



The Influence of Knowledge, Trust, Perceived Usefulness, Security, and Service Features on Customers' Adoption of Internet Banking

Yolanda*, Ronald Suryaputa, Widi Dewi Ruspitasari

Institut Teknologi Dan Bisnis Asia Malang, Indonesia

Email : yolandaoktaviana07@gmail.com

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ABSTRACT

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*Corresponding Author

This study aims to analyze the influence of knowledge, trust, perceived usefulness, security, and service features on customers' decisions to use Internet Banking. The research employed a quantitative, associative research design to examine causal relationships among variables. Data were collected through questionnaires distributed to 120 bank customers who had previously used Internet Banking services. The data were analyzed using multiple linear regression supported by statistical software to examine both partial and simultaneous effects of the independent variables on customers' decisions. The results show that knowledge, trust, perceived usefulness, security, and service features each have a positive and significant effect on customers' decisions to use Internet Banking. Among these variables, perceived usefulness was found to be the most dominant factor influencing adoption decisions. The simultaneous test also indicates that all independent variables collectively have a significant effect on customers' decisions to adopt Internet Banking services. These findings imply that improving customers' understanding of digital banking, strengthening system security, building customer trust, and enhancing service features are essential strategies for increasing the adoption of Internet Banking services.

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INTRODUCTION

The rapid development of Information Technology (IT) has brought significant changes to various sectors of society, including the financial services industry. Digital technology is no longer merely a supporting operational tool but has evolved into a strategic instrument for improving service efficiency, accessibility, and competitiveness. The integration of digital technology enables financial institutions to provide faster, more flexible, and more accurate services, thereby meeting the increasing demand of modern society for convenient and efficient financial transactions (Hefniy & Alwahedi, 2025; Holidi, 2025; Khofsah,

2025). In this context, the banking sector is among the industries most affected by digital transformation. Technological innovations allow customers to conduct various financial activities without visiting bank branches physically. These developments not only benefit customers by providing convenience but also help banks reduce operational costs and expand service coverage. Consequently, the adoption of digital banking services has become a crucial component in supporting financial inclusion and improving the efficiency of national financial systems. Therefore, understanding the factors that influence customers' adoption and use of digital banking services is an important issue for both academic research and banking practice.

Despite the rapid growth of digital banking services, not all members of society are able to adopt these technologies optimally. Differences in digital literacy, technological understanding, and perceptions of service security influence individuals' decisions to utilize digital banking services (Hikmah & Mudarris, 2026; Manshur, 2026). Some customers still experience uncertainty when using digital banking independently due to limited knowledge regarding system features, transaction procedures, and security mechanisms. In addition, trust in technological systems plays a critical role in shaping users' decisions to adopt Internet Banking. Concerns regarding potential transaction errors, system disruptions, and the risk of personal data misuse often lead customers to prefer conducting transactions directly at bank branches. These conditions indicate that the success of banking digitalization is not determined solely by technological availability, but also by the level of public trust and acceptance of the technology. Therefore, it is essential to examine the factors that influence customers' decisions to use Internet Banking services independently.

Such conditions can also be observed in practical banking services in various regions. Although Internet Banking services are widely available and the number of registered users continues to increase, many customers still visit bank branches to perform transactions or seek assistance from bank staff. This phenomenon indicates a gap between the availability of digital banking services and customers' actual behavior in using them independently. In many cases, customers are already registered as Internet Banking users but still require assistance from bank officers to complete certain transactions (Kusumawati, 2025; Syafiih, 2025). This situation suggests that the decision to use digital banking services is influenced not only by technological accessibility but also by psychological and perceptual factors. Limited knowledge about service features, low levels of trust in system security, and perceptions of potential risks in digital transactions can affect customers' willingness to use Internet Banking independently. Therefore, this phenomenon becomes an important issue to investigate in order to better understand the determinants of digital banking usage behavior among customers.

Previous studies have examined various factors influencing the adoption and use of Internet Banking services. Several studies highlight that users' knowledge of digital technology plays an important role in shaping their decisions to use online banking services (Rahman et al., 2023; Rozi et al., 2023). Adequate knowledge of service features, transaction procedures, and security mechanisms can increase users' confidence in conducting digital financial transactions independently. In addition, trust in technological systems has been widely recognized as a key factor influencing the adoption of Internet Banking. Research indicates that higher levels of trust in system reliability and data protection increase customers' willingness to utilize digital banking services. Another frequently examined factor is perceived usefulness, which refers to the extent to which users believe that a particular technology enhances their efficiency, convenience, and effectiveness in performing financial transactions. These findings suggest that psychological perceptions and individual evaluations of technology play a significant role in determining customers' adoption of Internet Banking services.

