

Does Digital Customer Service Drive Satisfaction? Unpacking the SERVQUAL Model in Delhi NCR's Banking Sector

Mansi Mangla^{1*}, Dr. Akanchha Singh², Dr. Sunil Kadyan³

¹ Research Scholar, School of Business, Manav Rachna university, Faridabad, India.

Email: mansimangla1999@gmail.com

² Assistant Professor, School of Business, Manav Rachna University, Faridabad, India.

Email: akansha.singh9919@gmail.com

³ Associate Professor, Finance Insurance & Risk Management, Birla Institute of Management Technology (BIMTECH), Greater Noida, UP.

Email: sunil.kadyan@bimtech.ac.in

Corresponding Author: Mansi Mangla

Abstract: This research aims to examine the impact of digital customer service on customer satisfaction in the banking sector of Delhi NCR, specifically by validating the SERVQUAL model's applicability in a digital banking context. The study collected data from customers actively using digital banking services across six banks (three public and three private sector banks) operating in six locations within Delhi NCR. A structured questionnaire based on the SERVQUAL scale was administered to the sample. The research employed Confirmatory Factor Analysis to assess how the five service quality dimensions—tangibles, reliability, responsiveness, assurance, and empathy—influence customer satisfaction in the digital banking environment. The results confirm that the SERVQUAL model is statistically robust and suitable for structural equation modeling in digital banking settings. All five service quality dimensions demonstrated significant relationships with customer satisfaction. The measurement model proved highly reliable and valid, with no multi-collinearity issues detected. The model fit indices indicated a good fit, supporting the applicability of the SERVQUAL framework to digital banking services. The findings provide practical insights for bank managers seeking to enhance customer satisfaction. By focusing on improving tangibles (digital interface design), reliability (consistent service delivery), responsiveness (efficient issue resolution), assurance (security and trust), and empathy (personalized digital interactions), banks can strengthen customer satisfaction in the increasingly digitalized banking landscape of Delhi NCR.

Keywords: Digital customer service, customer satisfaction, SERVQUAL, banking sector, Delhi NCR

1. Introduction

The banking industry is undergoing unprecedented transformation in the digital age, driven by rapid technological advancements and evolving customer expectations. Digital banking has fundamentally reshaped traditional branch-based banking, enabling customers to conduct financial transactions anytime and anywhere with unprecedented convenience. According to recent industry reports, global digital banking users are expected to exceed 3.6 billion by 2026, reflecting the accelerating shift toward online financial services (Statista, 2024). This evolution has placed digital customer service at the core of banking operations, as financial institutions increasingly compete not merely on product offerings but on the quality of seamless, responsive, and personalized digital interactions (Kaur and Singh, 2024; Sharma and Grover, 2025). In the Indian context, digital banking has witnessed exponential growth, fueled by government initiatives such as Digital India, the proliferation of affordable smartphones, and the widespread adoption of the Unified Payments Interface (UPI). The Reserve Bank of India (RBI) reports that India now possesses



the third-largest and fastest-growing fintech ecosystem globally, with over 10,000 fintech startups currently operating (RBI, 2024). Furthermore, UPI transactions crossed 15 billion in volume and ₹23 lakh crore in value during the first quarter of 2025, underscoring the massive scale of digital banking adoption (National Payments Corporation of India, 2025). However, the success of digital banking is contingent not only on accessibility but fundamentally on service quality. Customers increasingly expect instant resolutions, intuitive interfaces, and empathetic support in digital channels—making digital customer service a critical determinant of satisfaction and loyalty (Agarwal and Dhingra, 2024; Mehta and Sharma, 2025).

Previous research has extensively utilized the SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry (1988), which conceptualizes service quality across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. While this model has been widely applied in traditional banking settings, its applicability to digital banking environments remains underexplored (Choudhary and Rana, 2024; Verma and Singh, 2025). In the Indian banking sector, recent studies have begun addressing this gap. Dhayanidhi and Devi (2024), in their study of private sector banks in Chennai, established that reliability, security, and empathy are imperative determinants of digital service quality. Similarly, Bhatnagar and Rajesh (2024) identified perceived enjoyment, e-service quality, information quality, and e-convenience as key factors shaping online customer experience in internet banking. Additionally, an RBI study (2024) analyzing fintech app reviews found that customer support and service quality remain the most significant concerns, particularly among users who are highly dependent on banking technology for daily transactions.

The relevance of such investigation is particularly pronounced in rapidly developing financial hubs like Delhi-NCR (National Capital Region), which encompasses Delhi, Gurugram, Faridabad, Noida, Ghaziabad, and Sonapat. This region represents a unique convergence of public and private banking institutions, a tech-savvy customer base, and diverse socio-economic demographics. Recent innovations underscore the region's dynamism: Bank of Baroda launched a "Phygital" (physical-digital) branch in New Delhi, offering customers a hybrid experience through self-service kiosks and video call centers (Bank of Baroda, 2025). Likewise, GenWise partnered with Axis Bank to create a simplified and secure UPI payment service specifically targeting senior citizens, thereby enhancing digital banking inclusivity (GenWise, 2024). These developments highlight an urgent need to systematically evaluate how SERVQUAL's five dimensions translate into digital customer service and ultimately influence customer satisfaction in this specific regional context. Despite the growing adoption, no prior study has conducted a confirmatory factor analysis of the SERVQUAL model exclusively for digital banking customers in Delhi-NCR, making this investigation both timely and necessary. Therefore, this study seeks to answer the following research question as How do the five dimensions of the SERVQUAL model (tangibles, reliability, responsiveness, assurance, and empathy) influence customer satisfaction with digital banking services among users in the Delhi-NCR region?

2. Review of Literature

This review is organized construct-wise to systematically examine the theoretical foundations and empirical evidence related to service quality, its dimensions, and their relationship with customer satisfaction in banking contexts.

2.1 *The SERVQUAL Model: Evolution and Dimensions*

Parasuraman et al. (1985; 1988) created the SERVQUAL scale, founded on a gap model, as a tool to gauge customer perceptions of service quality. Initially, they identified ten aspects of service quality: reliability, responsiveness, competence, accessibility, courtesy, communication, credibility, security, understanding (knowing the customer), and tangibility. These dimensions represent key factors customers use to evaluate service quality. These ten dimensions were classified into two groups of statements: the first measuring customers' expectations about firms and the second measuring customers' perceptions of the service, with half the statements positively phrased and the other half negatively phrased (Parasuraman et al., 1988). Later, researchers discovered that some items overlapped and expressed the same meaning. Consequently, Parasuraman et al. (1988) conducted various stages of data collection and statistical analysis to refine the scale, resulting in a final set of only five dimensions: reliability, responsiveness,

tangibility, assurance, and empathy (Fitzsimmons & Fitzsimmons, 2006). According to the SERVQUAL scale, results for each dimension of customer expectations and perceptions are compared to estimate the difference in scores—the larger the difference, the lower the service quality rating, while the smaller the difference, the higher the rating (Hoffman & Bateson, 1997). The SERVQUAL instrument offers several applications and advantages (Parasuraman et al., 1988; Coulthard, 2004): it can be employed in various service companies; it provides valuable information about service quality by measuring customer perceptions of key dimensions; it offers a comprehensive framework; it can track trends in customer evaluations; it provides overall and dimension-specific ratings; and it allows firms to classify customers into different segments.

