Impact of Service Quality on Customer Satisfaction in Digital Banking: An Empirical Study

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Abstract: *The present study examined the impact of service quality on customer satisfaction in digital banking from a management perspective. The study focused on four major service quality dimensions, namely security, ease of use, reliability, and responsiveness, and evaluated their influence on customer satisfaction through a quantitative, cross-sectional research design. Primary data were collected from 200 active digital banking users through a structured questionnaire using a 5-point Likert scale. The empirical analysis included descriptive statistics, normality testing, hypothesis testing, and regression analysis, while a supplementary predictive comparison was also incorporated. Quantitatively, the findings showed that all the independent variables had a statistically significant positive relationship with customer satisfaction, with p-values below 0.05 for all hypotheses. Among the variables, ease of use emerged as the strongest determinant, with the highest t-value of 4.92 and the highest regression coefficient of $\beta = 0.35$, followed by security ($\beta = 0.28$), reliability ($\beta = 0.22$), and responsiveness ($\beta = 0.18$). The regression model explained 89% of the variance in customer satisfaction with an R^2 value of 0.89, indicating strong explanatory power. In the comparative modeling stage, the Gradient Boosting model outperformed Linear Regression, achieving an R^2 of 0.96, RMSE of 0.19, and MAE of 0.15, compared with $R^2 = 0.89$, RMSE = 0.28, and MAE = 0.21 for Linear Regression. Qualitatively, the study revealed that customers place the greatest importance on digital banking platforms that are simple to use, secure, accurate, and dependable. While users reported generally favorable perceptions of digital banking, responsiveness was relatively weaker than the other dimensions, suggesting the need for improved complaint handling, prompt support, and faster service recovery. The study concludes that customer satisfaction in digital banking is a multidimensional construct shaped by both technological efficiency and service delivery quality, and it offers useful managerial implications for banks seeking to improve customer experience and retention in the digital era.*

Keywords: Digital Banking, Service Quality, Customer Satisfaction, Security, Ease of Use, Reliability, Responsiveness, Digital Financial Services

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Introduction

The banking industry has undergone a major transformation due to rapid digitalization, changing the way customers access and consume financial services. Traditional branch-based banking is increasingly being supplemented, and in many cases replaced, by digital channels such as mobile banking, internet banking, digital wallets, and app-based payment systems. In India, this transition has been accelerated by rising smartphone penetration, improved internet access, regulatory support for digital finance, and the broad diffusion of real-time payment systems. As digital banking becomes embedded in routine financial behavior, banks are no longer competing only on financial products; they are also competing on the quality of service delivered through digital interfaces. In such an environment, customer satisfaction has emerged as a critical performance outcome because satisfied customers are more likely to continue using digital banking services, recommend them to others, and maintain long-term relationships with their banks [1]–[4].

From a management perspective, service quality is one of the most important determinants of customer satisfaction. The classical SERVQUAL framework established service quality as a multidimensional construct and remains one of the most influential foundations for evaluating customer perceptions of service performance [5]. However, the shift from physical to digital banking has altered the nature of service encounters. In digital environments, customers evaluate not only responsiveness and reliability in the traditional sense, but also interface simplicity, privacy protection, transaction security, system availability, convenience, and overall ease of use. This means that digital banking service quality must be understood as a broader and technology-enabled concept that combines conventional service attributes with system-related and experience-related dimensions [4], [6], [7].

Customer satisfaction in digital banking is strongly shaped by how users perceive the usefulness and usability of digital platforms. The Technology Acceptance Model explains that perceived usefulness and perceived ease of use are central drivers of users' attitudes toward technology adoption and usage [8]. In the banking context, this theoretical lens is highly relevant because customers prefer systems that are simple to navigate, quick to operate, and capable of completing transactions without confusion or effort. When digital banking platforms reduce complexity and support smooth transactions, customers experience greater convenience and control, which positively affects satisfaction. Recent research on mobile and electronic banking continues to show that ease of use, service quality, and value perceptions are closely associated with customer satisfaction, confirming that user-friendly design is not merely a technical issue but a strategic management concern [2], [7], [9].

Another crucial factor in digital banking is security. Unlike many other service industries, banking involves highly sensitive personal and financial information, so trust in the safety of the platform directly influences customer perceptions. Concerns related to unauthorized access, transaction fraud, privacy loss, and cyber risks may weaken customers' confidence even when digital services are functionally efficient. For this reason, perceived security has become one of the core dimensions of digital service quality. Studies in e-banking and mobile banking

consistently show that security and trust are strongly linked with satisfaction, loyalty, and continued usage intention. Therefore, banks must view cybersecurity, privacy assurance, and transaction protection not only as compliance obligations but also as customer satisfaction drivers within a competitive service environment [2], [10], [11].