Furthermore, security and service features are also frequently discussed in studies related to digital banking adoption. Security systems represent an essential factor affecting customers' confidence in performing digital transactions. Protective mechanisms such as authentication systems, password protection, and data security management are considered critical components in building trust in digital banking platforms (Adeoye & Baharun, 2025; Khoiroh et al., 2025). In addition, the availability and usability of service features influence users' experiences when utilizing Internet Banking. Features that are practical, easy to understand, and aligned with customers' transactional needs tend to increase the level of digital service utilization. However, most previous studies have primarily focused on customers' intentions to use digital banking technologies rather than their actual usage decisions. Moreover, many studies were conducted in urban areas with relatively high levels of digital literacy, which may not fully represent the conditions in regions with different demographic and technological characteristics.

Based on the literature review, a research gap can be identified in studies examining Internet Banking adoption. Existing research largely focuses on behavioral intention to use technology, while studies that analyze customers' actual usage decisions remain relatively limited (Khusnuridlo & Fauzi, 2024). In addition, previous studies rarely integrate multiple determinants such as knowledge, trust, perceived usefulness, security, and service features within a single comprehensive research model. This limitation suggests that a more integrated investigation is needed to understand how these factors collectively influence customers' decisions to use Internet Banking services. Addressing this gap is particularly important in contexts where digital literacy levels vary among customers and where digital banking services are still developing. Therefore,

further empirical investigation is necessary to better understand the determinants of customers' decisions to utilize Internet Banking services.

Based on the above considerations, this study aims to analyze the influence of knowledge, trust, perceived usefulness, security, and service features on customers' decisions to use Internet Banking. This research is based on the argument that customers' decisions to utilize digital banking services are influenced not only by technological availability but also by their perceptions, experiences, and level of trust in the banking system. By examining these factors, this study is expected to contribute to the academic literature on technology adoption in the banking sector. In addition, the findings of this research are expected to provide practical insights for banking institutions in developing more effective digital banking strategies that align with customers' needs and preferences. Ultimately, this study seeks to provide a more comprehensive understanding of the factors influencing customers' decisions to use Internet Banking services in the digital banking era.

RESEARCH METHODS

This study adopts a quantitative research design to examine and measure the influence of knowledge, trust, perceived usefulness, security, and service features on customers' decisions to use Internet Banking. A quantitative approach was chosen because it enables researchers to collect numerical data from respondents and analyze the relationships among variables objectively, systematically, and measurably (Gul, 2023; Sardana et al., 2023). The type of research employed is associative quantitative research, which aims to identify the relationships or causal influences between two or more variables. In this study, knowledge, trust, perceived usefulness, security, and service features function as the independent variables, while the customers' decision to use Internet Banking serves as the dependent variable. This design allows for hypothesis testing and provides empirical evidence regarding the factors influencing customers' decisions in adopting Internet Banking services.

The research was conducted at a commercial banking institution that provides Internet Banking services. This location was selected because it represents a banking environment where customers frequently interact with customer service officers to obtain assistance, clarification, and information regarding digital banking services. Although Internet Banking services are widely available, many customers still visit bank offices to request help related to system usage, transaction procedures, or security concerns. Therefore, this research setting provides a relevant context to examine the determinants of customers' decisions to utilize Internet Banking services. The research was carried out over a twelve-month period, covering the stages of data collection, data analysis, and preparation of the research report.

Data collection in this study was conducted using observation, questionnaires, and documentation techniques. Observation was performed to obtain an initial understanding of the phenomena related to customer service activities in assisting customers who use Internet Banking services. The primary data were collected through a structured questionnaire distributed to customers who had previously registered for and used Internet Banking services. The questionnaire items were developed based on indicators representing the research variables, including knowledge, trust, perceived usefulness, security, service features, and customers' decisions to use Internet Banking. In addition, documentation techniques were used to collect supporting information related to Internet Banking services, such as service brochures, registration forms, and other relevant institutional documents that provide contextual information for the research.

