



## Factors Influencing the Adoption of Digital Banking: Generation Z in Surabaya

Abraham Ivan Kurniawan<sup>1</sup>, Celine Morgan Gemiarta<sup>2</sup>, Jethson Edbert Sudarsono<sup>3</sup>, Joshua Wijaya<sup>4</sup>, Keona Adeline Yusuf<sup>5</sup>, Nanik Linawati<sup>6</sup>

<sup>1</sup>Petra Christian University, East Java, Indonesia, [inii.ivannn@gmail.com](mailto:inii.ivannn@gmail.com)

<sup>2</sup>Petra Christian University, East Java, Indonesia, [celine.mogee@gmail.com](mailto:celine.mogee@gmail.com)

<sup>3</sup>Petra Christian University, East Java, Indonesia, [jethedbert@gmail.com](mailto:jethedbert@gmail.com)

<sup>4</sup>Petra Christian University, East Java, Indonesia, [joshuawijaya128@gmail.com](mailto:joshuawijaya128@gmail.com)

<sup>5</sup>Petra Christian University, East Java, Indonesia, [keonadeline@gmail.com](mailto:keonadeline@gmail.com)

<sup>6</sup>Petra Christian University, East Java, Indonesia, [nanikl@petra.ac.id](mailto:nanikl@petra.ac.id)

Corresponding Author: [inii.ivannn@gmail.com](mailto:inii.ivannn@gmail.com)<sup>1</sup>

**Abstract:** The study titled "Factors Influencing the Adoption of Digital Banking: Generation Z in Surabaya" examines the influence of digital financial literacy comprising financial knowledge, financial behavior, and financial attitude on the interest in adopting digital banking services among Generation Z in Surabaya. A quantitative research method was employed using a survey approach. The respondents consisted of 115 individuals aged 18–28 years in Surabaya, selected through purposive sampling. Data were collected via online questionnaires and analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with SmartPLS. The results indicate that financial behavior and financial attitude significantly influence the interest in using digital banking, while financial knowledge shows no significant effect. These findings offer valuable insights for digital banking service providers to tailor strategies that align with the financial behavior and preferences of young users.

**Keywords:** Digital Financial Literacy, Digital Banking, Gen Z, Surabaya

## INTRODUCTION

Digital technology transformation has now penetrated into various sectors (Islam et al., 2024). Digital technology transformation which is currently growing rapidly is able to integrate all services characterised by industry 4.0 (Amon et al., 2024). In industry 4.0, the available network is able to work by itself without human intervention. Currently, technological advances are one of the companions in people's lives where many people utilize these technological advances to support daily life activities. The development of technology that continues to grow and move quickly needs to be balanced with the knowledge to utilise existing technology. Currently, technology is also developing in the banking sector, digitalisation in the banking sector is marked by the emergence of digital banks (Ravikumar et al., 2022). Digital banking is a form of banking service that does not require physical presence at banking branch offices (Ngoc Thach et al., 2021). Digital banks are carrying the concept of convenience in

accessing banking services through just one hand (Issahaku et al., 2024). The services available at digital banks are more or less the same or even more complete than conventional banks, available services such as account opening, transfers, payment of household needs, payment of daily needs, investment and so on (Dr & Mohanty, 2025). The emergence of digital banks is considered to increase efficiency in the banking sector because all access to banking services can be done online (Hoang et al., 2024).

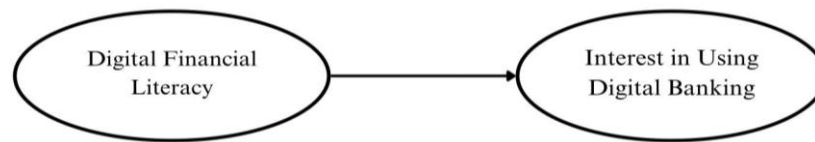
Technological advances involving digital banks require sufficient knowledge to leverage the services provided. In the presence of digital banks, people need to understand digital financial literacy in order to utilize digital banks safely and efficiently. Based on research (Yue et al., 2022) shows that digital financial literacy has an important role in influencing consumer preferences in using digital banks. This expression shows that the higher the user's digital financial literacy, the higher the user's interest in utilising the services offered by digital banks. Individuals with high digital financial literacy tend to be more confident and able to utilise digital financial services wisely (Koskelainen et al., 2023). By having high digital financial literacy, people who use digital bank services will find it easier to organise and diversify their funds to wisely use digital banks as an investment medium (Frimpong et al., 2022).

