Advances in Consumer Research
https://acr-journal.com/

Volume-2 | Issue-1 | Jan-Feb 2025

Original Researcher Article

Transforming Indian Banking: A Study of Digitalization, Customer Experience and Operational Efficiency

Pallavi Pandey*

****School of Commerce and Management, Sri Balaji University, Pune, Email: pallavipandey1507@gmail.com***

Received: 20 Nov 2024
Revised: 19 Dec 2024
Accepted: 18 Jan 2025
Published:11 Feb 2025

Abstract
This research explores the impact of digitalization on the Indian banking sector, examining its effects on customer perception, operational efficiency and overall industry transformation. The study investigates how the adoption of digital technologies influences customer satisfaction and other variables related to digitalization of banking sector. It also addresses the crucial role of security in fostering trust and encouraging the widespread adoption of digital banking solutions. The research analyzes the drivers of digitalization and the need for increased efficiency to meet the evolving demands of customers. Furthermore, it assesses the progress of the Digital India initiative and its impact on financial inclusion and digital literacy. The findings highlight the opportunities and challenges associated with digitalization, emphasizing the need for banks to adapt their strategies, address the digital divide, and enhance cybersecurity measures to maintain competitiveness and promote inclusive growth.

Keywords: Digitalization, Indian Banking Sector, Customer Perception, PLS-SEM

1. Introduction

Traditional banking sectors have been reorganized towards new technological advancement by the recent intensive shift in the banking sector (Rahman and Abedin; 2021). This transformation leads to various developments, ranging from smartphone and mobile banking applications to advanced analytics and artificial intelligence (Koskclaives et al., 2023). Due to this paradigm shift in the banking sector, banks are gradually dependent on new advanced technology to improve and streamline processes, and customer experiences and stay intent to win in a constantly changing market (Iman et al; 2023). Digitalization has changed the process of the banking industry and it is also facing one of the major challenges. According to the policymakers, the adoption of new technology will help the industry meet the customers' demands and a way to remain competitive in the economic market (Asadi et al; 2017, Lewellen & Williams, 2021; Thekor, 2020). Like other sectors, the implications of the wave of digitalization have positive significance for the banking sector too (Beck et al; 2022, Carletti et al; 2021, Vives, 2019).

The digital transformation of banks and their services is expected to impact customers (Dehnert & Schumann, 2022; Pousttchi & Dehnert, 2018), and research indicates that customer satisfaction is directly related to their perception of a firm's adoption of new technological innovations (Amin, 2016). Additionally, the quality of online financial services is a strong predictor of the overall satisfaction of customers with banking performance (Herington & Weaven, 2009). Despite this, there is limited research on how effectively customers perceive about the operational competencies' transformation of banks and its impact on their satisfaction. Recent research studies on the digitization of banks (Carbo-Valverde, Cuadros-Solas, Rodriguez-Fernandez, & Sanchez-Bejar, 2023; Dadoukis et al., 2021; Kwan et al., 2021; Pierri & Timmer, 2022, among others) suggest that efforts of digitalization have a direct impact on customers. Historically, banks have evolved in adopting new and advanced technological innovations, such as ATMs, phone banking, and Internet banking, leading the way in developing and implementing information and communication technologies (ICT) ahead of many other industries (Griffiths, 2021).

Several factors initiate the digital transformation in the banking sector. Theoretical frameworks, such as that of De Nicolo et al. (2021), suggest that banks adopt new and advanced technology in response to increase overall efficiency and productivity. Competition is also a significant motive; empirical studies show that banks are more open to embracing new technologies if their nearby and close competitors have already adopted them (He et al., 2021; Hernandez-Murillo et al., 2010). Likewise, research by Modi et al. (2022) shows that competition from FinTech organizations prompts traditional banking services to increase their advanced technological investments. Additionally, the size of a bank and present efficiency levels may impact its likelihood of going digital (Dandapani et al., 2018).

Previous research has investigated various digitalization implications in the banking sector. The expanding body of research explores relationship between banks' digitalization and their operational performance. While some studies have shown a positive correlation between technological investments and bank performance (Casolaro & Gobbi, 2007; Chhaidar et al., 2022; Chowdhury, 2003; Kozak, 2005), others have not examined such a relationship (Beccalli, 2007; Borello et al., 2022; Markus & Soh, 1993). These mixed investigations have highlighted the difficulty in objectively examining the impact of digitalization on the performance of the banks. Other impacting factors, such as market competition (Khattak et al., 2022), the degree of level of involvement in customer digitalization (Carbo-Valverde et al., 2020b), how banks adopt new technologies (He et al., 2021), and the emergence of advanced and new digital competitors (Haddad & Hornuf, 2023; Phan et al., 2020), may also impact the relationship between digitalization and performance of the bank.

2. Literature Review

Digitalization refers to leveraging digital technologies to transform business models and operations, creating new revenue streams and enhancing value (Ahmad et al., 2019). It encompasses many activities, from automating processes and improving customer interactions to utilizing data analytics for decision-making (Leviakangas et al., 2016). Among the banking industry, digitalization has become a crucial driver of innovation and efficiency, fundamentally changing how banks operate and interact with their customers. In today's world, companies face constant pressure to leverage digital technologies and adapt their business models to this evolving landscape (R. Kohli, et al., 2019).