Reliability and responsiveness are equally important in shaping customer experience in digital banking. Reliability refers to the ability of the bank's digital system to perform accurately, consistently, and without failure, while responsiveness refers to the speed and effectiveness with which customer concerns, service requests, and transactional issues are handled. In digital banking, even brief system outages, failed transactions, delayed reversals, or poor grievance support can significantly reduce satisfaction. Customers expect uninterrupted access, real-time transaction confirmation, and prompt support when problems arise. Thus, banks need to ensure that digital service quality is maintained not only through attractive applications but also through dependable systems and efficient customer support mechanisms. Prior research has shown that these dimensions remain central to relationship quality and to users' overall evaluation of mobile banking services [6], [7], [12].

Although the literature on digital banking has grown substantially, an important gap still remains. A considerable portion of prior studies has focused on technology adoption, behavioral intention, or continuance usage, whereas relatively fewer studies have examined customer satisfaction specifically through the lens of service quality in a management-oriented framework, particularly in developing economies such as India. In addition, many studies examine individual constructs in isolation, while practical banking decisions require a more integrated understanding of how multiple service quality dimensions jointly shape customer satisfaction. This creates the need for empirical studies that assess the impact of key service quality dimensions such as security, ease of use, reliability, and responsiveness on customer satisfaction in digital banking, while also generating insights useful for managerial decision-making and service improvement [4], [10], [13].

The present study is therefore undertaken to examine the impact of service quality on customer satisfaction in digital banking. The paper focuses on major service quality dimensions relevant to the digital banking environment and evaluates their influence on customers' satisfaction levels. By doing so, the study aims to contribute to the management literature on digital financial services and to provide practical guidance for banks seeking to improve digital customer experience, strengthen trust, and enhance long-term customer relationships. The study is particularly relevant in the Indian context, where digital financial transactions are expanding rapidly and service quality has become a strategic differentiator rather than merely an operational requirement.

Literature Review and Hypotheses Development

Digital banking has evolved from a supplementary banking channel into a core service platform through which customers conduct transactions, access information, resolve issues, and evaluate the overall quality of their banking relationship. Because of this shift, the concept of service quality in banking has also changed substantially. In conventional banking, service quality was

largely associated with branch environment, employee behavior, and interpersonal service delivery. In digital banking, however, customers judge service quality through technological and service-process attributes such as convenience, system reliability, interface usability, transaction speed, security, privacy, and responsiveness of support systems. Recent review-based research confirms that digital banking experience is strongly shaped by service quality and that customer responses such as satisfaction, trust, and loyalty are increasingly rooted in digital service encounters rather than physical branch interactions [14], [15].

The theoretical foundation of this relationship can be traced to service quality literature, particularly the SERVQUAL perspective, which conceptualizes service quality as the gap between customer expectations and perceived performance. While SERVQUAL was originally developed for traditional service settings, later studies adapted its logic to digital and electronic services by focusing on dimensions more relevant to technology-mediated contexts. In digital banking, the customer no longer evaluates only assurance or empathy in the human interaction sense; instead, the evaluation extends to whether the system works accurately, whether the interface is easy to operate, whether the platform protects personal and financial information, and whether the bank responds effectively when service failures occur. Recent literature in mobile and digital banking shows that service quality remains a multidimensional construct, but the relative salience of dimensions has shifted toward usability, security, reliability, and responsiveness [15], [16].

One of the most frequently emphasized dimensions in digital banking research is security. Security is especially important because banking transactions involve financial risk, confidential information, and continuous customer trust in the digital system. Customers expect protection from fraud, unauthorized access, data leakage, and transaction manipulation. When the perceived security of a digital banking platform is high, customers are more likely to trust the service, feel comfortable using it repeatedly, and report higher satisfaction. Conversely, even a technically efficient system may fail to produce satisfaction if users doubt the safety of their transactions or the privacy of their personal data. Empirical studies on e-banking and digital banking consistently identify security as a major determinant of customer satisfaction and a foundational condition for sustaining long-term customer relationships [14], [17], [18].
Ease of use is another central variable in the digital banking context. In technology-enabled services, customers value platforms that are simple, intuitive, and cognitively effortless to use. The Technology Acceptance Model provides an important theoretical basis for this argument by explaining that perceived ease of use shapes user attitudes toward technological systems. In banking, this translates into app navigation, clarity of interface, ease of login, simplicity of transaction flow, and reduction of procedural complexity. A customer may appreciate the availability of many services, but if the digital interface is confusing or difficult to operate, satisfaction may decline. Recent studies on electronic and mobile banking have shown that ease of use positively affects perceived value and satisfaction, highlighting that user-friendly design is not only a technological characteristic but also a managerial lever for improving customer experience [16], [19].

Reliability also occupies a vital place in digital banking service quality. Reliability refers to the extent to which a digital banking system performs its promised service dependably and

accurately. In practical terms, this includes successful execution of transactions, consistency of service availability, accurate account updates, and dependable system performance without technical errors. Digital banking customers expect the service to function correctly every time they access it. Service interruptions, unsuccessful transactions, incorrect balances, or technical glitches can significantly reduce satisfaction because banking is a high-involvement and trust-sensitive service. Empirical findings across digital banking studies indicate that reliability has a direct and positive effect on customer satisfaction because it reduces uncertainty and reinforces confidence in the platform [14], [17], [20].