The adoption of digital banks requires a significant understanding of digital financial literacy, digital financial literacy plays some major role in the utilisation of digital banks. Digital financial literacy is also needed to increase awareness of data security and user privacy (Odumuwagon, 2025). As a digital bank user, it is important for users to understand and realise that technology can be dangerous if not used wisely and when users have minimal digital financial literacy (Soenjoto & Mahmudah, 2023). Understanding digital financial literacy supports digital bank users to be safer and more comfortable in using digital banks (Gautam et al., 2022). Data security and privacy of digital bank users will basically be provided by the digital bank service provider (Bruggemann et al., 2024), however, user contribution also plays a role in maintaining data security and privacy of each user, for example sharing email and passwords consciously to others, even the closest family. A high level of digital financial literacy will encourage awareness of the risks and benefits involved in using digital banks. Basically, this understanding is needed to understand the banking services obtained, for example the interest rates offered, bill payments and investments. On the other hand, digital financial literacy plays a role in reducing the infiltration of malware, phishing and fraud that are rampant online (Li et al., 2024).

Financial literacy is broadly defined as the ability to understand and effectively manage financial concepts, such as interest rates, inflation, and risk diversification (Lusardi, 2019). According to the Organization of Economic Co-operation and Development, financial literacy encompasses knowledge, skills, attitudes, and behaviors that enable individuals to make informed financial decisions. In practice, financial literacy includes a variety of concepts such as understanding financial products, managing personal finances, and making informed decisions about investments and savings (OECD, 2023; Danso, 2019). The development of fintech introduced a variety of digital financial products such as digital payment, digital banking, and digital investment. However, these digital products yield risks such as potential misuse, fraud of digital services, issues of data confidentiality, and digital profiling (Koskelainen et al. 2022). Such risks further highlights the importance of redefining financial literacy to include digital literacy which in turn creates digital financial literacy. Digital literacy itself can be defined as a wide array of skills ranging from basic technical abilities to complex cognitive and social competencies whilst digital financial literacy is defined as the ability to effectively use financial digital products and make an informed financial decision while protecting oneself from digital security risks. (Pachumwon et al., 2025; Choung et al. 2025). Individuals with strong digital financial literacy are equipped with knowledge, skills,

and confidence which in turn empowered individuals to use digital banking (Kamble, 2024). In the context of digital banking, digital financial literacy is essential in boosting individual's uptake of digital banking usage.

H1: Digital Financial literacy has a positive relationship with the interest of using digital banking



Source: Research Results  
**Figure 1. Research Model**

Surabaya has the second-largest economic centre in Indonesia. The generation Z population in Surabaya ranges in age from 18 to 28 years. This makes generation Z as the largest internet user in Surabaya will have a tendency to use digital bank services (Limilia et al., 2022). This is evidenced by a survey conducted by the Otoritas Jasa Keuangan (OJK) in collaboration with the Badan Pusat Statistik (BPS) through the 2024 Survei Nasional Literasi dan Inklusi Keuangan (SNLIK) which found that the financial literacy index in Indonesia was 65.43%, where if a sample is taken based on the age category, the following data is obtained: the 26-35 age group is 74.82%, and the 18-25 age group is 70.19% which is categorised as having the highest financial literacy index. Furthermore, the 26-35 years age group of 84.28%, and the 18-25 years age group of 79.21% are categorised as having the highest financial inclusion index. Through the results of this survey, it can be seen that Gen-Z in Surabaya has outstanding digital financial literacy compared to other generations.

Examinations through phenomena, research gaps and previous studies on Generation Z's interest in using digital bank services. This study will analyse the link between digital financial literacy in the use of digital banking. The problem in this study is how digital financial literacy can increase Generation Z's interest in using digital banks in Surabaya. This research aims to provide a deeper understanding of the extent to which digital financial literacy and interest rate offers will increase the interest of generation Z as digital bank users in Surabaya.