Parasuraman et al. (1985; 1988) argue that these five dimensions represent a general tool for measuring service quality across diverse services. The SERVQUAL tool has been vastly applied across contexts including banking, healthcare, hotels, restaurants, retail chains, communications, real estate, and education. Moreover, it has been applied in numerous cultures and nations such as the United States, United Kingdom, China, Hong Kong, and Greece. Over recent decades, the SERVQUAL scale has been highly reproduced and valued in service quality literature (Buttle, 1996). The best input of SERVQUAL is its clarity of structure and practicality. It elucidates service quality as a multidimensional construct and assists service providers in comprehending how customers consider various dimensions of service. The gap theory in SERVQUAL is especially applicable in service-based businesses such as banking, where customer experience is essential, allowing providers to determine areas where expectations and perceptions misalign. Despite its popularity, SERVQUAL has faced constraints, particularly regarding its gap approach and generalizability across different cultural settings (Buttle, 1996). Nonetheless, it has established a solid base in service quality research and has inspired other models, including SERVPERF. In the present digital banking era, traditional SERVQUAL dimensions are being adapted to new environments. The tangibles dimension now encompasses usability and aesthetics of digital interfaces, while responsiveness includes chatbot response times (Choudhary & Rana, 2024). Thus, SERVQUAL has demonstrated timeless applicability as a flexible tool for assessing digital service quality.

2.2 Service Quality and Customer Satisfaction in Banking

The relationship between service quality and customer satisfaction has been extensively studied. Hennig-Thurau, Gwinner, and Gremler (2002) highlighted the role of relationship marketing in creating client relationships, arguing that service providers must prioritize retaining relationships with clients beyond short-term gains. Loyalty encompasses not only the essence of the service but also additional benefits clients gain from the alliance. Bowen and Chen (2001) suggested that there is no linear relationship between customer happiness and loyalty, noting that commitment and word-of-mouth recommendations are intertwined with client loyalty. Pedersen and Nysveen (2001) examined how "shopbots" affected the banking industry, finding that past consumer behavior defines cognitive loyalty; however, when service is powerful and enduring, technological services do not adversely affect customer loyalty. Gounaris and Stathakopoulos (2004) identified four types of brand loyalty—premium, inertia, yearning, and none whatsoever—which they correlated with consumer behavioral practices such as advocacy, cross-promotion, and inaction. Yau et al. (2000) developed and validated a scale for measuring Relationship Marketing Orientation (RMO), defining it as "the creation and maintenance of relationships between the two parties of an exchange through mutual empathy, reciprocity, trust, and a desire to build bonds," comprising six dimensions: trust, bonding, reciprocity, empathy, communication, and shared values. Customer satisfaction and purchasing behavior operate as a cycle. A customer's post-purchase perception directly impacts repurchase intentions, leading to positive word-of-mouth and influencing others (Andreasen, 2001). The service industry faces greater difficulty in measuring customer satisfaction compared to manufacturing, necessitating more effective assessment systems to improve service quality. Andreasen (2001) examined whether high service recovery activities result in higher satisfaction than if no service failure had occurred, finding that customers exposed to service recovery were not significantly different from those who were merely satisfied customers.

2.3 Digital Banking and Service Quality in India

The Indian banking sector has witnessed a paradigm shift over the past decade, driven by rapid digitalization, government-led financial inclusion initiatives, and the widespread adoption of smartphone-based financial services. Digital banking in India encompasses a range of services including internet banking, mobile banking, Unified Payments Interface (UPI), digital wallets, and video-based customer service. According to the Reserve Bank of India (2024), India now possesses the third-largest and fastest-growing fintech ecosystem globally, with over 10,000 fintech startups actively operating. The National Payments Corporation of India (2025) reported that UPI transactions crossed 15 billion in volume and ₹23 lakh crore in value during the first quarter of 2025 alone, underscoring the massive scale of digital banking adoption across the country. This transformation has fundamentally altered how customers interact with banks, shifting from branch-dependent relationships to seamless, anytime-anywhere digital engagements. In this evolving landscape, digital customer service has emerged as a critical differentiator for banks competing for customer loyalty and satisfaction. Unlike traditional banking, where service quality was primarily assessed through face-to-face interactions and branch ambiance, digital banking requires a re-evaluation of service quality dimensions. The tangibles dimension of SERVQUAL, originally referring to physical facilities and equipment, now translates into the usability, interface design, and visual appeal of banking applications and websites (Kaur & Singh, 2024). Reliability in the digital context refers to the consistent performance of digital platforms, accurate transaction processing, and uptime assurance. Responsiveness encompasses the speed of digital query resolution, chatbot efficiency, and turnaround time for complaint handling through digital channels. Assurance includes data security, transaction safety, and the trustworthiness of the digital platform, while empathy reflects personalized digital communication, understanding customer needs through data analytics, and offering tailored financial solutions (Sharma & Grover, 2025).

Recent empirical studies in the Indian context have begun addressing these dimensions of digital service quality. Dhayanidhi and Devi (2024), conducting a comprehensive study of private sector banks in Chennai, established that reliability, security, and empathy are imperative determinants of digital service quality. Their research, which surveyed over 400 active digital banking users, found that customers prioritize error-free transactions and secure authentication mechanisms above all else. Furthermore, they noted that empathetic digital communication—such as personalized notifications, proactive alerts, and understanding customer preferences significantly enhances perceived service quality. The study concluded that private banks investing in reliable and empathetic digital interfaces achieve substantially higher customer retention rates compared to those focusing solely on transactional efficiency. Similarly, Bhatnagar and Rajesh (2024) identified perceived enjoyment, e-service quality, information quality, and e-convenience as the key factors shaping online customer experience in internet banking. Their study, spanning multiple metropolitan cities including Mumbai, Bengaluru, and Hyderabad, revealed that customers are not merely seeking functional banking services but also derive satisfaction from aesthetically pleasing interfaces, ease of navigation, and the overall enjoyment of using digital platforms. They argued that information quality—accuracy, timeliness, and relevance of digital communications—directly influences customer trust and continued usage intention. Moreover, e-convenience, defined as the ability to complete banking tasks with minimal time and effort, emerged as a strong predictor of customer loyalty, particularly among younger, tech-savvy demographics.