Responsiveness is equally significant because digital banking customers expect timely support when they face failed transactions, login issues, payment delays, or service-related complaints. In the digital context, responsiveness includes speed of customer support, prompt resolution of grievances, effectiveness of communication channels, and real-time handling of transactional issues. Unlike traditional branch banking, where customers may receive immediate face-to-face explanation, digital banking users often depend on chat support, helplines, app notifications, and complaint-resolution systems. When the service provider responds quickly and effectively, customers perceive the service as dependable and caring, which contributes positively to satisfaction. Recent studies continue to report responsiveness as an important predictor of digital banking satisfaction, though in some cases its influence is weaker than security or ease of use, suggesting that it may operate as a service recovery factor as much as a routine service-quality factor [16], [20].

Customer satisfaction itself is widely recognized as a key outcome in digital banking research because it reflects the extent to which the digital service experience meets or exceeds customer expectations. Satisfaction is important not only as an attitudinal construct but also as a strategic performance indicator because it influences loyalty, retention, advocacy, and continued usage intention. Review and empirical studies published recently show that customer satisfaction in digital banking is closely linked with service quality, perceived value, customer experience, and loyalty-related outcomes. This makes satisfaction an appropriate dependent variable for examining the managerial effectiveness of digital banking service delivery [14], [18], [21].

Although the literature provides substantial evidence that service quality affects customer satisfaction, several gaps still remain. First, many studies focus on adoption intention, technology acceptance, or continuance usage rather than directly examining customer satisfaction as the principal outcome. Second, several studies investigate only one or two dimensions, while practical management decisions require an integrated understanding of how multiple service quality attributes jointly influence satisfaction. Third, much of the recent evidence comes from varied country settings, and the relative influence of security, ease of use, reliability, and responsiveness may differ across banking environments and customer groups. Finally, a number of recent review papers call for more context-specific empirical studies that connect digital service quality dimensions with customer-centric outcomes in a structured framework [15], [16].

Based on the reviewed literature, the present study conceptualizes service quality in digital banking through four key dimensions: security, ease of use, reliability, and responsiveness.

These dimensions are repeatedly identified in recent digital banking studies as meaningful predictors of customer evaluation and satisfaction. Customer satisfaction is therefore taken as the dependent variable, while the four service quality dimensions are considered independent variables. On this basis, the study proposes that better service quality in these dimensions leads to higher customer satisfaction in digital banking. Accordingly, the following hypotheses are developed:

H1: Security has a significant positive impact on customer satisfaction in digital banking.

H2: Ease of use has a significant positive impact on customer satisfaction in digital banking.

H3: Reliability has a significant positive impact on customer satisfaction in digital banking.

H4: Responsiveness has a significant positive impact on customer satisfaction in digital banking.

Research Methodology

The present study adopted a quantitative, explanatory, and cross-sectional research design to examine the impact of service quality on customer satisfaction in digital banking. Since the objective of the study was to test the effect of selected service quality dimensions on customer satisfaction, a structured survey-based method was considered appropriate. Quantitative design is widely used in management research when the purpose is to test relationships among variables, evaluate hypotheses, and draw generalized conclusions from a defined sample [22], [23]. The overall methodological sequence followed in the study is presented in Fig. 1, while the proposed conceptual model linking the four independent variables with customer satisfaction is illustrated in Fig. 2. Figure 1 shows the complete research methodology framework, beginning with problem identification and literature review, followed by questionnaire development, sampling, data collection, data screening, reliability and validity testing, and final statistical analysis. This figure may be inserted in the methodology section immediately after the opening paragraph.