## METHOD

This study employs a quantitative survey design with a primary research approach to examine the relationship between digital financial literacy toward interest in using digital banking in Surabaya, Indonesia. The positivist paradigm is adopted to objectively test hypotheses using statistical analysis. Data are collected directly from respondents through questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS. This analysis is used to evaluate the relationships between variables, assess the impact of digital financial literacy on interest in using digital banking, and control for the influence of demographic variables.

This study employs a quantitative method using a survey approach to analyze the factors influencing the use of digital banking in Surabaya. Data collection is conducted through a Google Forms-based questionnaire distributed to Gen Z respondents in Surabaya via WhatsApp. The survey approach enables researchers to gather information from a number of respondents within a relatively short period (Sugiyono, 2017). The quantitative approach is used to measure the influence of the variables in this study on the use of digital banking in Surabaya. By utilizing a questionnaire, quantitative data can be obtained from a representative sample of the population. The population in this study consists of Generation Z in Surabaya who are familiar with and have experience using digital banking services. According to data

obtained from Badan Pusat Statistik Kota Surabaya (BPS Kota Surabaya, 2023), there are approximately 653,705 residents aged 15–29 years who constitute the population for this study.

To determine the sample size for this study, Slovin's formula is used. Slovin's formula is a method used to calculate the required sample size for a large population while ensuring a representative sample is obtained (Sugiyono, 2017). Slovin's formula is expressed as follows:

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

Where:

n = Sample Size

N = Population Size

e = Margin of Error

Based on this formula, the sample size for this study is calculated as follows:

$$n = \frac{653.705}{1+653.705(0,1)^2}$$

$$n = \frac{653.705}{1+653.705(0,01)}$$

$$n = \frac{653.705}{6538,05} = 99,985$$

In the context of this study, the sample consists of 100 Generation Z respondents who are residents of Surabaya.

This study employs purposive sampling, a sampling technique in which respondents are selected based on specific characteristics or criteria relevant to the research objectives. Purposive sampling is chosen because research on digital financial literacy requires respondents who meet certain specific criteria, such as being between 18 and 28 years old, residing in Surabaya, having a bank account or at least having used digital banking services, and possessing a basic understanding of digital financial services. By selecting respondents who meet these criteria, the data obtained is expected to be more relevant and accurate in reflecting the state of digital financial literacy in society. Purposive sampling is particularly useful when research focuses on specific phenomena or behaviors that can only be understood through respondents with certain backgrounds. However, this method also has limitations, such as the potential for sample selection bias, which may not objectively represent the entire population, and the challenge of generalizing research findings to a broader population. Therefore, careful planning is essential in determining respondents to ensure the credibility and validity of the study. Through this strategy, the research aims to provide deeper insights into the level of digital financial literacy and how society utilizes digital financial services in daily life.

The data collected will be analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with the SmartPLS software. This method was selected as it is considered appropriate for testing complex research models, particularly those involving multiple variables and indicators. The first step in the analysis process involved testing the reliability and validity of the constructs to ensure that each construct within the model demonstrated sufficient consistency and measurement accuracy. Reliability was assessed using Cronbach's Alpha (CA) and Composite Reliability (CR), with ideal values above 0.70 indicating good internal consistency, and values between 0.6 and 0.7 are also acceptable (Hair et al., 2017). The item elimination procedure involves removing all items with loading values below 0.4. Meanwhile, items with loading values below 0.4 and 0.5 will be eliminated gradually, as their removal has the potential to enhance the loading values of other items.

Meanwhile, convergent validity was evaluated using the Average Variance Extracted (AVE), which is deemed acceptable when the value is not below 0,4 , as value below 0,4 must be removed. The hypotheses are assessed using p-values by running a bootstrapping process to obtain the t-statistic and p-value. Then, examine the path coefficient and interpret the results based on the significance criteria, which are a p-value  $< 0.1$  and a t-value  $> 1.65$  for significance at the 10% level. The analysis results show that financial behavior has a significant impact on the intention to use digital banking, while financial knowledge and attitudes are not significant but still accepted in the context of the research.

This study aims to examine the extent to which digital financial literacy and offered interest rates influence the interest of Generation Z in Surabaya in utilizing digital banking services. The findings from this analysis are expected to provide clearer insights into the digital financial behavior of young people, and to serve as valuable input for digital banking service providers in designing more targeted and effective strategies.