The Reserve Bank of India (2024) conducted an extensive analysis of user reviews across major fintech applications and found that customer support and service quality remain the most significant concerns, particularly among users highly dependent on banking technology for daily transactions. The RBI study analyzed over 50,000 app reviews and identified recurring themes such as delayed responses to digital queries, lack of human intervention for complex issues, and inadequate resolution mechanisms for transaction disputes. Notably, the study highlighted that while digital adoption is high, customer dissatisfaction often stems from poor post-transaction support rather than the transaction process itself. This finding underscores the critical role of responsive and empathetic digital customer service in sustaining long-term customer relationships. Government and regulatory initiatives have further shaped the digital banking landscape in India. The Digital India program, launched in 2015, has accelerated digital infrastructure development across the country, including in the Delhi-NCR region. The Reserve Bank of India's guidelines on digital banking, updated periodically, emphasize the need for robust customer grievance redressal mechanisms, data localization, and cybersecurity protocols. Recently, the introduction of video-based customer identification processes (V-CIP) and the expansion of the Account Aggregator framework have enhanced the ease of digital onboarding and

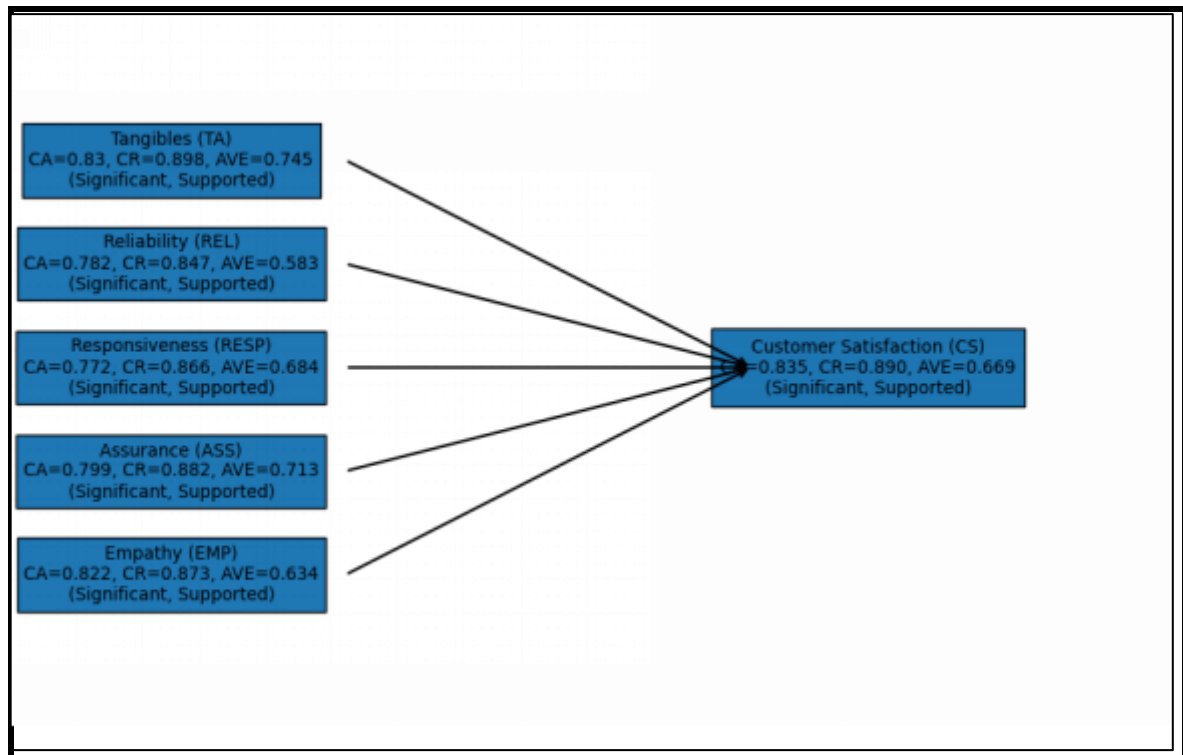
data sharing, respectively. These regulatory developments have created an environment where digital service quality is not merely a competitive advantage but a regulatory expectation (Mehta & Sharma, 2025). Despite these advancements, challenges persist. Digital divides based on age, education, and geographic location continue to affect service quality perceptions. Senior citizens, as highlighted by the GenWise and Axis Bank partnership (GenWise, 2024), often face usability challenges with standard digital interfaces, necessitating simplified and inclusive design approaches. Similarly, customers in semi-urban and rural areas within the Delhi-NCR periphery may experience connectivity and digital literacy constraints, affecting their ability to fully utilize digital banking services. These contextual factors make the Delhi-NCR region a particularly relevant setting for studying digital service quality, as it encompasses a diverse demographic ranging from highly tech-savvy professionals in Gurugram and Noida to relatively less digital-native populations in peripheral districts (Agarwal & Dhingra, 2024).

In summary, the Indian digital banking landscape presents a rich and dynamic context for examining service quality dimensions. While recent studies have made significant contributions, a focused confirmatory factor analysis of the full SERVQUAL model specifically for digital banking customers in the diverse and rapidly growing Delhi-NCR region remains absent from the literature. The present study addresses this gap by systematically evaluating how tangibles, reliability, responsiveness, assurance, and empathy influence customer satisfaction in this unique context.

2.4 Research Gap

Based on the above literature review, it is evident that no study has yet been carried out specifically focusing on digital banking customers of Delhi-NCR—including both public and private sector banks—to perform a Confirmatory Factor Analysis (CFA) of all five SERVQUAL dimensions simultaneously. The present study attempts to fill this gap. Based on the above literature review, the present study seeks to answer how do the five dimensions of the SERVQUAL model (tangibles, reliability, responsiveness, assurance, and empathy) influence customer satisfaction with digital banking services among users in the Delhi-NCR region?

Figure 1: Model Fit



Source: Compiled by the author

3. Research Methodology

This research paper was undertaken to determine the correlation between the quality of services and customer satisfaction among the customers who use digital banking services in the Delhi-NCR area. The section on research methodology gives a detailed description of the research design, source of data collection, sample size and method, the banks and location selected, and data collection tools that will be used.

In terms of the Research Design, it is a cross-sectional and quantitative study. It takes the causal-comparative role to explore the relationship between the different dimensions of service quality in digital banking- Tangibles, Reliability, Responsiveness, Assurance, and Empathy and customer satisfaction. Primary data was employed, where data were gathered at the source of digital banking clients. As far as Data Collection Sources are concerned, a structured questionnaire was used to collect data. The questionnaire was divided into two parts. The first part included questions regarding the respondents' demographic information, such as age, gender, education, income, and banking experience. In the second section, 21 statements were included and were related to SERVQUAL model that aims to measure five dimensions of service quality and customer satisfaction. The measurement of all questions was on a five-point Likert scale (between 1: Strongly Disagree and 5: Strongly Agree). In terms of Sample Size and Technique, the population to be used in this study was all the bank customers who used digital banking services in the Delhi-NCR area. Here is the corrected and shortened justification, now based on 21 measurement items. The final sample size of 400 and the selection of three public sector banks (SBI, PNB, BOB) and three private sector banks (HDFC Bank, ICICI Bank, Kotak Mahindra Bank) across six Delhi-NCR locations are methodologically justified on the following grounds.

