RESEARCH PAPER

Digital Banking Service Excellence and Its Impact on Customer Satisfaction and Customer Retention: A Structural Equation Modeling Approach

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Abstract
With the increasing number of digital banking platforms, how to deliver financial services has changed completely, requiring a greater understanding of service excellence and its effect on customer behavioral outcomes. This study aims to explore the impact of Digital Banking Service Excellence on customer satisfaction and customer retention in technology-based banking environment. Service excellence is manifested in several aspects such as, system reliability, information security and privacy, ease of use of the interface, responsiveness of the service, service personalization and service accessibility. The study also explores the mediation between S.E., C.S. and C.R. The approach used in the study is quantitative using a structured questionnaire with a five-point Likert scale and sample of active users of digital banking. The proposed conceptual framework is tested empirically using advanced statistical and machine learning-supported analytical techniques, such as Exploratory Factor Analysis (EFA) for dimensional validation, Confirmatory Factor Analysis (CFA) for construct validation and Structural Equation Modeling (SEM) for hypothesis testing and relationship assessment. Further, the reliability and validity are checked by Cronbach's alpha, Average Variance Extracted (AVE) and Composite Reliability (CR). The findings that are expected are that the level of service excellence provided by digital banking has a positive impact on the customer satisfaction, and in turn, the retention behaviour. Furthermore, it is expected that service excellence has both direct and indirect effects on customer retention via customer satisfaction. The study adds to the service quality and digital banking literature by bringing together the multidimensional constructs of service excellence so that they can be modeled together in one behavioral model. The results offer practical guidance for financial institutions to maximize delivery of digital services, enhance trust amongst users and facilitate the long term retention of users within a digital financial ecosystem.

Keywords: Digital Banking, Service Excellence, Customer Satisfaction, Customer Retention, Structural, Equation Modeling (SEM), Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Digital Service Quality, Customer Experience and Financial Technology
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Introduction

Digital technologies have changed the face of the banking sector in a dramatic way, altering financial services' delivery and consumption. Digital banking platforms, such as mobile banking, internet banking and AI-powered financial services, have improved the way banking is done, making it more efficient, accessible and speedy [1]. In this technology-heavy landscape, however, it has also created a fierce and intense competitive environment for banks, where customer experience is a key differentiator.

In this context, the level of customer experience in digital banking has become one of the most important factors impacting customer behavior. Service excellence in digital banking is not only service quality dimension but also encompasses system reliability, information security and privacy, ease of use, responsiveness, personalization and accessibility [2-4]. All these dimensions have an impact on how the customer will feel and judge banking services in a completely digital setting.

Customer satisfaction is right at the heart of the creation of long-term customer relationships; when customers are satisfied, they are more likely to use digital banking services, and express greater intention to be loyal to the provider [5]. On the flip side, when customers have bad service experiences, such as due to system downtime, security issues, or difficult interfaces, they can become unhappy and switch to another service. Hence, it is important for financial institutions to understand the channels to gain the greatest understanding of how digital banking service excellence can impact on satisfaction and retention [6, 7].

While the studies regarding adoption and service quality of digital banking have been conducted, there is a lack of understanding of how multidimensional

service excellence positively affects customer satisfaction [8] and retention at the same time, especially in the fast-changing technology-driven banking environment. Furthermore, the mediating role of customers satisfaction between these two relationships has not got enough attention yet in previous studies [9, 10]. Based on these gaps, the following study is proposed and tested using a structural equation modeling based approach to establish a conceptual relationship between digital banking service excellence, customer satisfaction and customer retention.

The key contributions of this work are summarized as follows:

- Introduction of a multidimensional digital banking service excellence framework integrating system reliability, security and privacy, interface usability, responsiveness, personalization, and accessibility within a unified customer behavioral model
- Development of a mediation-based analytical framework that explains the indirect influence of digital banking service excellence on customer retention through customer satisfaction
- Integration of advanced statistical and machine learning-assisted analytical techniques including EFA, CFA, and SEM for comprehensive validation of digital banking service excellence constructs and behavioral relationships
- Identification of security and privacy as the dominant service excellence dimension influencing customer satisfaction and long-term customer retention in digital banking ecosystems
- Proposal of a scalable and technology-oriented customer retention framework specifically designed for modern digital banking environments rather than traditional banking systems
- Establishment of a structural relationship model that simultaneously evaluates direct and indirect effects of service excellence on customer retention within technology-driven financial platforms

2. Literature Review

The importance of service quality and service excellence in contributing to customer satisfaction and customer loyalty is highlighted in many recent studies of digital banking. Many researchers have turned their attention to the determinants of customer behavioural outcomes in technologically rich banking contexts, due to the quick embrace of fintech and mobile banking platforms.