## RESULTS AND DISCUSSION

The respondents in this study are Generation Z of Surabaya within the age range of 18 to 28 years, who possess and actively utilize digital banking applications. The questionnaire comprised three sections related to the research variables: Interest of Using Digital Banking (Y), Digital Financial Literacy (X1), and Offered Digital Banking Interest Rate (X2). Respondents were expected to provide responses that accurately reflected their actual experiences and perceptions.

From the total number of questionnaires distributed to Generation Z individuals aged 18 to 28 years who use digital banking applications, a total of 115 valid responses were collected and processed as the sample for this study. The data were collected through the distribution of online questionnaires to respondents residing in Surabaya, within the age range of 18 to 28 years, who have adopted and used digital banking applications. The online distribution of the questionnaire was conducted from March 20 to March 26, 2023, and successfully gathered responses from 120 individuals. In between the 120 responses received, there were 115 valid responses resulting from filtering 5 respondents who were Generation Z or citizens of Surabaya. The demographic characteristics examined in this study include gender, age, academic background, working status, and monthly salary.

**Table 1. Respondent Demographics**

Indicator	Frequency	Percentage
<b>Gender</b>		
Male	48	42%
Female	67	58%
<b>Age</b>		
18-20	49	43%
21-23	47	41%
24-26	14	12%
27-28	5	4%
<b>Academic Background</b>		
Undergraduate	77	67%
Bachelor's Degree	38	33%
<b>Employment Status</b>		
Employed	45	39%
Unemployed	70	61%
<b>Monthly Income</b>		
Below Rp 5.000.000	88	76%
Rp 5.000.001 - Rp 20.833.333	24	21%



Rp 20.833.334 - Rp 41.666.667	2	2%
Rp 41.666.668 and above	1	1%
<b>Total</b>	<b>115</b>	<b>100%</b>

Source: Primary data processed in 2025

Based on the demographic data in Table 1, the number of female respondents was 67 (58%), while male respondents totaled 48 (42%). Therefore, the majority of respondents in this study were female. This finding suggests that women show greater interest or involvement in the use of digital banking services compared to men. While in terms of age distribution, the largest proportion of respondents fell within the 18–20 years age group, totaling 49 individuals (43%), followed closely by the 21–23 years age group with 47 individuals (41%). The smallest proportion was in the 27–28 years age group, comprising only 5 respondents (4%). These findings indicate that Gen Z users of digital banking services are predominantly from the age group of 18–23 years old.

Regarding educational background, 38 respondents (33%) held a bachelor's degree, while 77 respondents (67%) were undergraduate students. Additionally, results on the employment status show that most respondents were unemployed, totaling 70 individuals (61%). This aligns with the educational background data, where the majority of respondents were students. It also suggests that even individuals without a steady income are actively engaging with digital banking platforms, likely for purposes such as non-cash transactions, savings, or educational payments. In relation to monthly income, the majority of respondents earned between IDR 5,000,001 and IDR 20,833,333, with 24 individuals (21%) falling into this category. A small number of respondents earned between IDR 20,833,334 and IDR 41,666,667 (2 individuals or 2%), while only 1 respondent (1%) reported a monthly income exceeding IDR 41,666,668.

**Table 2. Validity & Reliability Test**

Variable	Total Mean	CA	CR	AVE
FK	1.774	N/A	N/A	N/A
FB	4.139	0.625	0.758	0.466
FA	3.968	0.727	0.844	0.645
M	3.824	0.838	0.888	0.668

Source: Data processed in SmartPLS

FK - Digital Financial Knowledge  
 FB - Financial Behavior  
 FA - Digital Financial Attitude  
 M - Interest in Using Digital Banking

This study utilized questionnaires adapted from Nguyen (2020) and Zaimovic et al. (2024) to measure digital financial literacy across three core constructs: Financial Knowledge (FK), Financial Attitude (FA), and Financial Behavior (FB). Additionally, questions on interest in using digital banking (denoted as M) were curated by the author due to the scarcity of standardized measures in this domain. Data were analyzed using SmartPLS, with the respondent pool predominantly comprising high school students.

The mean result of the Digital Financial Attitude (FA) indicator questions from the overall respondents is 3.968, with an interval of 3.383 - 4.322 (using a 10% confidence interval). This variable measures respondents' attitudes or perceptions toward digital finance, such as trust in the security of digital transactions and openness to financial innovation. In the

indicator question “It is important to check the security of a website before making online transactions (e.g., HTTPS site, safety logo, or certificate).” the highest mean value reached 4.322. This indicates that respondents exhibit a negative attitude and a low level of trust in the security of digital financial services, which is important in the current digital era where hacking cases are increasingly common in Indonesia.