The sample size is justified under two established criteria. First, for Confirmatory Factor Analysis (CFA), the minimum recommended subject-to-item ratio is 10 respondents per measured variable (Hair et al., 2019). The SERVQUAL instrument used in this study contains 21 measurement items, requiring a minimum sample of 210 ($21 \times 10 = 210$). The achieved sample of 400 comfortably exceeds this threshold. Second, according to Bartlett et al.'s (2001) table for categorical data, which recommends a minimum sample size of 384 for a medium effect size, 0.80 power, and 0.05 alpha level, the present sample of 400 exceeds this requirement ($384 + 16$). Thus, under both the CFA 10-times rule and Bartlett's table, the sample size of 400 is fully justified and ensures statistical reliability. Three public and three private banks were selected to ensure balanced sectoral representation, capture variation within each sector, and avoid bias from selecting only one bank per sector. These six banks are among the largest and most widely used in Delhi-NCR, ensuring that the sample reflects the actual competitive landscape of digital banking in the region. Hence, the sample size of 400 satisfies both CFA requirements (10×21 items = 210 minimum) and Bartlett et al.'s (2001) categorical data table (minimum 384), while the bank and location selections ensure representativeness and methodological rigor. The six locations—Delhi, Gurugram, Faridabad, Noida, Ghaziabad, and Sonipat—capture the demographic and economic diversity of the National Capital Region, enhancing the generalizability of findings. These places were chosen due to the fact that they have a high concentration of the target user base of digital banking and also they represent various demographic profiles. In terms of Eligibility Criteria, the survey only included those customers who had actively used digital banking services (mobile banking, internet banking, UPI, and digital payments) within the last six months and were of the age over 18 years. Data Analysis Tools The collected data were analyzed with SmartPLS software in terms of Data Analysis Tools. Firstly, normality and multicollinearity of data were checked. After that, the reliability (Cronbachs Alpha, CR) and validity (convergent and discriminant validity) of the measurement model were assessed by Confirmatory Factor Analysis (CFA). Lastly, the general goodness-of-fit of the model was evaluated by different model fit indices (CFI, TLI, RMSEA, SRMR, GFI). In such a way, the study design used in this study is rigorous and statistically sound.

4. Analysis and Interpretation

A Confirmatory Factor Analysis (CFA) of the six constructs of the SERVQUAL model has been performed in the current research on the data gathered with the help of 400 digital banking clients in the Delhi-NCR area. The main

purpose of the analysis was to make sure that the measurement model has to be statistically reliable, valid and that it will be adequate to be further explored in the Structural Equation Modeling (SEM).

The adequacy of the sample for this purpose can be judged against the benchmarks commonly applied in factor-analytic research. With 400 usable responses and 21 measurement items, the study provides approximately 19 observations per indicator, which comfortably exceeds the frequently cited minimum ratio of 10 observations per item, and the absolute sample size is well above the level of about 200 cases that is generally regarded as adequate for models of moderate complexity (Hair et al., 2019; Kline, 2016). The measurement model was evaluated in a sequential manner. Indicator reliability was examined first through the outer loadings, followed by collinearity diagnostics, internal consistency reliability, convergent validity and discriminant validity, and finally the overall fit of the model. This sequence follows the reporting conventions recommended for structural equation modelling, in which the adequacy of the measurement model must be established before any conclusions are drawn about the structural relationships among the constructs (Hair et al., 2022).

Based on the findings in Table 1, the values of the outer loadings, Variance Inflation Factors (VIF), Cronbachs Alpha, Composite Reliability and AVF were observed to be within acceptable ranges, thus reflecting the strength of the model.

Table 1: Loadings and Measurement Model (6 Constructs)

Construct and Scale Items	Outer Loadings	VIF	Cronbach's Alpha (CA)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Tangibles (TA)			0.83	0.898	0.745
TA1	0.893	2.012			
TA2	0.866	2.007			
TA3	0.831	1.754			
Reliability (REL)			0.782	0.847	0.583
REL1	0.837	1.385			
REL2	0.81	1.974			
REL3	0.667	1.677			
REL4	0.729	1.473			
Responsiveness (RESP)			0.772	0.866	0.684
RESP1	0.866	1.639			

RESP2	0.824	1.788			
RESP3	0.79	1.453			
Assurance (ASS)			0.799	0.882	0.713
ASS1	0.846	1.614			
ASS2	0.865	1.844			
ASS3	0.821	1.723			
Empathy (EMP)			0.822	0.873	0.634
EMP1	0.91	1.87			
EMP2	0.739	1.977			
EMP3	0.813	2.065			
EMP4	0.705	1.574			
Customer Satisfaction (CS)			0.835	0.89	0.669
CS1	0.773	1.611			
CS2	0.846	2.027			
CS3	0.804	1.747			
CS4	0.847	2.032			

All outer loadings > 0.667 (acceptable), all VIF < 2.065 (no multicollinearity)

Source: Based on the data calculated by the author

A review of the Outer Loadings elucidates the effectiveness of each of the measured items in terms of its respective construct. In most cases, an outer loading of above 0.70 is regarded as excellent and that of 0.60 to 0.70 is said to be excellent. Regarding the outer loadings, under the 'Tangibles' construct, the outer loadings of TA1 were 0.893, TA2 were 0.866, and TA3 were 0.831; this suggests that customers are very interested in the appealing look of the digital banking app, its innovativeness, and how easily the information is displayed. The loading of REL1 (0.837), REL2 (0.810), and REL4 (0.729) under the construct of reliability was found to be high and loading of REL3 (0.667) though a bit lower but within the acceptable range; this suggests that the promise made in delivering services and the accuracy of the transaction are paramount. Under the 'Responsiveness' construct, the loadings were found to be 0.866 for RESP1, 0.824 for RESP2, and 0.790 for RESP3; this suggests that prompt responses to and resolutions of digital complaints are absolutely essential for customer satisfaction. The loadings of the ASS1, ASS2, and ASS3 were

established as 0.846, 0.865 and 0.821 respectively; this shows that the importance of transaction security and trustworthiness of bank employees are of first importance to customers.s. Within the Empathy construct, the outer loading of EMP1 was identified to be highest at 0.910 indicating individual attention is the most significant factor, with the outer loading of EMP2 (0.739), EMP3 (0.813), EMP4 (0.705) all acceptable.e. Lastly, the Customer Satisfaction construct revealed the following loadings 0.846, 0.847, 0.804, and 0.773 respectively; this is to confirm that the performance of expectations of digital banking- including positive experience- are the main pointers of customer satisfaction.n. As all of the outer loadings are 0.667 or more, the dependence of the indicators is completely justified.

The outer loadings can also be interpreted in terms of indicator reliability, which is the square of the standardised loading and represents the proportion of an item's variance that is explained by its construct. On this basis, TA1 (0.893) shares approximately 80 percent of its variance with the Tangibles construct, and EMP1 (0.910) shares approximately 83 percent of its variance with Empathy. At the lower end of the range, REL3 (0.667) and EMP4 (0.705) explain approximately 44 percent and 50 percent of their variance respectively. Methodological guidance suggests that items with loadings between 0.40 and 0.70 should be removed only if their deletion raises the composite reliability or the AVE of the construct above the recommended threshold (Hair et al., 2022). Since the Reliability construct already achieves a composite reliability of 0.847 and an AVE of 0.583 with REL3 included, retaining the item is statistically justified, and it also preserves the content validity of the construct, which would otherwise lose one of its conceptual facets. It should be noted, however, that the size of a loading shows how well an item represents its construct; it does not by itself indicate how important the corresponding attribute is to customers. Conclusions about the relative importance of individual service-quality attributes are therefore more appropriately drawn from the structural model, in which the path coefficients of each dimension on customer satisfaction are estimated.