Arora and Banerji (2024) have studied the dimensions of digital banking services and its impact on the customer experience and satisfaction, which further affects customer loyalty in public sector bank in India. They found that reliability and responsiveness are crucial in developing positive perceptions towards the customer. Likewise, Bhuvaneswari and Maruthamuthu (2024) used structural equation modelling to prove that the six dimensions of SERVQUAL (Reliability, Responsiveness, Assurance, Empathy, Tangibility, and Knowledge) positively affect the customer satisfaction of digital banking services in India. This reinforces the hypothesis of the relevance of traditional models of service quality in digital environments.

A newer Kappil and Santhi (2025) study developed a new scale for Electronic Banking Service Quality (EBSQ) including privacy, website design, security, and customer service. These dimensions were proven to be important in evaluating user satisfaction for e-banking systems in the study.

Furthermore, Lama and Kayestha (2025) examined the digital banking service quality and concluded that efficiency, usability and security are major factors affecting customer satisfaction and satisfaction has a positive effect on customer retention. They found that their results are highly in favor of the mediation of satisfaction in the digital banking context.

Sabberwal and Rastogi (2025) also noted that customer satisfaction is a strong mediator between digital banking service quality and customer retention, mean service quality is not enough if the customer satisfaction is not accompanied with behavioral pathways.

In this context, Sivathanu (2019) emphasized ease of use, the security of transactions, and service reliability as all critical factors affecting customer satisfaction in digital payment systems, further reinforcing the technological aspect of the quality of banking services.

The early empirical evidence was given by Yusuf and Bala (2021) that reliability and system performance are important factors for end user satisfaction in electronic banking system, which would pave way for subsequent studies in digital banking.

Alawneh (2013) has focused on the dimensions of relationship quality in e-banking, which are trust, satisfaction, and commitment; whereby he underscored the significance of the quality of customer relationships in digital banking systems.

In more recent research, de Brito et al. (2025) explored the concept of customer lifetime value (CLV) enhancement, presenting banks with opportunities to boost their retention efforts via the integration of digital data and the application of open

banking analytics and predictive modeling techniques.

Lastly, Lama and Kayestha (2025) used the E-S-QUAL framework and found that satisfaction and retention in commercial banks are some of the most significant factors in predicting digital service efficiency and security.

2.1 Research Gap

Although considerable research has focused on service quality and customer behaviour, and digital banking has made much progress, there are still some important gaps in the literature. First, the majority of previous research has been conducted in the context of traditional frameworks of service quality (e.g. SERVQUAL or E-S-QUAL), while only a few have been adapted to the more comprehensive and dynamic notion of digital banking service excellence which includes technological, functional and user aspects. Third, while the study of customer satisfaction and customer retention has been popular, numerous studies have focused on one construct without taking into consideration the direct and indirect effect on the other. Third, the study's results have not been explored sufficiently in terms of the customer satisfaction mediating effect between the digital banking service excellence and long-term retention results, especially in fast-changing digital banking environments with ever-changing user needs. Moreover, many findings from the existing research are inadequate in terms of empirical testing through advanced multivariate analysis methods in the form of structural equation modeling in various and modern digital banking situations. Last, but not least, there is limited evidence on the effect of holistic service excellence in digital platforms on customers' ongoing relationships in the context of growing competition between financial services, automation and AI in the financial services. The gaps suggest that a holistic and well-established framework that captures the relationship among digital banking service excellence, customer satisfaction, and customer retention in a single model is needed.