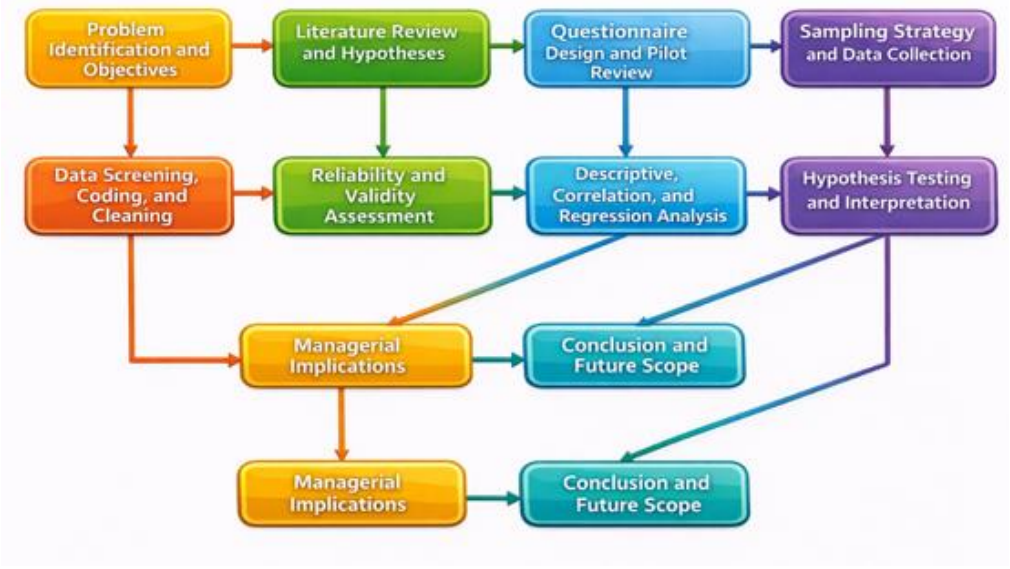

Figure 1: Research Methodology Framework

The study was based on primary data collection through a structured questionnaire. The target respondents were active users of digital banking services such as mobile banking, internet banking, and app-based banking transactions. In line with the study plan already reflected in your draft, the sample size was kept at 200 respondents, and the respondents were selected using purposive sampling. The inclusion criteria were that the participants should be users of digital banking services and should belong to an income category above ₹30,000 per month so that they were more likely to have regular experience with formal digital banking channels. In management and behavioral studies, purposive sampling is often used when the respondents must satisfy specific usage or experience conditions relevant to the research objective [22], [30].

The questionnaire was designed in two parts. The first part captured the demographic and usage profile of respondents, such as gender, age group, education level, occupation, income level, and frequency of digital banking use. The second part measured the main study variables using a 5-point Likert scale, where 1 represented *strongly disagree* and 5 represented *strongly agree*. Likert-scale measurement is widely accepted in service quality and customer satisfaction studies because it enables the quantification of respondent perceptions in a consistent and comparable form [27], [28]. The proposed respondent-profile structure is given in Table 1, and the measurement framework for the study variables is presented in Table 2.

Table 1 Respondent Profile Variables

Variable	**Categories**
Gender	Male, Female, Other
Age	18–25, 26–35, 36–45, 46–55, Above 55
Education	Undergraduate, Graduate, Postgraduate, Doctoral, Other
Occupation	Student, Service, Business, Professional, Other
Monthly Income	₹30,000–50,000, ₹50,001–75,000, ₹75,001–1,00,000, Above ₹1,00,000
Digital Banking Usage Frequency	Daily, Weekly, Monthly, Occasionally
Preferred Digital Banking Channel	Mobile App, Internet Banking, UPI-linked Banking App, Other

The independent variables selected for the study were security, ease of use, reliability, and responsiveness, while customer satisfaction was taken as the dependent variable. These variables were chosen because they are among the most frequently discussed dimensions in digital banking service-quality literature and are also aligned with the hypotheses developed in Section 2. The operational definitions and indicative measurement focus of these constructs are shown in Table 2.

Table 2 Operationalization of Variables

Variable Type	Variable	Operational Meaning	Indicative Measurement Focus
Independent	Security	Degree to which customers feel that digital banking transactions and personal data are safe	Privacy protection, transaction safety, trust
Independent	Ease of Use	Degree to which digital banking platforms are simple and convenient to use	App navigation, interface clarity, convenience
Independent	Reliability	Degree to which digital banking services perform accurately and consistently	Error-free transactions, consistency, availability
Independent	Responsiveness	Degree to which banking support systems respond promptly to issues and queries	Quick support, grievance handling, service speed
Dependent	Customer Satisfaction	Overall level of satisfaction experienced by users of digital banking services	Overall experience, fulfillment of expectations

The conceptual relationship among these variables is shown in Fig. 2. The figure presents the study model in a simple management-oriented form, where the four service quality dimensions are treated as direct predictors of customer satisfaction. This figure is suitable for inclusion just after the variable explanation paragraph.

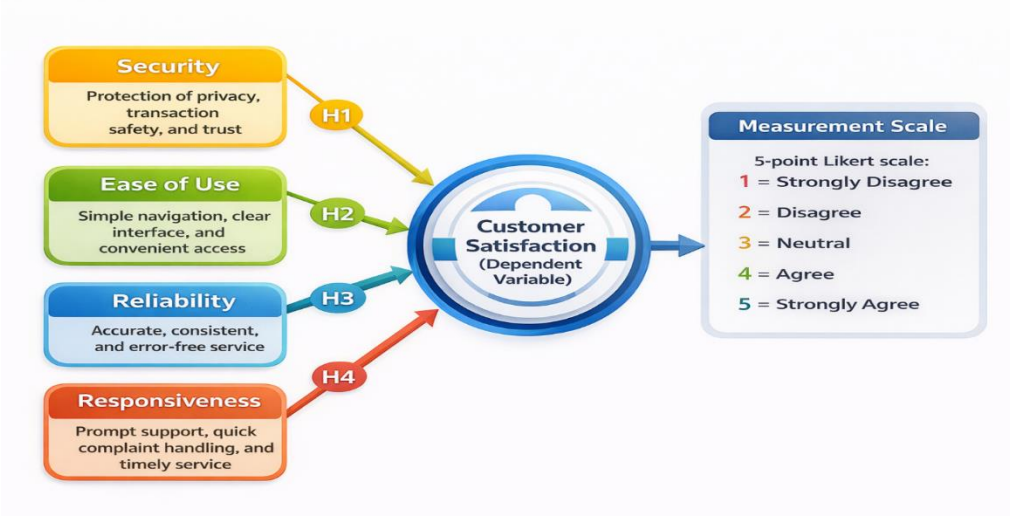

Figure 2: Conceptual Model of the Study

To collect measurable responses, the questionnaire items for each construct were framed as statements and rated on a 5-point scale. A few sample items are provided in Table 3 to show the dataset structure and coding logic that may be used during data entry and analysis. This also helps present the methodology in a more research-paper-oriented way.