The collected data were analyzed using quantitative statistical analysis with multiple linear regression, supported by statistical software such as SPSS to ensure accuracy in data processing. Descriptive statistical analysis was first conducted to describe respondents' perceptions of each research variable based on Likert-scale responses. Furthermore, several inferential statistical tests were performed, including the partial test (t-test) to determine the individual effect of each independent variable, the simultaneous test (F-test) to evaluate the joint effect of all independent variables, and the coefficient of determination (R^2) to assess the explanatory power of the regression model. To ensure the validity and reliability of the research findings, data validity and reliability tests were conducted using corrected item-total correlation and Cronbach's alpha. In addition, classical assumption tests including normality, multicollinearity, and heteroscedasticity tests were applied to confirm that the regression model met statistical requirements. These procedures were carried out to ensure that the research results are valid, reliable, and capable of accurately explaining the factors influencing customers' decisions to use Internet Banking services (Takona, 2024).

RESULTS AND DISCUSSION

Results

Respondent Characteristics Description

The respondents in this study consisted of 120 individuals, all of whom were customers of BNI Branch Situbondo and had used Internet Banking services. The characteristics of respondents were analyzed based on gender, age, last educational level, and occupation. Presenting respondent characteristics aims to provide a general overview of the respondent profile who became the subjects of this research.

Table 1. Distribution of Respondents by Gender

Gender	Total	Percentage
Female	62	51.7%
Male	58	48.3%
Total	120	100%

Based on Table 1, female respondents numbered 62 people (51.7%), while male respondents totaled 58 people (48.3%). This distribution indicates that the composition of respondents is relatively balanced between males and females. Therefore, the research data were obtained from respondents with fairly proportional gender backgrounds.

Descriptive Statistical Analysis

Descriptive statistical analysis was used to provide a general overview of respondents' answers for each research variable before conducting regression analysis.

Table 2. Descriptive Statistics of Research Variables

Variable	Min	Max	Mean	Std. Dev
Knowledge (X_1)	8	25	15.39	3.54
Trust (X_2)	7	20	13.18	2.82
Usefulness (X_3)	9	25	16.99	3.66
Security (X_4)	6	19	12.53	2.86
Service Features (X_5)	5	19	12.65	2.83
Decision (Y)	6	25	15.63	4.54

Based on Table 2, the variable with the highest mean value is usefulness (X_3) at 16.99, followed by decision (Y) at 15.63 and knowledge (X_1) at 15.39. Meanwhile, the trust variable (X_2) has a mean of 13.18, service features (X_5) 12.65, and security (X_4) 12.53, which is the lowest average value. The standard deviation values of all variables range from 2.82 to 4.54, indicating that there is variation in respondents' answers for each variable, but it is still within a relatively reasonable range compared to the mean values. The minimum and maximum value ranges of each variable also show that respondents' scores are distributed within the measurement scale limits used in this study.

Normality Test

The normality test was conducted by examining the histogram and the Normal P-P Plot of standardized residuals. The histogram shows a distribution

pattern that approaches normal, and the points in the Normal P-P Plot follow the diagonal line, indicating that the model meets the normality assumption.

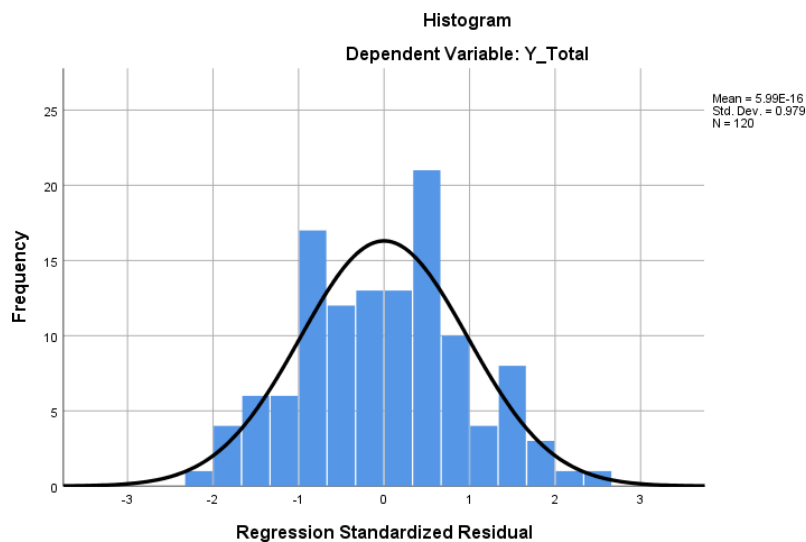


Figure 1. Regression Test

According to Figure 1, the residual distribution appears to follow a normal pattern, so visually the regression model meets the normality assumption.