3. Overview of proposed methodology

The quantitative research method is used in this study to explore the impact of the service excellence of digital banking on customer satisfaction and customer retention in a technology bank. The proposed framework is validated with the empirical data obtained from the survey form, which is filled by the active digital banking users. A structured questionnaire is created with a five-point Likert scale to assess the important constructs such as digital banking service excellence (system reliability, information security and privacy, interface usability, responsiveness, personalization and accessibility), customer satisfaction and customer retention.

The data analysis process is carried out in several stages in a statistical way to make the results obtained robust and valid. Firstly, data screening is done and preprocessing is done to remove inconsistencies in the data and to address missing values. Various descriptive statistics were employed in summarizing the variables and the distribution of the respondents' characteristics. Cronbach's alpha and Composite Reliability (CR) are used to assess the reliability of the measurement model; Average Variance Extracted (AVE) is used to assess the construct validity.

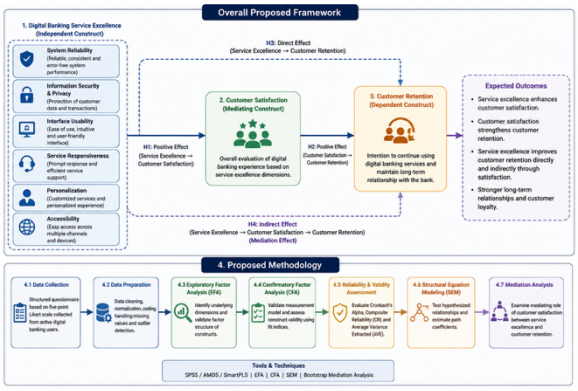

Figure 1: Overall proposed framework

To support the factor structure of the item, Exploratory Factor Analysis (EFA) is first conducted, and then Confirmatory Factor Analysis (CFA) is conducted to ensure convergent and discriminant validity of the constructs. The relationship of the variables in the structure is then analyzed by Structural Equation Modeling (SEM) which can estimate the direct effect and indirect effect simultaneously in the proposed model. A mediation analysis is performed to evaluate the mediation of customer satisfaction between service excellence and customer retention.

3.1 Data Collection and Pre-processing

This study is quantitative research with data collected from respondents who are active users of digital bank users through a structured questionnaire. A questionnaire is developed through previous validated measurement scales of digital banking and service quality studies. Responses to all items are rated on a 5-point Likert scale from strongly disagree to strongly agree.

Raw data that have been collected may not be complete, have some missing answers, and be inconsistent or with some outliers which can impact the accuracy of the analysis. As a result, there are techniques that must be applied prior to statistical analysis that are called pre-processing techniques. If the questionnaires are not fully completed and it is detected that the same data is entered more than once,

the incomplete questionnaires and duplicate entries are then deleted to ensure that the data sets are consistent. Appropriate imputation techniques (e.g., mean or median imputation) are used to handle missing values. Outlier detection methods are also used to remove extreme points which can affect the outcome.

Numerical variables are scaled, either normalized or standardized, to assure they are on the same scale; demographic categorical variables are transformed into numbers appropriate for calculating analysis. These kinds of pre-processing steps enhance the quality of the data and yield accurate analysis results.

The transformation for the preprocessing can be written as:

$$D_p = \psi(D_r) \quad (1)$$

The preprocessing function can contain cleaning, normalization, and transformation operations, which are denoted by the function $\psi(\cdot)$; where D_r is the raw dataset, and D_p is the preprocessed dataset.

The final stage of feature construction is feature representation. The last step in feature construction is feature representation.

3.2 Feature Representation and Construct Formation

The preprocessed items of the questionnaire are then represented as latent constructs that correspond to digital banking service excellence, customer satisfaction and customer retention. Feature representation helps to ensure that the observed variables are representative of the behavioral constructs and service quality construct that are part of the proposed framework.

Digital banking service excellence comes with several dimensions such as system reliability, information security and privacy, interface usability, responsiveness, personalization, and accessibility. The reliability of a system reflects its consistency and continuous operation in the digital banking system. Information security and privacy assesses the security of customer information and monetary transactions. Usability of the interface is about how easy it is to use and how simple it is to operate a digital banking app. Responsiveness translates to the efficiency of customer support and service. Personalization is assessed by the adapted aspects of the financial services offered to customers taking their preferences into account, with accessibility referring to the ease by which the financial services can be accessed via digital means.