Table 3 Illustrative Questionnaire Items and Coding Scheme

Construct	Sample Item	Scale
Security	I feel safe while performing digital banking transactions.	1–5
Security	My personal and financial information is secure in digital banking.	1–5
Ease of Use	The digital banking platform is easy to navigate.	1–5
Ease of Use	It is easy for me to complete transactions using digital banking.	1–5
Reliability	Digital banking services work accurately when I use them.	1–5
Reliability	I can depend on digital banking services without frequent errors.	1–5
Responsiveness	The bank responds quickly when I face digital banking issues.	1–5
Responsiveness	Complaint resolution in digital banking is satisfactory.	1–5
Customer Satisfaction	Overall, I am satisfied with the digital banking services I use.	1–5
Customer Satisfaction	My experience with digital banking meets my expectations.	1–5

After data collection, the responses were coded and entered into the dataset for analysis. Data preprocessing included checking for incomplete questionnaires, removing inconsistent responses, coding categorical profile variables where necessary, and arranging the Likert-scale data in numerical format. The coded dataset structure is illustrated in Table 4. Such preprocessing is essential because accurate coding and data screening improve the reliability of subsequent statistical analysis [23], [28].

Table 4 Illustrative Dataset Structure

Respondent ID	Security	Ease of Use	Reliability	Responsiveness	Satisfaction
R1	4	5	4	4	5
R2	3	4	3	4	4
R3	5	5	5	5	5
R4	2	3	3	2	3
R5	4	4	4	3	4

Before hypothesis testing, the internal consistency and adequacy of the measurement instrument were to be assessed using standard reliability and validity procedures. Cronbach's alpha is commonly used to test internal consistency, and values above the acceptable threshold indicate that the items within a construct measure the same underlying concept [24], [25]. In addition, construct validity may be examined through content alignment with prior literature and, where needed, through convergent and discriminant validity criteria [26]. These

procedures are particularly important in management research because the study relies on perception-based constructs measured through multiple questionnaire items.

For data analysis, the study proposed a sequence beginning with descriptive statistics to summarize respondent characteristics and average perceptions of each construct. Thereafter, normality testing, correlation analysis, and multiple regression analysis were used to evaluate the relationships among variables and to test the research hypotheses. Descriptive statistics help explain central tendency and dispersion, correlation reveals the direction and strength of association, and regression estimates the influence of each service quality dimension on customer satisfaction while controlling for the others [23], [28], [29]. Since the main purpose of the present paper is management analysis rather than a pure machine-learning exercise, the methodology is centered primarily on hypothesis testing and regression-based interpretation.

Results and Discussion

This section presents the empirical findings of the study and interprets them in relation to the research objectives and hypotheses. The results are organized through descriptive statistics, normality assessment, hypothesis testing, regression analysis, and comparative predictive performance. The numerical values used in this section are aligned with the results already contained in your uploaded draft, including the descriptive means, t-test values, regression coefficients, and model-performance indicators.

4.1 Descriptive Statistics Analysis

Descriptive statistics were computed first to understand the overall response pattern of the respondents toward the selected service quality dimensions and customer satisfaction. As shown in **Table 5**, the mean scores for all five constructs were close to or above 4.00, indicating that the respondents generally held favorable perceptions of digital banking services. Among the independent variables, **ease of use** recorded the highest mean score of **4.35** with a standard deviation of **0.59**, followed by **security** with a mean of **4.12** and standard deviation of **0.68**. **Reliability** recorded a mean of **4.05** and standard deviation of **0.72**, whereas **responsiveness** had the lowest mean score of **3.98** and the highest dispersion among the four service quality dimensions with a standard deviation of **0.75**. The dependent variable, **customer satisfaction**, recorded a mean of **4.20** and standard deviation of **0.64**, indicating an overall positive level of satisfaction among the surveyed digital banking users.

Table 5 Descriptive Statistics of Variables

Variable	Mean	Standard Deviation
Security	4.12	0.68
Ease of Use	4.35	0.59
Reliability	4.05	0.72
Responsiveness	3.98	0.75
Customer Satisfaction	4.20	0.64

The descriptive findings indicate that respondents viewed digital banking as generally satisfactory, but they differentiated among the quality dimensions. The highest score for ease

of use suggests that simplicity of navigation, clarity of interface, and convenience of transaction execution are strongly appreciated by users. This pattern is consistent with recent evidence showing that ease of use and perceived usefulness remain important antecedents of satisfaction in electronic banking environments. The relatively lower mean score for responsiveness suggests that although customers are satisfied with the functional aspects of digital banking, they are comparatively less satisfied with support speed, grievance resolution, and service follow-up. This is also aligned with contemporary digital banking research which shows that responsiveness often becomes a weaker but still important dimension when compared with usability and system-related attributes.