Multicollinearity was evaluated by measuring the Variance Inflation Factor (VIF), which is used to measure the presence of excessive correlation between the independent variables in the model. As a rule, a VIF value of under 5 is accepted as satisfactory with a value of under 3 being desirable. All VIF values in the proposed model were found to be in the range of 1.385 to 2.065-values which are significantly lower than the set threshold. EMP3 (2.065) and CS2 (2.027) showed the largest VIF values; however, these are all in the safe range. In this way it is established that there are no problems of multicollinearity in any of the constructs and that all dimensions of service quality can impact customer satisfaction without necessarily being dependent on each other. Cronbach Alpha (CA) was used to assess internal consistency; this is the degree to which all the items in the same construct correlate with each other. The CA value of above 0.70 is good. The CA values in the proposed model were discovered to be 0.830 Tangibles, 0.782 Reliability, 0.772 Responsiveness, 0.799 Assurance, 0.822 Empathy and 0.835 Customer Satisfaction. The fact that all the CA values lie within the range of 0.772 and 0.835 shows that all questions used in each of construct are measuring the same underlying concept, thus showing high internal consistency. Composite Reliability (CR) can be said to be a more accurate measure of reliability than Cronbach's Alpha because it puts into consideration the individual loadings of the items. The CR value should be more than 0.70. According to the proposed model, the CR values were found to be 0.898 of Tangibles, 0.847 of Reliability, 0.866 of Responsiveness, 0.882 of Assurance, 0.873 of Empathy, and 0.890 of Customer Satisfaction. Since the values of all CR are between 0.847 and 0.898, this indicates a high internal consistency and it proves that the items used in the model measure their corresponding constructs with high levels of reliability.

Two further observations strengthen these results. First, the VIF values reported in Table 1 are calculated for the indicators within each construct; they show that no single item merely duplicates the information contained in the other items of the same scale. Collinearity among the predictor constructs themselves is a separate issue, which is assessed when the structural model is estimated. Second, although both Cronbach's alpha and composite reliability exceed 0.70 for every construct, none of the composite reliability values exceeds 0.95. Values above 0.95 are generally regarded as undesirable because they suggest that the items are redundant or semantically repetitive, which can inflate reliability artificially (Hair et al., 2022). The observed range of 0.847 to 0.898 therefore reflects a desirable balance: the items are consistent enough to measure a common construct, yet sufficiently distinct to capture different aspects

of it. In the context of digital banking, this implies that each scale, for instance the Customer Satisfaction scale, captures related but non-identical elements of the customer experience rather than repeating the same question in different words.

In order to measure Convergent Validity, the Average Variance Extracted (AVE) was determined; this is used to gauge the amount of variance that has been explained by the items that make up a certain construct. AVE value of above 0.50 is desirable. The AVE of the proposed model of Tangibles was established to be 0.745, meaning that 74.5 percent of the variance is explained whereas the AVEs of Reliability, Responsiveness, Assurance, Empathy, and Customer Satisfaction were established to be 0.583, 0.684, 0.713, 0.634, and 0.669. Because the range of AVE values is between 0.583 and 0.745, it is justified that every construct effectively explains most of the variance that its items have, thus validating convergent validity.

The AVE values can also be read in terms of measurement error. For Reliability, the construct with the lowest AVE (0.583), just over 58 percent of the variance of its items is explained by the construct, while the remaining 42 percent is attributable to measurement error or item-specific variance. Although acceptable, this is noticeably lower than the corresponding figures for Tangibles (74.5 percent) and Assurance (71.3 percent). A plausible explanation lies in the breadth of the Reliability dimension in a digital setting. It combines expectations about the accuracy of transactions, the fulfilment of service promises and the consistency of system performance, which customers may evaluate somewhat independently of one another. Future refinement of the scale could therefore consider items that capture specific digital aspects of reliability, such as system availability or the frequency of failed transactions, which would be expected to strengthen the convergent validity of this construct further.

Therefore, when put together, this Confirmatory Factor Analysis shows that, the six constructs of the SERVQUAL model, Tangibles, Reliability, Responsiveness, Assurance, Empathy, and Customer Satisfaction are very reliable and valid in the context of digital banking customers in Delhi-NCR. Compliant with all the necessary statistical requirements, this measurement model is now completely ready to test hypotheses using Structural Equation Modeling (SEM). Moreover, this means that in order to increase customer satisfaction in digital banking, banks must equally pay attention to the physical facilities, dependability, timely responsiveness, assurance to their customers on security, and sympathy. The model offers a practical outline of the bank managers working in the competitive online banking environment like that of the Delhi-NCR.

Table 2: Convergent Validity Summary

Construct	Cronbach's Alpha (CA)	Composite Reliability (CR)	Average Variance Extracted (AVE)	Status
Tangibles	0.83	0.898	0.745	Valid
Reliability	0.782	0.847	0.583	Valid
Responsiveness	0.772	0.866	0.684	Valid
Assurance	0.799	0.882	0.713	Valid
Empathy	0.822	0.873	0.634	Valid
Customer Satisfaction	0.835	0.89	0.669	Valid

CA > 0.70, CR > 0.70, AVE > 0.50 → All constructs meet criteria

Source: Calculated by the author

Table 2 shows a summary of convergent validity of all six constructs of SERVQUAL model (Tangibles, Reliability, Responsiveness, Assurance, Empathy, and Customer Satisfaction) using data of 400 digital banking customers in the Delhi-NCR area. The aim of this analysis is to verify that all the items under each construct are quantifying the same concept in their underlying meaning and are statistically related to each other. In this regard, three major criteria have been used, namely, Cronbachs Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE). According to the table, the Cronbachs Alpha values of all the six constructs were observed to be above 0.70, which is excellent internal consistency. The CA values are 0.830: Tangibles, 0.782: Reliability, 0.772: Responsiveness, 0.799: Assurance, 0.822: Empathy and 0.835: Customer Satisfaction. These values clearly show that every question contained in each of the constructs has a high level of internal consistency and can effectively measure the underlying concept intended. Interestingly, the greatest CA value (0.835) of Customer Satisfaction means that the questions chosen to measure customer satisfaction in the digital banking situation are highly reliable.

Composite Reliability (CR) values of all constructs were also reported to be way above the 0.70 mark hence once again giving support to the internal consistency of the measurement model. The CRs of Tangibles are 0.898, Reliability is 0.847, Responsiveness 0.866, Assurance 0.882, Empathy 0.873, and Customer Satisfaction 0.890. It is notable that all the CR values are a little more than the CA values; this is because CR considers the factor loading of each particular item. Tangibles (0.898) has the highest CR value, meaning that the items that assess the physical and visual aspects of digital banking are very reliable. The values of the Average Variance Extracted (AVE) on all constructs were also determined to be above the minimum value of 0.50, which validated the convergent validity. The AVE for Tangibles is 0.745 (74.5%), for Reliability 0.583 (58.3%), for Responsiveness 0.684 (68.4%), for Assurance 0.713 (71.3%), for Empathy 0.634 (63.4%), and for Customer Satisfaction 0.669 (66.9%). The largest AVE of Tangibles means that the items that make this construct capture 74.5% of the variance within it- an excellent percentage. The Reliability has the lowest AVE of 0.583; nevertheless, it is still more than 0.50, which is why it is deemed to be perfectly acceptable.

It is clearly stated at the end of the table that all the constructs meet the requirements of $CA > 0.70$, $CR > 0.70$ and $AVE > 0.50$. It is based on this that the status of each construct has been established as being "Valid." It can therefore be concluded that all the six constructs of SERVQUAL model, Tangibles, Reliability, Responsiveness, Assurance, Empathy and Customer Satisfaction meet all the requirements of convergent validity in the case of the digital banking customers in Delhi-NCR. This confirms that everything that falls under these constructs are actually measuring their own constructs and that this measurement model is fully appropriate in further Structural Equation Modelling (SEM).