Customer satisfaction is depicted by the variables relating to trust, fulfilment, and overall satisfaction with digital banking experiences. The indicators of customer retention include customer loyalty, re-use of service and intention to engage in the service in the long term.

The feature transformation process is represented by the following:

$$F_i = \phi(X_i) \quad (2)$$

whereas F_i represents features of the constructs and $\phi(\cdot)$ is the transformation and construct mapping function.

3.3 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) is used to determine the underlying factor structure of the collected data to test the dimensionality of the constructs proposed. The questionnaire includes several observed variables, so that EFA can be used to cluster the variables into meaningful latent dimensions that are correlated with each other.

The key goal of EFA is to minimize the dimensional complexity and remove variables that are not informative (weak or redundant) and might compromise the analytical results. Low factor loadings and/or high cross-loadings are removed to enhance the clarity of the construct and measurement precision. Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity are used to determine the suitability of the data set for the factor analysis.

The factor extraction process is given by:

$$X = LF + E \quad (3)$$

where X are observed variables, L is the factor loading matrix, F is the latent factors and E is the error component. To assure maximum dimensional separation between constructs and higher factor interpretability, rotation techniques (Varimax rotation) were applied to the factors.

3.4 Confirmatory Factor Analysis (CFA)

After EFA, Confirmatory Factor Analysis (CFA) is performed to test the measurement model, and to validate the reliability and validity of the constructs identified. The observed variables are assessed for their representation of their respective latent constructs as per the proposed conceptual framework by CFA.

The CFA model evaluates convergent, discriminant and construct validity. Convergent validity means variables in same construct should show good relationships and discriminant validity means that variables in different constructs should be statistically independent.

The relationship between the measure is shown as:

$$Y = \Lambda\eta + \epsilon \quad (4)$$

Y is observed indicators, Λ is factor loading coefficient, η is latent variable and ϵ is measurement error.

Goodness of fit indices like Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) are used as a measure of the overall fitness of the model. The fit values being acceptable, which are measured variables, mean that

the measurement model is a reasonable representation of the data in the study.

3.5 Reliability and Validity Assessment

Checking the reliability and validity of the measurement model is carried out to ensure the consistency and accuracy of the measurement model. The internal consistency reliability of the items of the questionnaire is tested using Cronbach's alpha. Cronbach's alpha values can be compared to assess reliability of the measurement variables, values close to 1 suggest high reliability.

Additional statistics are computed to assess the reliability of the latent constructs, composite reliability (CR) and average variance extracted (AVE), which is an index of how much variance is explained by a construct as compared to measurement error. These measures are used for convergent validity, and to increase the accuracy of representation of constructs. The reliability and validity analysis shows that all data obtained are statistically stable and consistent, and appropriate for the structural modeling procedures.

3.6 Structural Equation Modeling (SEM)

The results of this study will be presented by using Structural Equation Modeling (SEM).

Structural Equation Modeling (SEM) is used to analyze the structure of relationships between digital banking service excellence, customer satisfaction and customer retention. SEM can analyse more than one latent variable at a time and the relationships between them can be analysed within a single integrated framework.

The structural model examines the direct effect of digital banking service excellence on the customer's satisfaction and customer's retention, and the indirect effect of digital banking service excellence on customer's satisfaction as a mediating variable between the two.

The structural relationships are shown as:

$$CR = \beta_1 SE + \beta_2 CS + \epsilon \quad (5)$$

$$CS = \beta_3 SE + \epsilon \quad (6)$$

The digital banking service excellence (SE), customer satisfaction (CS), customer retention (CR), structural path coefficients (β) and error term (ϵ) are used.

SEM uses standardized regression coefficients, critical ratios and significance values to measure the significance, strength and direction of relationships.

3.7 Mediation Analysis

The proposed methodology further looks into the mediating role of customer satisfaction between digital banking service excellence and customer retention. The mediation analysis is conducted to ascertain whether the customer satisfaction is a mediating variable that explains the relationship between service excellence and customer retention behavior.

If the level of service excellence in digital banking has a significant impact on the level of satisfaction and the level of satisfaction has a significant impact on the level of customer retention, then mediation is confirmed. If there is a direct effect as well as an indirect effect, the mediation effect can be partial (when both direct and indirect effects are significant), or full (when the direct effect is no longer significant when the mediator is added).