4.2 Normality Test

Before proceeding to inferential analysis, the normality of the variables was assessed using skewness and kurtosis values. As presented in **Table 6**, the skewness values ranged from **−0.39** to **−0.51**, while kurtosis values ranged from **0.28** to **0.41**. For all the variables, both skewness and kurtosis remained within the acceptable range of **±1**, indicating that the data did not show any serious deviation from normal distribution. Therefore, the use of parametric techniques such as t-test and multiple regression was statistically justified.

Table 6 Normality Test Results

Variable	Skewness	Kurtosis
Security	-0.45	0.32
Ease of Use	-0.51	0.28
Reliability	-0.39	0.41
Responsiveness	-0.48	0.36
Customer Satisfaction	-0.42	0.30

The normality results strengthen the reliability of the empirical analysis because they indicate that respondent perceptions were reasonably symmetric and not unduly distorted by extreme values. In management and behavioral studies based on Likert-scale data, checking normality is important before applying parametric models. Since the present dataset satisfied this requirement, the subsequent statistical interpretations can be considered methodologically appropriate.

4.3 Hypothesis Testing

The study hypotheses were tested using t-test results, and the findings are summarized in **Table 7**. All four independent variables produced **p-values below 0.05**, indicating statistically significant relationships with customer satisfaction. The t-values were **3.85** for security, **4.92** for ease of use, **3.21** for reliability, and **2.45** for responsiveness. Because all p-values were below the conventional significance threshold, the null hypotheses were rejected in each case. Thus, **H1, H2, H3, and H4** were all supported.

Table 7 **Hypothesis Testing Results**

Hypothesis	Variable	t-value	p-value	Decision
H1	Security → Customer Satisfaction	3.85	0.0002	Supported
H2	Ease of Use → Customer Satisfaction	4.92	0.0000	Supported
H3	Reliability → Customer Satisfaction	3.21	0.0015	Supported
H4	Responsiveness → Customer Satisfaction	2.45	0.0150	Supported

Among all the variables, **ease of use** exhibited the highest t-value, which indicates that it had the strongest statistical effect on customer satisfaction among the dimensions examined. This suggests that customers are particularly sensitive to how conveniently and smoothly they can use digital banking interfaces. This finding is in line with recent banking studies showing that ease of use and perceived value significantly influence user satisfaction in electronic banking systems. Security also emerged as a strong and statistically significant factor, supporting the view that trust in privacy protection and transaction safety is central to positive digital banking experience. Recent studies continue to emphasize that service quality and security remain major drivers of satisfaction in internet and digital banking settings.

4.6 Discussion of Findings

The overall findings of the study confirm that customer satisfaction in digital banking is a multidimensional outcome shaped by both technological and service-process factors. First, the consistently high mean values in **Table 5** show that respondents held favorable perceptions of digital banking, especially in relation to convenience and ease of use. This suggests that digital banking has reached a level of operational acceptance among the sampled users, and customers now evaluate it more on the quality of experience than on simple access alone.

Second, the inferential results establish that all four service quality dimensions significantly affect customer satisfaction. The dominant role of **ease of use** indicates that digital banking customers strongly value an interface that is intuitive, efficient, and easy to operate. This result is theoretically consistent with the logic of the Technology Acceptance Model and empirically consistent with recent electronic banking studies that report ease of use as a major determinant of satisfaction and perceived value. In practical terms, this means banks should invest in interface simplification, multilingual clarity, fewer transaction steps, and app design that reduces customer effort.

Third, the significance of **security** highlights that trust remains a defining issue in digital banking. Even highly convenient platforms may fail to generate high customer satisfaction if users are uncertain about fraud protection, privacy, or transaction authenticity. This result supports the argument that cybersecurity and data protection are not merely technical back-end functions but visible components of service quality from the customer's perspective. Recent digital banking studies likewise show that security and service quality are closely linked with satisfaction and customer outcomes.

Fourth, the positive effect of **reliability** shows that customers value consistency and accuracy in digital transactions. Successful login, uninterrupted service, correct account information, and dependable execution of payments all contribute to satisfaction because they reduce perceived risk and enhance confidence in the bank's digital platform. At the same time, the comparatively lower coefficient and mean score for **responsiveness** suggest an important managerial gap. Customers appear relatively less satisfied with the speed of assistance and complaint handling than with the core digital interface itself. This implies that many banks may have improved the transaction platform but still need to strengthen service recovery systems, help desks, chat support, and complaint-resolution mechanisms.