The mean result of the *Digital Financial Behavior* (FB) indicator questions from the overall respondents shows a value of 4.139, with an interval of 3.278 - 4.626 (using a 10% *confidence interval*). This variable measures respondents' actions or habits in using digital financial services, such as the frequency of online transactions and digital budget management. In the indicator question “I do not share my bank account password and PIN with close friends.” the highest mean value reached 4.626. It can be concluded that respondents demonstrate consistent and positive habits in utilizing digital financial services.

The mean result of the *Digital Financial Knowledge* (FK) indicator questions from the overall respondents is 1.774, with a median of 2. It should be noted that the questions for this variable are binary (yes/no) rather than a Likert scale, so the mean value reflects the proportion of respondents' understanding of digital financial concepts, tools, and services, such as *ad targeting* and *cryptocurrency*. The relatively low mean value indicates that respondents' understanding of digital financial knowledge is still limited, with the majority possessing only basic knowledge.

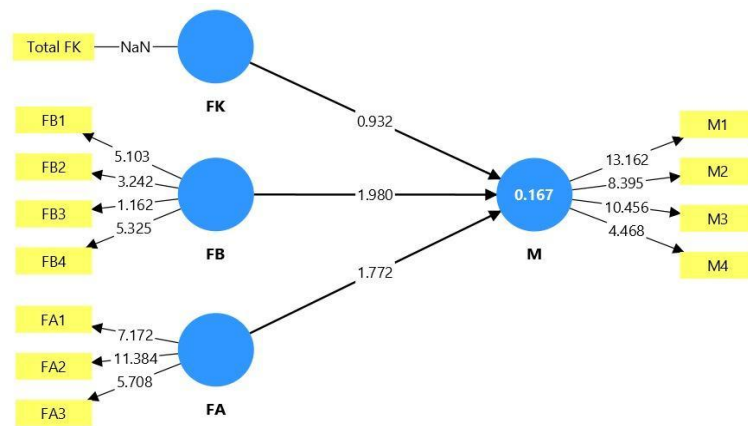
The mean result of the *Interest in Using Digital Banking* (M) indicator questions from the overall respondents shows a value of 3.824, with an interval of 3.539 - 4.113 (using a 10% *confidence interval*). This variable measures respondents' willingness to use digital banking services and recommend them to others. In the indicator question “I prefer digital banks that do not impose penalties for early withdrawals.” the highest mean value reached 4.113. It can be concluded that respondents have a relatively high interest in adopting and promoting digital banking services.

The inner and outer model analysis was conducted to evaluate the reliability and validity of the variables through several testing stages, including Cronbach's Alpha (CA), Composite Reliability (CR), Average Variance Extracted (AVE), and R-Square. For reliability, the Digital Financial Behavior (FB) construct yielded a CA value of 0.625, which is still in the ideal range of 0.6 - 0.7, though its CR value of 0.758 meets the required criterion, suggesting acceptable reliability with some caveats. In contrast, Digital Financial Attitude (FA) demonstrated good reliability with a CA of 0.727 and a CR of 0.844, both exceeding the 0.70 threshold, while Interest in Using Digital Banking (M) showed excellent reliability with a CA of 0.838 and a CR of 0.888, well above the minimum standard. However, reliability metrics for Digital Financial Knowledge (FK) were unavailable due to the binary nature of its questions, rendering traditional reliability measurements inapplicable.

Convergent validity was assessed using the AVE, with an ideal threshold of greater than 0.50. The results revealed that Digital Financial Behavior (FB) had an AVE of 0.466, which, while below the ideal threshold of 0.50, is still considered acceptable according to Hair et al. (2017), as it exceeds the minimum threshold of 0.40, though improvements may be necessary to enhance its convergent validity. Meanwhile, Digital Financial Attitude (FA) achieved an AVE of 0.645, and Interest in Using Digital Banking (M) recorded an AVE of 0.668, both surpassing the 0.50 criterion and confirming good convergent validity. Similar to the reliability assessment, AVE data for Digital Financial Knowledge (FK) was not available due to its binary question format, making this measurement inapplicable for the construct.

