Likert scale
IQ5 – The information in this application is consistent across all sections (e.g., the amount, recipient name, or transaction time in the transaction list matches the details page)	7-point Likert scale
PA1 – This application offers attractive promotions for me (e.g., free transfers, high interest rates, free e-wallet top-up, referral bonuses, no admin fees)	7-point Likert scale
PA2 – This application has special features that help my financial activities (e.g., deposits, credit, auto-budgeting, spending analysis, joint accounts)	7-point Likert scale
PA3 – The visual design of this application is appealing to me	7-point Likert scale
EE1 – All features of this application are easy to use	7-point Likert scale
EE2 – I found all features of this application easy to learn the first time I used it	7-point Likert scale
EE3 – All features of this application are easy to understand	7-point Likert scale
EE4 – The language used in this application is easy to understand	7-point Likert scale
EC1 – I can access various services through this application (e.g., QRIS payments, electricity bills, internet packages, investment products, credit card, zakat, etc.)	7-point Likert scale
EC2 – I can complete many needs — from paying bills to investing — directly in this application without switching to other apps	7-point Likert scale
EC3 – This application is connected with many partners such as e-commerce, investment services, or insurance providers	7-point Likert scale
EC4 – I often receive promos, discounts, or other benefits because this digital bank collaborates with many services or merchants	7-point Likert scale
US1 – I am satisfied with the stability of this application's performance when I use it	7-point Likert scale
US2 – I am satisfied with the quality of information provided by this application	7-point Likert scale
US3 – I am willing to recommend this application to others	7-point Likert scale
CI1 – I intend to continue using this application regularly	7-point Likert scale
CI2 – I actively use this application in my daily activities	7-point Likert scale
CI3 – I will continue to choose this application even if there are other alternatives available	7-point Likert scale