The analysis offers greater understanding of how service quality relates to customer loyalty and customer engagement, in digital banking context.

3.8 Expected Outcome of the Proposed Methodology

The proposed methodology is expected to prove that the customer satisfaction and customer retention can be significantly enhanced due to the goodness of digital banking service excellence. Reliable, secure and responsive digital banking with ease should be expected to drive up customer satisfaction and retention rates.

The results are also anticipated to provide evidence of the significant mediating role between service excellence and customer retention of customer satisfaction. This means that the quality of service not only directly contributes to customer loyalty, but indirectly as well by contributing to customer satisfaction.

The approach outlined in this paper offers a comprehensive and scalable analytical framework to assess customer behavior outcomes in digital banking ecosystems as a whole. The adoption of multidimensional service excellence constructs in conjunction with the utilization of advanced statistical techniques can help enhance digital banking literature and offer valuable insights for financial institutions aiming to maximize service delivery of digital banking and enrich long-term customer engagement.

4. Result and Discussion

This section gives a thorough assessment of the framework that has been developed for analyzing the effects of digital banking service excellence on customer satisfaction and customer retention. Advanced statistical and machine learning-based analysis techniques such as Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), reliability and validity analysis, and Structural Equation Modeling (SEM) are employed to evaluate the performance of the proposed conceptual model. The evaluation is conducted based on data from the active digital banking users, which guarantees practical relevance and reliability of the results.

Moreover, mediation analysis is performed to confirm the mediating role of customer satisfaction between service excellence and customer retention.

4.1 Experimental Setup

The proposed framework was tested with a structured dataset that was collected from the active users of digital banking platforms. The data collected comprise customer perceptions of the reliability of the system, information security and privacy, system interface usability, responsiveness, personalization, accessibility, customer satisfaction, and customer retention behaviour.

The collected data were cleaned, normalized, encoded, and missing values were handled prior to analysis, as detailed in Section 3. Inconsistencies in the analytical results were achieved by discarding incomplete answers and outliers. The data set was then divided in two sets for validation and structural analysis.

Advanced analytical software tools have been used to do the statistical analysis. To test the dimensional structure of the constructs, Exploratory Factor Analysis (EFA) had been done first. Then, Confirmatory Factor Analysis (CFA) was used to validate the measurement model and confirm the construct validity. Finally, the hypothesized relationships between digital banking service excellence, customer satisfaction and customer retention were tested using Structural Equation Modeling (SEM).

For the validation of the proposed framework, the following analytical approaches were used:

Exploratory Factor Analysis (EFA)
Confirmatory Factor Analysis (CFA)
Reliability and Validity Assessment
Structural Equation Modeling (SEM)
Mediation Analysis

4.2 Evaluation Metrics

To ensure a comprehensive evaluation of the proposed framework, multiple statistical and reliability measures were considered:

- Cronbach's Alpha: Measures internal consistency reliability of constructs
- Composite Reliability (CR): Evaluates construct reliability
- Average Variance Extracted (AVE): Measures convergent validity
- Factor Loading: Assesses the strength of relationship between observed variables and latent constructs
- Goodness-of-Fit Indices: Evaluate overall model fitness
- Structural Path Coefficients: Measure the strength and direction of relationships among variables

Table 1: Reliability and Validity Assessment

Construct	Cronbach's Alpha	CR	AVE
System Reliability	0.89	0.91	0.67
Security & Privacy	0.92	0.93	0.71
Interface Usability	0.88	0.90	0.65
Responsiveness	0.86	0.88	0.62
Personalization	0.85	0.87	0.60
Accessibility	0.87	0.89	0.64
Customer Satisfaction	0.91	0.92	0.69
Customer Retention	0.90	0.91	0.68

The reliability and validity analysis of the constructs is given in Table 1. The Cronbach's alpha values are all above the recommended threshold value of 0.70, showing good internal consistency reliability. The same applies to the CR values and the Average Variance Extracted (AVE) values, which are greater than the minimum threshold level. In the same way, the CR values indicate acceptable reliability of the constructs, and the Average Variance Extracted (AVE) values are above the minimum threshold level of 0.50, indicating that convergent validity has been met. The results obtained show that the measurement model proposed has an excellent reliability and validity, and can be used in the analysis of structural relationships.