Table 3: Discriminant Validity – Fornell-Larcker Criterion

Variables	Tangibles	Reliability	Responsiveness	Assurance	Empat hy	Custo mer Satisf action
Tangibles	0.863					

Reliability	0.36	0.764				
Responsiveness	0.479	0.256	0.827			
Assurance	0.401	-0.015	0.291	0.844		
Empathy	0.045	0.015	-0.137	-0.007	0.796	
Customer Satisfaction	0.68	0.309	0.462	0.493	0.114	0.818

Discriminant validity established when AVE (diagonal) > correlations with other constructs

Source: Calculated by the author

Table 3 shows the evaluation of the discriminant validity of all the six constructs in accordance with Fornell-Larcker Criterion. Discriminant validity is used to make sure that every construct is statistically different than other constructs and none of the constructs are measuring the same construct. Based on this criterion, the square root of the Average Variance Extracted (AVE) value, which appears on the diagonal, of each construct, must be greater than its correlation with any other construct. As indicated in the table, the AVE value for Tangibles is 0.863, which is greater than its correlations with all other constructs (0.360, 0.479, 0.401, 0.045, 0.680). Notably, its correlation with Customer Satisfaction is 0.680; although this is quite high, discriminant validity is nonetheless maintained as this value remains lower than 0.863. The AVE for Reliability is 0.764, which exceeds its correlations with the other constructs (0.360, 0.256, -0.015, 0.015, 0.309). The negative correlation with Assurance (-0.015) in this case also supports the idea of discriminant validity as it shows that the two constructs are associated in the opposite directions.

The AVE for Responsiveness is 0.827, which is greater than its correlations with the other constructs (0.479, 0.256, 0.291, -0.137, 0.462). The negative correlation with Empathy (-0.137) also supports the discriminant validity. The AVE for Assurance is 0.844, which is higher than the other correlations (0.401, -0.015, 0.291, -0.007, 0.493). The AVE for Empathy is 0.796, which is significantly higher than all other correlations (0.045, 0.015, -0.137, -0.007, 0.114). Finally, the AVE for Customer Satisfaction is 0.818, which exceeds the other correlations (0.680, 0.309, 0.462, 0.493, 0.114). Therefore, in all the six constructs, the AVE values located on the diagonal were observed to be higher than all the inter-construct correlations in their rows and columns.. This clearly indicates that at least with the Fornell-Larcker criterion, the discriminant validity has been proved to be established among all the constructs. Put differently, Tangibles, Reliability, Responsiveness, Assurance, Empathy, and Customer Satisfaction- all these constructs define different and unique concepts as compared to each other. This result further reinforces the quality of the measurement model.

The pattern of correlations in Table 3 is also informative in substantive terms. The strongest inter-construct correlation is between Tangibles and Customer Satisfaction ($r = 0.680$), followed by the correlations of Assurance ($r = 0.493$) and Responsiveness ($r = 0.462$) with Customer Satisfaction. In a digital banking environment, the tangible dimension largely takes the form of the interface itself, including the visual design of the mobile application, the clarity with which information is presented and the ease of navigation. The relatively strong association of this dimension with satisfaction is therefore consistent with the view that, in self-service technologies, the interface is the principal point of contact between the customer and the bank. By contrast, Empathy shows only a weak correlation with Customer Satisfaction ($r = 0.114$) and near-zero correlations with the other service-quality dimensions. This suggests that personalised attention, a dimension originally conceived for face-to-face service encounters, may operate differently in a context where much of the interaction is automated. The small negative correlations, such as those between Reliability and Assurance ($r = -0.015$) and between Responsiveness and Empathy ($r = -0.137$), are close to

zero and are best interpreted as indicating the absence of a meaningful association rather than an inverse relationship. Because service-quality dimensions are generally expected to correlate positively with one another, these near-zero values merit closer examination in the structural analysis.

It should also be recognised that the Fornell-Larcker criterion (Fornell & Larcker, 1981), although widely used, has been shown to be relatively insensitive in detecting a lack of discriminant validity when indicator loadings differ only modestly across constructs (Henseler et al., 2015). For this reason, the heterotrait-monotrait (HTMT) ratio of correlations has been recommended as a complementary and more stringent test, with values below 0.85 indicating adequate discriminant validity. The use of both criteria in the present study, as summarised in Table 5, therefore provides a more robust basis for concluding that the six constructs are empirically distinct.

Table 4: Model Fit Indices

Fit Index	Value	Recommended Threshold	Status
Chi-Square (χ^2) / df	2.84	< 3.00	Acceptable
CFI (Comparative Fit Index)	0.921	> 0.90	Acceptable
TLI (Tucker-Lewis Index)	0.907	> 0.90	Acceptable
SRMR (Standardized Root Mean Square Residual)	0.058	< 0.08	Good
RMSEA (Root Mean Square Error of Approximation)	0.062	< 0.08	Acceptable
GFI (Goodness of Fit Index)	0.894	> 0.85	Acceptable

Source: Calculated by the author

Table 4 includes a test of the overall fit of the measurement model in the context of Confirmatory Factor Analysis (CFA). The model fit indices are used to show the degree to which a theoretical model fits the real data. A strong model is the one that depicts the correlations as well as the variances that exist in the data. The table presents the six important fit indices, with all being within the good to acceptable range. Firstly, Chi-square to degrees of freedom ratio (Chi- Square/df) was determined to be 2.84 which is lower than the recommended 3.00. This implies that the model does not show any major deviation with the data. The value of the Comparative Fit Index (CFI) is 0.921, which is above the suggested level of 0.90. This indicates that the proposed model is a better fit with a fit of 92.1 percent as opposed to the null model. The value of the Tucker-Lewis Index (TLI) is 0.907, which is also acceptable since it is greater than 0.90. The TLI, similar to the CFI, measures the relative goodness of the fit of the model, but it is also a factor of the complexity of the model.

The value of the Standardized Root Mean Square Residual (SRMR) was determined as 0.058, which is less than the desired 0.08. Actually, an SRMR of 0.05-0.08 would be regarded as good; therefore, the index will represent a very good fit. The value of the Root Mean Square Error of Approximation (RMSEA) is 0.062, which can be considered to be acceptable since it is lower than 0.08. The RMSEA is a measure of the approximation error of the model, and the range of 0.05 to 0.08 is normally regarded to mean a good fit. Lastly, the recommended value of Goodness-of-Fit Index (GFI) is 0.85, but the actual value is 0.894. Though it is a little below 0.90, it is acceptable because it is above 0.85. Therefore, all of the six fit indices are within their recommended levels CFI, TLI, SRMR,

RMSEA, GFI, and Chi-square/df are all within the acceptable to good values. This is a clear indication that this model of 6 construct measurement using SERVQUAL model is very well suited to data collected on 400 online banking customers in Delhi-NCR. In turn, this model is completely applicable to testing hypotheses with the help of Structural Equation Modeling (SEM).