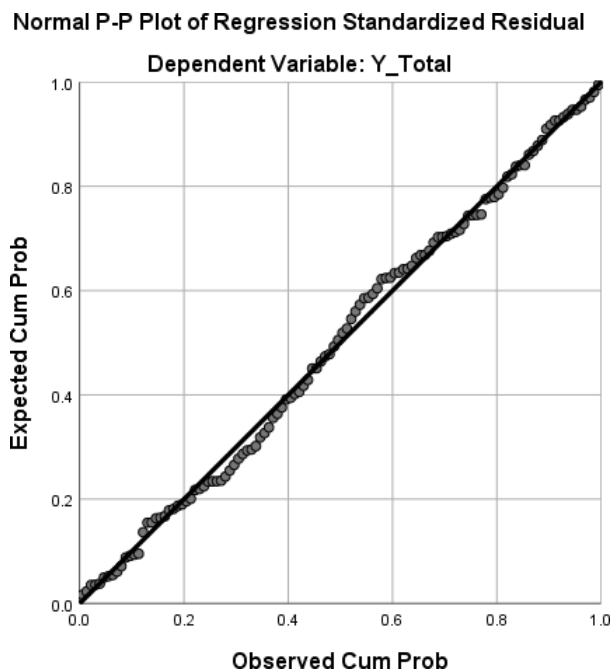


Figure 2. Normality Test

According to Figure 2, the residual points appear to follow and approach the diagonal line. This indicates that the residuals are normally distributed, so the normality assumption in the regression model can be considered fulfilled.

Multicollinearity Test

Table 3. Multicollinearity Test

Variable	Tolerance	VIF
Knowledge (X1)	0.785	1.273
Trust (X2)	0.860	1.163
Usefulness (X3)	0.749	1.334
Security (X4)	0.900	1.111
Service Features (X5)	0.916	1.091

Based on Table 3, the multicollinearity test results show that all independent variables have Tolerance values greater than 0.10 and VIF values less than 10. The Knowledge variable (X1) has a Tolerance of 0.785 and VIF of 1.273; Trust (X2) 0.860 and 1.163; Usefulness (X3) 0.749 and 1.334; Security (X4) 0.900 and 1.111; and Service Features (X5) 0.916 and 1.091. Based on the testing criteria, these conditions indicate that there is no high correlation among independent variables. Therefore, the regression model is free from multicollinearity problems and is suitable for further analysis.

Heteroscedasticity Test

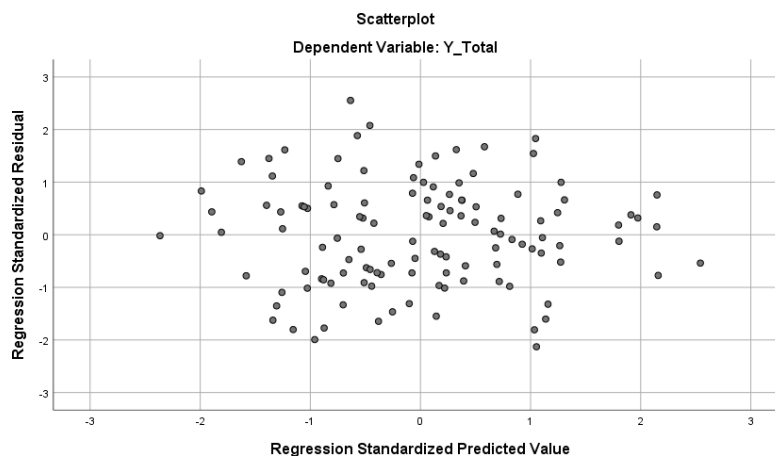


Figure 3. Heteroscedasticity Test

According to Figure 3, the points spread randomly without forming a specific pattern, so visually there is no strong indication of heteroscedasticity.

Model Feasibility Test (Coefficient of Determination)

Multiple linear regression analysis was conducted to determine the influence of variables X_1 – X_5 on customers' decisions to use Internet Banking.