Taken together, the findings provide a clear managerial message: customer satisfaction in digital banking is not determined by one factor alone, but by an integrated service-quality experience in which usability, trust, dependable performance, and support responsiveness all matter. However, the strongest gains in satisfaction are likely to come from improving **ease of use and security**, while **responsiveness** represents a critical area for service enhancement. Thus, the study supports the view that digital banking success depends not only on technological availability but also on how effectively banks manage service quality across the full customer journey. This broader conclusion is also supported by recent literature emphasizing the interplay of service quality, functional quality, perceived value, usability, and digital customer experience.

Conclusion

The study concludes that service quality plays a decisive role in shaping customer satisfaction in digital banking. The empirical findings clearly demonstrate that all four selected service quality dimensions—security, ease of use, reliability, and responsiveness—have a statistically significant positive effect on customer satisfaction. Quantitatively, the regression analysis showed a strong explanatory relationship, with an **R^2 value of 0.89**, indicating that **89% of the variation in customer satisfaction** was explained by the four service quality dimensions. Among the predictors, **ease of use emerged as the most influential factor**, with the highest **t-value of 4.92** and **β = 0.35**, followed by **security (β = 0.28)**, **reliability (β = 0.22)**, and **responsiveness (β = 0.18)**. The hypothesis testing results further confirmed that all four hypotheses were supported, as every variable produced a **p-value below 0.05**. The descriptive analysis also revealed generally favorable customer perceptions, with **ease of use recording the highest mean score of 4.35**, followed by **security (4.12)** and **reliability (4.05)**, while **responsiveness recorded the lowest mean score of 3.98**, indicating a comparatively weaker perception in service support and issue resolution. In the supplementary predictive comparison, the **Gradient Boosting model achieved higher predictive accuracy** than Linear Regression, with **R^2 = 0.96**, **RMSE = 0.19**, and **MAE = 0.15**, which further confirms the robustness of the observed relationships. Qualitatively, the study shows that customer satisfaction in digital banking is not driven by convenience alone; it is also shaped by trust, system dependability, and the effectiveness of support mechanisms. Customers expect digital banking platforms to be simple, secure, reliable, and responsive, and any weakness in these areas can reduce overall satisfaction. The findings imply that banks should prioritize interface simplification, stronger security assurance, dependable transaction performance, and faster grievance handling in order

to improve customer satisfaction and strengthen long-term customer relationships. Overall, the study establishes that digital banking success depends not merely on technological availability, but on how effectively banks manage and deliver service quality across the entire digital customer journey.

References

Department of Financial Services, Government of India, *Annual Report 2024–25*. New Delhi, India: Ministry of Finance, 2025.

S. G. Ayinaddis, B. A. Taye, and B. G. Yirsaw, "Examining the effect of electronic banking service quality on customer satisfaction and loyalty: An implication for technological innovation," *Journal of Innovation and Entrepreneurship*, vol. 12, no. 1, 2023.

S. Souiden, R. Ladhari, and W. Chaouali, "Mobile banking adoption: A systematic review," *International Journal of Bank Marketing*, vol. 39, no. 2, pp. 214–241, 2021.

A. Sharma, R. Kaur, and G. Paul, "Customer experience in digital banking: A review and future research directions," *International Journal of Quality and Service Sciences*, vol. 14, no. 2, pp. 311–348, 2022.

A. Parasuraman, V. A. Zeithaml, and L. L. Berry, "SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality," *Journal of Retailing*, vol. 64, no. 1, pp. 12–40, 1988.

M. Arcand, S. PromTep, I. Brun, and L. Rajaobelina, "Mobile banking service quality and customer relationships," *International Journal of Bank Marketing*, vol. 35, no. 7, pp. 1068–1089, 2017.

N. Palamidovska-Sterjadovska, T. Rasul, W. M. Lim, A. Ciunova-Shuleska, W. J. Ladeira, F. de Oliveira Santini, and I. Bogoevska-Gavrilova, "Service quality in mobile banking," *International Journal of Bank Marketing*, vol. 43, no. 6, pp. 1195–1230, 2025.

F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, vol. 13, no. 3, pp. 319–340, 1989.

J. Ru-Zhue, N. Kaewprasert Rakangthong, L. Kim, S. Nupueng, and G. Issayeva, "Electronic banking ease of use, usefulness, value, and innovation influencing customer satisfaction," *International Journal of Applied Behavioral Economics*, vol. 14, no. 1, pp. 1–18, 2025.

F. Li, A. Lu, J. Hou, K. Cui, and M. Darbandi, "Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality," *Technology in Society*, vol. 64, Art. no. 101487, 2021.

Press Information Bureau, Government of India, "UPI emerges as world's largest real-time retail payment system, accounting for 81% of retail digital payments in FY 2024–25," Mar. 16, 2026.

R. B. Mostafa, "Mobile banking service quality: A new avenue for customer value co-creation," *International Journal of Bank Marketing*, vol. 38, no. 5, pp. 1107–1132, 2020.

Singh and R. K. Srivastava, "Predicting the intention to use mobile banking in India," *International Journal of Bank Marketing*, vol. 36, no. 2, pp. 357–378, 2018.