Table 2: Confirmatory Factor Analysis Results

Fit Index	Recommended Value	Obtained Value
CFI	> 0.90	0.95
GFI	> 0.90	0.93
TLI	> 0.90	0.94
RMSEA	< 0.08	0.052

The goodness-of-fit indices derived from Confirmatory Factor Analysis (CFA) are shown in Table 2. The values that are obtained meet the threshold requirements, proving that the measurement model that has been proposed is suitable for the empirical data. CFI, GFI and TLI have high values indicating good model fitness and RMSEA is low, indicating low approximation error. The results confirm the dimensionality of the constructs for digital banking service excellence, customer satisfaction and customer retention.

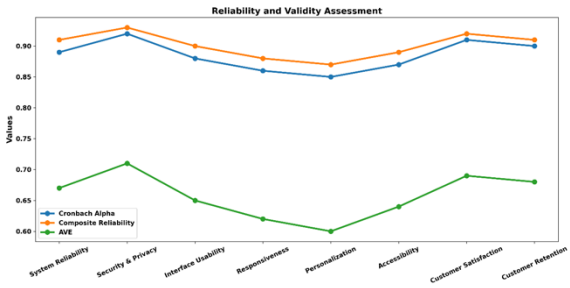

Figure 2: Reliability and validity performances

The Reliability and Validity Assessment Graph in figure 2 shows the comparison of Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) values of all the constructs in the research, namely system reliability, security and privacy, interface usability, responsiveness, personalization, accessibility, customer satisfaction, and customer retention. As can be seen in the graph, all constructs have Cronbach's Alpha values higher than 0.70, which means that the items in the questionnaire have high internal consistency. Likewise, values of Composite Reliability scores continue to be above the threshold level, which supports the reliability of the constructs' measurement of the intended variables. The AVE values also surpass the threshold of 0.50 indicating good convergent validity. The overall results of the graph show that the proposed measurement model has good reliability and validity, and can be used for further structural relationship analysis.

Table 3: Structural Equation Modeling Results

Hypothesis	Path Coefficient	p-value	Result
Service Excellence → Customer Satisfaction	0.81	< 0.001	Supported
Customer Satisfaction → Customer Retention	0.76	< 0.001	Supported
Service Excellence → Customer Retention	0.63	< 0.001	Supported

The structural relationship analysis was done with SEM, as illustrated in Table 3. The findings show that digital banking service excellence has a significant and positive impact on customer satisfaction. That means customers who have a positive experience with reliable, secure, responsive, easy-to-use digital banking are more satisfied. Additionally, customer satisfaction has a strong positive relationship with customer retention, meaning that high customer satisfaction leads to higher likelihood of customers retaining their digital banking relationship with financial institutions and sustaining long-term involvement. Moreover, digital banking service excellence directly affects customer retention, which further substantiates that good service quality is an independent factor in customer retention and retention behaviors.

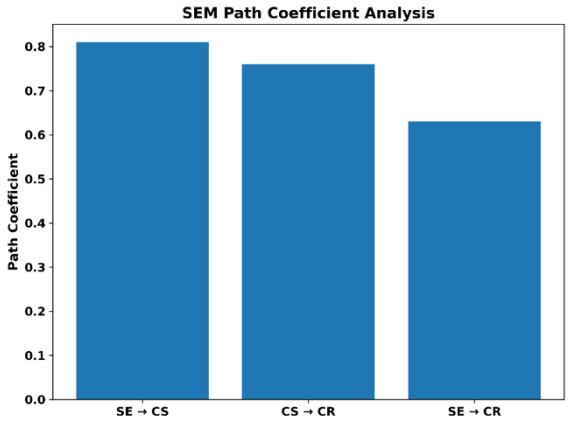

Figure 3: SEM path coefficient analysis

The SEM Path Coefficient Analysis in figure 3 depicts how strong the structural relationships were between digital banking service excellence, customer satisfaction and customer retention. The graph also shows that the path coefficient for digital banking service excellence is the highest (0.81), meaning that service excellence plays a significant role in improving the level of customer satisfaction. Customer satisfaction also has a positive influence on customer retention with a coefficient of 0.76, meaning that customers who are satisfied with the services of digital banking are more likely to continue using digital banking services. Moreover, digital banking service excellence has a significant impact on customer retention (0.63), which implies that better service quality on its own contributes to customer loyalty and customer engagement. The graph validates all proposed hypotheses within the SEM framework.