Table 4. Coefficient of Determination

R	R Square	Adjusted R Square
0.705	0.497	0.475

According to Table 4, the R Square value of 0.497 indicates that 49.7% of the variation in customers' decisions can be explained by knowledge, trust, usefulness, security, and service features. The remaining 50.3% is influenced by other factors outside the research model.

F Test

Table 5. F-Test Results

F Value	Sig.
22.543	0.000

According to Table 5, the significance value of 0.000 is smaller than 0.05, indicating that all independent variables simultaneously have a significant effect on the decision to use Internet Banking.

t Test

Table 6. t-Test Result

Variable	B	t	Sig.
Knowledge	0.326	3.384	0.001
Trust	0.250	2.171	0.032
Usefulness	0.453	4.763	0.000
Security	0.267	2.405	0.018
Service Features	0.296	2.665	0.009

Based on Table 6, all variables have significance values less than 0.05, indicating that each variable partially influences customers' decisions. The usefulness variable has the largest t value of 4.763 with a significance value of 0.000 and a regression coefficient (B) of 0.453. This value is higher than the other variables, indicating that usefulness provides the most dominant contribution to the decision to use Internet Banking in this research model.

Regression Equation

Based on the results of multiple linear regression analysis using SPSS, the regression coefficient values are shown in Table 7 below.

Table 7. Regression Coefficient Test Results (Coefficients)

Variable	B (Unstandardized)	Std. Error	Beta (Standardized)	t	Sig.
Constant	-7.475	2.309	-	- 3.238	0.002
Knowledge (X1)	0.326	0.096	0.254	3.384	0.001
Trust (X2)	0.250	0.115	0.155	2.171	0.032
Usefulness (X3)	0.453	0.095	0.365	4.763	0.000
Security (X4)	0.267	0.111	0.168	2.405	0.018
Service Features (X5)	0.296	0.111	0.185	2.665	0.009

The regression equation in this study is constructed based on the Unstandardized Coefficients (B) values in the regression results table (Table 7). These coefficient values were obtained from data processing using SPSS and are used to form the multiple linear regression model.

Based on the regression coefficients, the model equation is:

$$Y = -7,475 + 0,326X_1 + 0,250X_2 + 0,453X_3 + 0,267X_4 + 0,296X_5$$

The constant value (-7.475) and all independent variable coefficients are taken from the B (Unstandardized Coefficients) column. Positive coefficient values indicate that any increase in knowledge, trust, usefulness, security, and service features will be followed by an increase in customers' decisions to use Internet Banking, assuming the other variables remain constant. The equation shows that all coefficients are positive, meaning that increases in knowledge, trust, usefulness, security, and service features will increase customers' decisions to use Internet Banking.

Discussion

The regression analysis indicates that knowledge has a positive and significant influence on customers' decisions to use Internet Banking, with a coefficient value of 0.326 and a significance level of 0.001 (< 0.05). This finding suggests that the higher the level of customers' understanding regarding the procedures, functions, and benefits of Internet Banking services, the stronger their decision to use the service. From a theoretical perspective, knowledge represents a cognitive factor that plays an important role in the decision-making process. Within the framework of the Technology Acceptance Model (TAM), technology adoption is influenced by perceived usefulness and perceived ease of use, which ultimately shape users' attitudes and behavioral decisions toward technology utilization (Arifin, 2024; Zuhdi & Faridy, 2024). These findings are

consistent with previous studies indicating that users' understanding of digital banking systems contributes significantly to their willingness and decision to adopt such technologies.

The results also show that trust has a positive and significant effect on customers' decisions to use Internet Banking, with a regression coefficient of 0.250 and a significance value of 0.032 (< 0.05). The positive coefficient indicates that increasing customers' confidence in system reliability, transaction accuracy, and the bank's responsibility will increase their likelihood of using Internet Banking services. In the context of online transactions, trust refers to users' belief in the integrity, competence, and reliability of the service provider. Trust plays a critical role in reducing perceived risks associated with digital transactions and technological systems (Kusnanto et al., 2023; Venugopal et al., 2024). In digital banking environments where physical interaction with service providers is minimal, trust becomes a fundamental determinant influencing users' decisions to adopt and utilize online financial services (Azizah et al., 2025; Fatmasari & Windiyani, 2025; Khoiroh, 2025).