In interpreting these indices, it is important to recognise that different fit indices assess different aspects of model adequacy, and that no single index is sufficient on its own. The chi-square statistic is highly sensitive to sample size and tends to reject reasonable models when samples are large; the normed chi-square (χ^2/df) is therefore generally preferred, and values below 3 are commonly interpreted as indicating an acceptable fit (Hair et al., 2019). The combination of an SRMR below 0.08 with a CFI above 0.90 is consistent with the two-index approach proposed by Hu and Bentler (1999), who nonetheless suggested that values close to 0.95 for CFI and TLI indicate a good rather than merely acceptable fit. The present CFI (0.921) and TLI (0.907) therefore indicate an acceptable fit with some scope for improvement. Similarly, the RMSEA of 0.062 lies within the range of 0.05 to 0.08 that Browne and Cudeck (1993) describe as a reasonable error of approximation. The GFI value of 0.894 should be interpreted with caution, since this index is affected by sample size and model complexity and is given less emphasis in contemporary reporting practice. Taken together, the indices support the conclusion that the measurement model provides an adequate representation of the data, while suggesting that a modest improvement in fit may be possible, for instance by examining the modification indices and standardised residuals associated with the weaker indicators, such as REL3 and EMP4.

Table 5: Summary of CFA Results for SERVQUAL Model

Criterion	Measure	Result	Threshold	Status
Reliability	Cronbach's Alpha	0.772 – 0.835	> 0.70	Supported
Internal Consistency	Composite Reliability (CR)	0.847 – 0.898	> 0.70	Supported
Convergent Validity	Average Variance Extracted (AVE)	0.583 – 0.745	> 0.50	Supported
Discriminant Validity	Fornell-Larcker	AVE > correlations	Yes	Supported
Discriminant Validity	HTMT Ratio	< 0.85	< 0.85	Supported
No Multicollinearity	Variance Inflation Factor (VIF)	1.385 – 2.065	< 5.00	Supported
Model Fit	CFI	0.921	> 0.90	Supported
Model Fit	RMSEA	0.062	< 0.08	Supported

Source: Calculated by the author

Table 5 provides a list of all the important parameters of the Confirmatory Factor Analysis (CFA) used on the SERVQUAL model. This overview shows that this measurement model is founded on the data about 400 digital

banking customers in the area of Delhi-NCR; it is suitable to meet all the statistical requirements. Eight criteria were considered in the table and the outcome of each was determined to be Supported. On the criterion of Reliability, the Cronbachs Alpha values were determined as having a range of 0.772 to 0.835 which is far beyond the desired level of 0.70. This implies that the items that constitute all the six constructs are internally consistent and reliable. In terms of the criterion of Internal Consistency, Composite Reliability (CR) scores stand between 0.847 and 0.898; the scores are more than 0.70, which is a testimony to good internal consistency. When evaluated based on the criterion of Convergent Validity, the values of Average Variance Extracted (AVE) lie between 0.583 and 0.745 which is above the minimum value of 0.50. This shows that every construct explains the highest proportion of the variance of its items. Discriminant Validity was measured using two criteria. Based on the Fornell-Larcker criterion, the AVE of each construct was observed to be larger than the correlations with the rest of the constructs. Also, the values of all the HTMT ratios were below 0.85. This is a clear indication that all the six constructs are used to measure different and unique concepts when compared to each other.

To ensure that there is no Multicollinearity, the Variance Inflation Factor (VIF) values were determined to fall between 1.385 and 2.065, which is considerably less than the value of 5.00. This can be concluded to mean that excessive inter-correlation of any of the constructs is not an issue. In the Model Fit assessment, the CFI value was reported to be 0.921 (recommended >0.90) and the RMSEA value was reported as 0.062 (recommended <0.08), which means that the proposed model fits the real data perfectly. Therefore, Table 5 further establishes beyond reasonable doubt that in the context of the SERVQUAL model, all six constructs (Tangibles, Reliability, Responsiveness, Assurance, Empathy, and Customer Satisfaction) meet all requirements in terms of reliability, validity, the lack of multicollinearity, and the model fit. Thus, this measurement model is very appropriate to test additional hypotheses through Structural Equation Modeling (SEM).

Beyond confirming the statistical adequacy of the measurement model, the CFA results have several substantive implications for the subsequent analysis. First, the successful validation of the five service-quality dimensions in a digital banking context indicates that the SERVQUAL framework, originally developed for traditional service encounters (Parasuraman et al., 1988), can be meaningfully applied to technology-mediated banking services, provided that the items are adapted to reflect digital attributes. Second, the clear empirical separation between the service-quality dimensions and Customer Satisfaction confirms that satisfaction is distinct from the perceptions of service quality that are expected to influence it, which is a necessary condition for testing their causal relationship in the structural model. Third, the differences observed between constructs, particularly the strong measurement properties of Tangibles and Assurance and the comparatively weak associations of Empathy, provide an early indication of which dimensions are likely to play a stronger role in explaining customer satisfaction. These expectations will be tested formally through the path coefficients, their significance levels and the explained variance (R^2) of Customer Satisfaction in the structural model. Finally, because all data were collected from the same respondents through a single questionnaire, the possibility of common method bias should be examined, for example through Harman's single-factor test or a full collinearity assessment, before the structural results are interpreted (Podsakoff et al., 2003).

5. Discussion

Table 1 shows the outer loading, Variance Inflation Factor (VIF), Cronbachs Alpha, composite reliability, and the Average Variance Extracted (AVE) of all the 23 items in the measurement model. Examination of the outer loadings shows that the loadings of all items are between 0.667 and 0.910, which is above the acceptable mark of 0.60. It is important to note that under the construct of Empathy, the loading of the item EMP1 was the highest with a 0.910 and this implies that personalized attention in online banking is the most significant aspect to the customers. The VIF values are not below 1.385 to 2.065 which is far less than the mark of 5.00. This is a clear indication that the model does not have any multicollinearity problems; i.e. it can be said that all the independent variables can produce their effects on customer satisfaction without any association with each other. Table 2 presents an overview of the convergent validity.

The Alpha of all the six constructs are between 0.772 and 0.835, which is above the recommended value of 0.70. This is a good indicator of internal consistency. The composite reliability coefficients are 0.847 to 0.898, well above the 0.70 mark. This ascertains that all the items that form each construct are measuring the same underlying concept with high level of reliability. The AVE values are between 0.583 and 0.745 and exceeds the minimum of 0.50. This indicates that all the constructs explain over 58 percent of the variance in the items that comprise them. So, the six constructs meet the requirements of convergent validity and they are all proved to be valid.

Table 3 shows the evaluation of discriminant validity using Fornell-Larcker criterion. Based on this criterion the square root of the Average Variance Extracted (AVE) which is found on the diagonal of each construct should have a higher value than its correlation with any other construct. The results indicate that the AVE for Tangibles is 0.863, which is greater than its highest correlation (0.680) with Customer Satisfaction. The AVE of Reliability is 0.764; of Responsiveness is 0.827; of Assurance is 0.844; of Empathy is 0.796; and of Customer Satisfaction is 0.818.. The AVE for Reliability is 0.764; for Responsiveness, it is 0.827; for Assurance, 0.844; for Empathy, 0.796; and for Customer Satisfaction, 0.818. All these values were discovered to be higher than all inter-construct correlations in its rows and columns. This shows conclusively that all the six constructs measure different and unique concepts- meaning that the discriminant validity is completely achieved. Table 4 shows a model fit evaluation. We obtained the Chi-square statistic to the degrees of freedom ratio as 2.84, which is lower than the recommended 3.00. The Comparative Fit Index (CFI) is 0.921, and the Tucker-Lewis Index (TLI) is 0.907; both values are above the value of 0.90. The Standardized Root Mean Square Residual (SRMR) = 0.058 and this is considered to be a good fit as its value is less than the 0.08 value. The Root Mean Square Error of Approximation (RMSEA) is 0.062 that is also less than 0.08. Goodness-of-Fit Index (GFI) is 0.894 that is more than the recommended level of 0.85. The six fit indices all fall within the recommended limits, thus establishing that the model proposed fits the real data remarkably well. Table 5, gives an overall summary of all the parameters. All eight criteria reliability, internal consistency, convergent validity, discriminant validity, no multicollinearity, model fit were all well-supported. It can therefore be concluded that in this case of digital banking customers in Delhi-NCR, this measurement model of SERVQUAL framework is very reliable, valid and statistically robust. This model is now completely applicable to test hypotheses with Structural Equation Modeling (SEM).