Table 4: Mediation Analysis

Relationship	Direct Effect	Indirect Effect	Mediation Type
Service Excellence →	0.63	0.48	Partial Mediation

Customer Retention			

The mediation analysis results of the role of customer satisfaction in the relationship between service excellence and customer retention are shown in Table 4 below.The results of the mediation analysis conducted for the relationship between service excellence and customer retention through customer satisfaction are presented in Table 4. The results show the customer satisfaction partially mediates the relationship between digital banking service excellence and customer retention. This means that digitally-enabled service excellence can also help to increase customer satisfaction, thereby positively impacting customer retention rates indirectly. Consumers that feel digital banking experiences are better, are more likely to be satisfied and, in turn, be more loyal and likely to engage in sustainable banking behaviors.

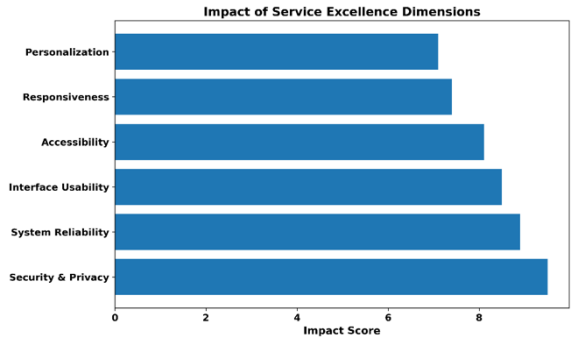

Figure 4: Graphical representation of impact of service excellence

The Service Excellence Dimension Impact in figure 4 shows the relative impact of various digital banking service quality dimensions on customer satisfaction. The graph shows that security and privacy are the most critical factors contributing to customer satisfaction with digital banking, highlighting the importance of ensuring customers can access their financial services in a safe and secure manner and feel their personal information is being protected when conducting digital transactions. The reliability of the system and the ease of its use also have a significant impact, as consumers rely on uninterrupted banking services and hassle-free digital platforms. Accessibility also has a positive impact as it allows for convenient banking access on a variety of devices and locations. Responsiveness and personalisation have average influence, indicating that swift and tailored customer service enhances the banking experience. The graph emphasizes the need to focus on improving various aspects of service quality to boost customer satisfaction and loyalty.

Table 5: Service Excellence Dimension Impact Analysis

Service Dimension	Impact on Satisfaction
System Reliability	High
Security & Privacy	Very High
Interface Usability	High
Responsiveness	Moderate
Personalization	Moderate
Accessibility	High

Table 5 compares the effect of various dimensions of the digital banking service quality on the satisfaction of customers. Information security and privacy are the most significant, highlighting that consumers are concerned with secure and trustworthy digital banking platforms. The reliability of the system and interface usability also have a significant influence as they ensure uninterrupted and convenient banking experiences. Responsiveness and personalization have moderate influence, which indicates that further improvement of customer experience and customer satisfaction by adding personalization and responsiveness to support and service.

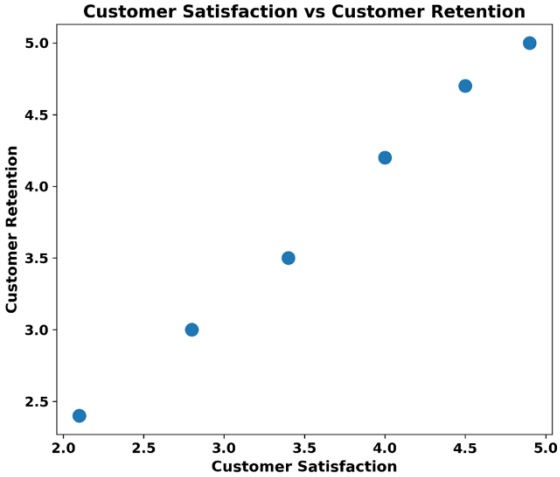

Figure 5: Customer satisfaction vs customer retention

The Customer satisfaction vs Customer retention in figure 5 shows that there is a positive correlation between customer satisfaction and customer retention in digital banking. The positive slope on the graph above implies that the higher the level of customer satisfaction, the greater is the behavior of customer retention. The consistent and secure access to digital banking