Furthermore, perceived usefulness demonstrates the strongest positive and significant effect on customers' decisions to use Internet Banking, with a regression coefficient of 0.453 and a significance value of 0.000 (< 0.05). This indicates that perceived usefulness provides the largest contribution among the independent variables in influencing the decision to adopt Internet Banking services. Customers tend to use Internet Banking when they perceive clear benefits such as time efficiency, ease of access, transaction speed, and convenience in managing financial activities. According to the Technology Acceptance Model, perceived usefulness is a key determinant of technology adoption because individuals are more likely to use a system when it is believed to enhance performance and productivity (Rahmatillah & Andayani, 2025; Rusdiah, 2024). Subsequent developments of TAM also emphasize that perceived usefulness has a direct influence on users' behavioral intentions and technology usage decisions.

The analysis further reveals that security has a positive and significant influence on customers' decisions to use Internet Banking, with a coefficient of 0.267 and a significance value of 0.018 (< 0.05). This result suggests that the stronger the customers' perception of data protection, secure authentication mechanisms, and safe transaction processes, the greater their willingness to utilize Internet Banking services. In the context of information systems, security refers to the protection of data and transactions from unauthorized access or misuse. High levels of perceived security can reduce users' concerns regarding

potential risks in electronic transactions and strengthen their confidence in digital banking platforms (Sholehah & Ichsan, 2025). Therefore, security assurance plays a crucial role in encouraging customers to engage in online financial transactions (Abas & Jamila, 2025; Naningsih et al., 2024).

In addition, service features are found to have a positive and significant effect on customers' decisions to use Internet Banking, with a regression coefficient of 0.296 and a significance level of 0.009 (< 0.05). This finding indicates that the completeness of features, ease of navigation, system stability, and alignment of available features with users' transaction needs contribute to customers' decisions to adopt Internet Banking services. Theoretically, service features are closely related to the concept of electronic service quality (e-service quality), which influences users' satisfaction and continued usage behavior (Makiyah, 2024; Zakiyah, 2025). Digital services that offer clear interfaces, comprehensive transaction options, and user-friendly navigation tend to improve users' perceptions of system quality and encourage sustained use of the service.

Finally, the simultaneous test results demonstrate that knowledge, trust, perceived usefulness, security, and service features collectively have a significant effect on customers' decisions to use Internet Banking, as indicated by an F-value of 22.543 with a significance level of 0.000 (< 0.05). This finding suggests that customers' decisions to adopt digital banking services are not determined by a single factor but rather by a combination of cognitive perceptions, trust in the system, perceived benefits, security assurance, and the quality of service features offered by the bank. Conceptually, this result aligns with the extended Technology Acceptance Model, which explains that technology adoption is influenced by perceived usefulness, perceived ease of use, and other external factors such as trust and perceived risk (Zamroni & Jannah, 2021). Therefore, increasing the adoption of Internet Banking services requires an integrated strategy that includes improving customer literacy regarding digital banking, strengthening system security, and continuously developing service features that align with customers' needs and preferences.

CONCLUSION

This study provides empirical evidence that knowledge, trust, perceived usefulness, security, and service features play significant roles in shaping customers' decisions to use Internet Banking. Among these variables, perceived usefulness emerges as the most dominant factor influencing usage decisions, indicating that customers are more likely to adopt Internet Banking when they perceive clear benefits such as efficiency, convenience, and flexibility in

conducting financial transactions. These findings highlight that customers' decisions to adopt digital banking services are not determined by a single factor but rather by an integration of cognitive understanding, psychological confidence, and perceptions of system quality. The study therefore emphasizes the importance of improving customer literacy, strengthening system reliability, and enhancing service features in order to increase the adoption of Internet Banking services.

From an academic perspective, this study contributes to the development of technology adoption literature by reinforcing the relevance of the Technology Acceptance Model (TAM) in explaining digital banking usage behavior while simultaneously demonstrating the importance of complementary external factors such as trust, security, and service features. However, this study is limited by its focus on a single organizational context and a specific group of respondents, which may restrict the generalizability of the findings to broader banking environments. Additionally, the model includes only five explanatory variables, leaving room for other potential determinants of Internet Banking adoption. Future research is therefore recommended to involve broader institutional settings, larger and more diverse samples, and additional variables—such as perceived risk, perceived ease of use, or customer satisfaction—in order to provide a more comprehensive understanding of digital banking adoption behavior.

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