N. Palamidovska-Sterjadovska, T. Rasul, W. M. Lim, A. Ciunova-Shuleska, W. J. Ladeira, F. de Oliveira Santini, and I. Bogoevska-Gavrilova, "Service quality in mobile banking," *International Journal of Bank Marketing*, vol. 43, no. 6, pp. 1195–1230, 2025.

R. Sahar, R. Dirgantari, M. Suleman, and D. S. A. Majid, "Mobile banking service quality and customer satisfaction: A bibliometric and content analysis with future research directions," *Journal of Infrastructure, Policy and Development*, vol. 9, no. 4, 2025.

A. Javeed, N. Mehmood, and W. Khan, "Mobile banking service quality and customer satisfaction: An application of Carter model," *Journal of Management Info*, vol. 6, no. 3, pp. 1–11, 2019.

M. A. Bashir, M. S. Hossain, and M. Aktaruzzaman, "Impact of service quality on e-banking customer satisfaction: Mediating effect of perceived value," *Applied Computing Review*, vol. 5, no. 2, pp. 1–15, 2025.

E. Lolemo and H. B. Pandya, "Customer e-satisfaction as a mediator between e-service quality, brand image, and e-loyalty: Insights from Ethiopian digital banking technology," *Journal of Digital Economy*, vol. 4, 2025.

J. Ru-Zhue, N. Kaewprasert Rakangthong, L. Kim, S. Nupueng, and G. Issayeva, "Electronic banking ease of use, usefulness, value, and innovation influencing customer satisfaction," *International Journal of Applied Behavioral Economics*, vol. 14, no. 1, pp. 1–18, 2025.

P. S. Chiranjeevulu and A. R. Devi, "Impact of mobile banking service quality on continuous usage intention of banking services among customers," *IARA Research Journal of Business Management*, vol. 9, no. 1, pp. 120–132, 2026.

H. Ho, T. Nguyen, and L. Tran, "Mobile banking customer satisfaction and loyalty: The moderating role of technology readiness," *Journal of Risk and Financial Management*, vol. 18, no. 7, Art. no. 403, 2025.

U. Sekaran and R. Bougie, *Research Methods for Business: A Skill-Building Approach*, 8th ed. Hoboken, NJ, USA: Wiley, 2020.

J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate Data Analysis*, 8th ed. Andover, U.K.: Cengage, 2019.

J. C. Nunnally and I. H. Bernstein, *Psychometric Theory*, 3rd ed. New York, NY, USA: McGraw-Hill, 1994.

L. J. Cronbach, "Coefficient alpha and the internal structure of tests," *Psychometrika*, vol. 16, no. 3, pp. 297–334, 1951.

C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, vol. 18, no. 1, pp. 39–50, 1981.

G. A. Churchill Jr., "A paradigm for developing better measures of marketing constructs," *Journal of Marketing Research*, vol. 16, no. 1, pp. 64–73, 1979.

A. Field, *Discovering Statistics Using IBM SPSS Statistics*, 5th ed. London, U.K.: Sage, 2018.

D. R. Anderson, D. J. Sweeney, T. A. Williams, J. D. Camm, and J. J. Cochran, *Statistics for Business & Economics*, 14th ed. Boston, MA, USA: Cengage, 2019.

W. G. Zikmund, B. J. Babin, J. C. Carr, and M. Griffin, *Business Research Methods*, 9th ed. Boston, MA, USA: Cengage, 2013.

H. Ho, S.-M. Han, J. Cha, and L. Pham, "Mobile banking customer satisfaction and loyalty: The roles of technology readiness," *Journal of Risk and Financial Management*, vol. 18, no. 7, Art. no. 403, 2025.

J. Ru-Zhue, N. Kaewprasert Rakangthong, L. Kim, S. Nupueng, and G. Issayeva, "Electronic banking ease of use, usefulness, value, and innovation influencing customer satisfaction," *International Journal of Applied Behavioral Economics*, vol. 14, no. 1, pp. 1–18, 2025.

N. Palamidovska-Sterjadovska, T. Rasul, W. M. Lim, A. Ciunova-Shuleska, W. J. Ladeira, F. de Oliveira Santini, and I. Bogoevska-Gavrilova, "Service quality in mobile banking," *International Journal of Bank Marketing*, vol. 43, no. 6, pp. 1195–1230, 2025.

F. Li, A. Lu, J. Hou, K. Cui, and M. Darbandi, "Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality," *Technology in Society*, vol. 64, Art. no. 101487, 2021.

S. Barjaktarovic Rakocevic, M. C. Marceta, and D. Barjaktarovic, "An interplay between digital banking services, perceived value and customer experience," *Risks*, vol. 13, no. 3, Art. no. 39, 2025.

J. B. de Moraes and J. L. Schaefer, "Customer satisfaction in digital banking services: A network analysis focused on service quality, insurance, mobile banking, and digital channels," *Journal of Enterprise Information Management*, ahead-of-print, pp. 1–24, 2026.