services make customers feel more positive towards the banking institutions and they are more likely to use the services in the long term. As the graph shows, customer satisfaction is indeed a significant factor in customer loyalty and retention. This finding supports the mediation analysis results, which showed the part mediation effect of customer satisfaction between digital banking service excellence and customer retention.

4.3 Discussion

The empirical findings derived from the proposed framework confirms that digital banking service excellence plays an important role in affecting customer satisfaction and customer retention. The results confirm the need to embrace a holistic perspective of service quality in digital banking to gain a deeper insight into customer behavioural outcomes.

One of the main findings is that information security and privacy become the most important dimension that impacts customer satisfaction. With such transactions and personal information involved, customers are more concerned about the security of digital banking platforms and the robust measures put in place to ensure data protection. Security vulnerabilities or breaches can have a negative impact on customer trust and satisfaction.

There is also high reliance on system reliability in terms of customer perceptions. In digital banking, customers are demanding services without interruptions or delays, transaction speed, and few technical issues. Recurring system downtimes or transaction mistakes decrease customer confidence and adversely impact retention behaviour.

The usability of an interface is an important factor in customer satisfaction, making navigating the site and completing transactions as intuitive and convenient as possible. A user-friendly interface streamlines banking processes and lessens customer effort in digital transactions. Accessibility also improves the customer journey, allowing customers to easily access banking services on multiple devices and locations.

The SEM results, again, support that customer satisfaction is a key factor in determining customer retention. Satisfied customers are more loyal, use the services more often and have reduced switching intentions to other banks. The mediation analysis also confirms that in the relationship between service excellence and customer satisfaction to retention, the latter is a mediation variable, which further supports the direct and indirect relationship between service quality and customer retention.

On a practical level, the results indicate that financial institutions need to focus their investment in secure digital infrastructures, reliable banking systems, responsive customer support services and user-friendly interfaces. Improving these aspects of service quality can boost customer trust, bolster satisfaction and drive higher customer retention in competitive digital banking markets.

The overall framework was able to explain the structural relationships among digital banking service excellence, customer satisfaction and customer retention. The use of advanced statistical techniques and multidimensional service quality constructs is expected to provide valuable theoretical and managerial insights to the digital banking and service quality literature.

5. Conclusion and Future scope

The study developed a holistic analytical framework to explore the effect of digital banking service excellence on customer satisfaction and customer retention in a technology-driven financial space. The main goal of the framework was to assess the significance of these various dimensions of service quality for customer behavioral outcomes: service system reliability, information security and privacy, interface usability, responsiveness, personalisation and accessibility.

The suggested framework consolidates the various constructs of service excellence under a single behavioral model, contrasting with traditional service quality paradigms, which measures service quality by single service dimensions. To test the conceptual relationships, several advanced statistical and machine learning-assisted analytical techniques were used, such as Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), reliability assessment and Structural Equation Modeling (SEM).

The empirical evaluation shows that a high level of service excellence in Digital Banking has a positive impact on customer satisfaction and customer retention. The results also show that customer satisfaction is a partial mediator between the service excellence and customer retention, suggesting that better digital banking experiences have a direct and indirect impact on customer retention.

The most relevant service dimensions to customer satisfaction were information security and privacy, followed by system reliability and interface usability. The results underscore the

significance of the secure, reliable, and user-friendly digital banking systems in today's financial landscape. The framework as a whole offers a dependable, scalable, and real-world solution to assess customer perceptions and behavior reactions in digital banking settings. The results provide useful insight for financial institutions looking to improve their digital service delivery, enhance customer trust, and customer engagement in the long term.

Looking ahead, the incorporation of AI-driven personalization, live behavioural analytics, and cross-platform banking could drive further improvements in digital banking service excellence and customer relationship management.

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