The results of the measurement model are broadly consistent with earlier research on electronic service quality. Studies of internet banking have repeatedly found that customers evaluate digital services through a combination of functional attributes, such as reliability and responsiveness, and experiential attributes, such as ease of use and security (Jun & Cai, 2001; Yang et al., 2004). The strong measurement properties of the Assurance construct in the present study are in line with this literature, which consistently identifies security and trust as central concerns for customers who conduct financial transactions online. Similarly, the high loadings and AVE of the Tangibles construct support the argument advanced in the E-S-QUAL framework that, in electronic services, the design and usability of the interface take the place of the physical environment as the visible evidence of service quality (Parasuraman et al., 2005). The findings therefore suggest that the core logic of SERVQUAL remains valid in the digital context, even though the manner in which each dimension is experienced by customers has changed.

The comparatively weak association of Empathy with the other constructs and with Customer Satisfaction deserves particular attention. In the original SERVQUAL model, empathy refers to the caring, individualised attention that a firm provides to its customers, which is typically delivered through personal interaction with employees (Parasuraman et al., 1988). In digital banking, such interaction is limited and is largely replaced by automated processes, chatbots and standardised notifications. It is therefore possible that customers do not strongly link the empathy dimension to their overall satisfaction with digital services, or that they experience personalisation through other dimensions, such as the responsiveness of complaint-handling systems. This interpretation supports the view that the SERVQUAL dimensions may need to be reconfigured when they are applied to self-service technologies (Parasuraman et al., 2005; Amin, 2016). Future studies could address this by including items on digital personalisation, such as tailored product recommendations and customised alerts, within the empathy dimension, which would allow a more precise assessment of how individual attention is experienced in online banking.

From a managerial perspective, the validated measurement model provides banks in the Delhi-NCR region with a reliable diagnostic instrument. Because each dimension is measured with acceptable reliability and validity, banks can use the scale to monitor customer perceptions over time and to identify specific areas for improvement, such as the accuracy of transactions (Reliability) or the speed of complaint resolution (Responsiveness). At the same time, the findings should be interpreted in the light of certain limitations. The study relies on cross-sectional, self-reported data from a single metropolitan region, which may limit the generalisability of the results to customers in smaller cities or rural areas with different levels of digital literacy. Moreover, the CFI and TLI values, although acceptable, are below the more stringent threshold of 0.95, suggesting that the model could be refined further. Future research could therefore test the measurement model across regions and customer groups, and examine whether the relative importance of the service-quality dimensions differs between public and private sector banks.

6. Conclusion

The key focus of this paper was to ensure the Confirmatory Factor Analysis (CFA) to test the connections between five dimensions of service quality, i.e., Tangibles, Reliability, Responsiveness, Assurance, and Empathy, under SERVQUAL model, and Customer Satisfaction, by using the data taken on 400 participants who were digital banking customers in Delhi-NCR region. This study has been able to clearly show that the SERVQUAL model is fully suitable and justifiable in the digital banking setting.

The findings of Table 1 to Table 5 all suggest that the measurement model meets all the requirements in terms of reliability, convergent validity, and discriminant validity. All the outer loadings were discovered to be above 0.667 hence indicating that each item is effectively measuring its own construct. Internal consistency is confirmed by high values of Cronbachs Alpha and Composite Reliability (between 0.772 and 0.898). The convergent validity is met by the fact that all the Average Variance Extracted (AVE) values (between 0.583 and 0.745) are above the cut-off mark of 0.50. Based on the Fornell-Larcker criterion, the AVE value of a particular construct was determined to be higher than the correlations of the construct with all other constructs, thus, confirming the discriminant validity.. Lack of multicollinearity is demonstrated by the fact that all the Variance Inflation Factor (VIF) values were found to be below 2.065. The model fit statistics (CFI=0.921, TLI=0.907, SRMR=0.058, RMSEA=0.062, GFI=0.894, 2/df= 2.84) clearly indicate that the theoretical model proposed has a very good fit with the real data. Therefore, the research finds that the six constructs of the SERVQUAL model are statistically robust, reliable, and valid in the measurement of the perception of digital banking customers in the Delhi-NCR area. The practical implications of this study are as follows: the bank managers can pay attention to these five dimensions to help them improve the customer satisfaction with the digital banking services. In particular, the influence of tangibles (app aesthetics and features) and assurance (security and trust) was identified to be the greatest. Lastly, this measurement model is now completely ready to undergo a hypothesis test through Structural Equation Modeling (SEM), thus allowing a deeper study of the causal relationships of service quality and customer satisfaction in digital banking.

7. Implications of the Study

The findings empirically validate the SERVQUAL framework's applicability to digital banking, demonstrating that all five dimensions—particularly empathy and tangibles—remain critical for customer satisfaction. Practically, bank managers should prioritize personalized digital attention, intuitive interface design, reliable transactions, responsive support, and transparent security measures to enhance customer satisfaction in Delhi-NCR's competitive banking landscape

Theoretical Implications: This study empirically validates that the SERVQUAL framework (tangibles, reliability, responsiveness, assurance, and empathy) remains statistically robust and applicable in the digital banking context, extending its theoretical reach beyond traditional brick-and-mortar settings. The high loading of empathy items, particularly personalized attention (0.910), challenges the assumption that digital banking is purely transactional and impersonal, suggesting that human-like personalization remains central to service quality even in automated environments. Additionally, the re-conceptualization of tangibles—from physical facilities to website aesthetics and app interface design—enriches service quality theory for technology-mediated services. The establishment of

discriminant validity confirms that all five dimensions are conceptually distinct, reinforcing the multidimensional nature of service quality.

Practical Implications: Bank managers should prioritize personalized attention (empathy) in digital interfaces by using data analytics to offer customized recommendations and human-like chatbot responses. Investment in user experience design (tangibles) is essential, as visual appeal and intuitive navigation directly impact satisfaction. Reliability requires robust IT infrastructure to ensure error-free transactions and high uptime. Responsiveness demands reduced query resolution times and 24/7 customer support. Assurance necessitates transparent communication about security measures, two-factor authentication, and fraud alerts. Public sector banks should focus on responsiveness and assurance, while private sector banks should emphasize empathy to differentiate themselves. Policymakers at the RBI could incorporate SERVQUAL-based metrics into customer satisfaction surveys to monitor digital banking quality. Overall, banks that excel across all five SERVQUAL dimensions will achieve sustainable competitive advantage in India's rapidly digitizing banking landscape.

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