The R-Square value for the endogenous variable, Interest in Using Digital Banking (M), is 0.167, with an adjusted R-Square of 0.144, indicating that the exogenous variables, which are Digital Financial Knowledge, Digital Financial Behavior, and Digital Financial Attitude, are collectively explain 16.7% of the variability in the endogenous variable, while the adjusted.

R-Square suggests a slightly lower explanatory power of 14.4% after accounting for the number of predictors. This relatively low R-Square value implies that, despite some contribution from Digital Financial Behavior and Digital Financial Attitude as suggested by their reliability and validity results, a substantial portion, approximately 83.3% of the variability in Interest in Using Digital Banking remains unexplained by the model. This remaining variability is likely influenced by external factors, such as technological or social aspects, highlighting the need for a more comprehensive exploration of these influences in future research.



Source: Data processed in SmartPLS

**Figure 2. Structural Model of the Relationship Between the Determinants of Digital Financial Literacy and Its Impact on Interest in Using Digital Banking**

**Table 3. Hypothesis Test Value**

Direct Path	T statistics ( $ O/STDEV $ )	p-values	Remarks
FK → M	0.932	0.351	Rejected
FB → M	1.980	0.048	Accepted
FA → M	1.772	0.076	Accepted

Source: Data processed in 2025

Based on the analysis method used in this study, that's hypothesis testing by examining the p-value and t-value through the bootstrapping process. The predetermined significance criteria were a p-value < 0.1 and a t-value > 1.65 at a 10% confidence level. The results of the analysis show that Financial Attitude (FA) towards the interest in using digital banking (M) has a t-value of 1.772 and a p-value of 0.076 which means that this relationship is statistically significant. This shows that the more positive a person's attitude towards finance, the higher their interest in using digital banking services. Meanwhile, Digital Financial Behavior (FB) towards the interest in using digital banking (M) shows more significant results with a t-value of 1.980 and a p-value of 0.048. This indicates that digital safety habits, such as checking whether or not digital financial products are regulated, have a stronger influence in increasing a person's interest in digital banking compared to Financial Attitudes (FA).

Then for Financial Knowledge (FK) shows results that are not statistically significant with a t-value for this variable of only 0.932 with a p-value of 0.351. There are several reasons why financial knowledge does not show a significant influence. First, the characteristics of respondents who are dominated by high school students are an important factor. This age group generally has limited financial knowledge due to the lack of direct experience in finances. Additionally, this research uses questions that are too complex, such as cryptocurrencies (smart contract and adoptability), so that respondents have difficulty understanding and answering



accurately. Questionnaires that focus on advanced financial concepts instead of basic questions such as saving or budgeting may also be responsible for the insignificance of these results.

## CONCLUSION

This study demonstrates that Digital Financial Literacy (DFL), which consists of Digital Financial Knowledge, Digital Financial Behavior, and Digital Financial Attitude, significantly influences individuals' interest in using digital banking. Individuals who possess a strong understanding of digital financial concepts, exhibit effective digital financial behaviors, and hold positive attitudes toward digital finance are more likely to adopt and engage with digital banking platforms sustainably. The findings highlight that a high level of DFL fosters confidence among users, enabling them to navigate the complexities of digital banking features with ease and make informed financial decisions, thereby driving greater adoption in the digital financial ecosystem.

The results emphasize the critical role of DFL in shaping user behavior toward digital banking, as individuals with well-developed digital financial literacy are better equipped to leverage the benefits of digital platforms, such as convenience and accessibility, in managing their finances. This underscores the importance of enhancing digital financial knowledge, encouraging responsible financial behaviors, and cultivating positive attitudes to promote the widespread and sustainable use of digital banking services. By focusing on these components, stakeholders can better support the transition to digital financial systems, particularly in an increasingly digitalized economy.

Despite these valuable insights, the study has certain limitations, as it focuses exclusively on the components of DFL and their impact on interest in using digital banking. Future research could explore additional factors, such as technological infrastructure, user trust, demographic influences, or offered interest rates to provide a more holistic understanding of the determinants of digital banking adoption. Incorporating these elements would further enhance the analysis of how various factors interplay to shape user behavior, offering deeper insights into fostering greater engagement with digital banking in the digital era.

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