Banking digitalization refers to using advanced information, communication technology, and along with computer science to empower banks to offer improved services to customers in a safe, dependable, and economical way, thereby giving them a competitive edge over rival banks. Due to the extensive adoption of digitalization, the banking sector is transitioning from traditional paper-based methods to digital and paperless processes. The widespread implementation of Information Technology and IT-enabled services has significantly reduced the reliance on traditional banking systems. This evolution has been possible through the integration of ATMs (Automated Teller Machines), P C Banking, Internet Banking, Phone Banking, Phone Banking, and Banking.

2.1 Digitalization and Customer Perception

One of the primary advantages of digitalization in banking is the enhancement of customer experience (A B Luiz et al., 2024). Convenience of digitalization of banking services has significantly improved customer satisfaction as it eliminates the need for physical visits to branches and reduces waiting times for services (A. Abdurrahman et al., 2022). Additionally, banks can offer personalized services by analyzing customer data, allowing them to customize products and offers according to individual preferences and behaviours. Another significant advantage is improved operational efficiency (Al- Fahim et al., 2022). Digitalization enhances banking processes by automating routine operations like transaction processing, customer integration and regular checks. This serves not just to accelerates service delivery while also reducing human errors, resulting in greater accuracy in transactions (Chanias et al., 2019). For example, the adoption of robotic process automation (RPA) enables banks to manage repetitive tasks more efficiently, freeing employees to concentrate on higher-value activities that require human judgment. Digitalization empowers banks to respond more quickly to shifts in the market and the needs of customers (Agyapong, 2021). By analyzing large volumes of data in real-time, financial institutions can swiftly make well-informed decisions. This flexibility is especially crucial in today's fast-moving landscape, where consumer expectations are continuously changing (N Gowda et al., 2021).

India has made remarkable strides in digitalization, evolving into a digitally empowered society, the journey is far from complete (S.R.Tikku et al., 2023). The government's commitment to closing the digital divide through infrastructure development and skill enhancement will be essential for ensuring that all citizens can participate in this digital revolution. As India continues to innovate and adapt to technological advancements, it has immense potential for further growth in its digital economy, ultimately enhancing the quality of life for its citizens and fostering inclusive development across the country (C. Gupta et al., 2022). The effect of digitalization on Indian banks is profound and multifaceted. It has enhanced customer convenience, improved operational efficiency, fostered innovation in service delivery, and promoted financial inclusion (Tyagi et al.,2022). While challenges such as the digital divide and cybersecurity risks persist, the overall trajectory indicates a promising future for digital banking in India. As banks continue to embrace technology and adapt their strategies to meet evolving consumer demands, they will play a crucial role in shaping a more inclusive and efficient financial ecosystem in the country (S. Singh, 2021). The ongoing commitment to digital transformation will be essential for maintaining competitiveness in an increasingly digital world.

2.2 Information Technology and Banking Sector

Digitalization of banks is only possible through ICT (Information and Communication Technology). During a conference, the President of the Federal Reserve Bank in Chicago, Moskow (1997), delivered significant comments.

"Technology is fundamentally changing the industry – it is influencing what kind of products and services are provided, where are they provided, how are they provided, and to whom are they provided. Technology is urgently required in a way never seen before. Technology has blurred the old definition of products and services, customers and markets... Technology has

impacted and evolved the entire banking operation domains... How bankers will respond to the issues will help shape the future of the banking industry."

The implementation of technology in banking has been identified by its ability to decrease transaction expenses, facilitate the cross-selling of services to clients in addition to foster innovation in the development of innovative products. It accelerates the finance disclosure process and simplifies the timely submission of regulatory reports, thereby making public disclosures more accessible and efficient. So, technology could be vital for uniqueness, market advantage, and business sustainability (Rishi and Saxena, 2004).

Banking has witnessed the significant impact of IT across two significant areas. Firstly, it has revolutionized transmission and connectivity within the industry. Secondly, it has facilitated the system of BPR (Business Process Reengineering). This technology has enabled banks to engage in advanced product creation, establish improved market architecture, implement reliable risk control techniques, and expand to geographically diverse markets.

Because of technical advancements, technology has reshaped three key functions performed by banks: accessibility to liquidity, asset transformation, and risk monitoring. Furthermore, the integration of IT (Information Technology) and communication network systems had a critical influence on the performance of monetary markets, investment markets, and currency markets (Khanna,2002).

2.3 Digitalization in India

Digitalization in India has become a powerful catalyst for change, fundamentally transforming both the economy and society. Initiated in 2015, the Digital India program seeks to empower citizens and enhance the country's digital infrastructure (Fernandez, 2023). As of now, India ranks as the third-largest digitalized nation in the world, behind the United States and China, reflecting significant advancements across various sectors driven by digital technologies (Rutskiy, 2021).

As of 2023, India has witnessed impressive growth in internet connectivity, boasting approximately 830 million internet users (Dhristiias,2023). This widespread connectivity has resulted in a surge in digital transactions, establishing India as a leader in real-time digital payments. Innovations such as Unified Payments Interface (UPI) have revolutionized transaction systems, processing over 10 billion transactions each month by August 2023. The convenience and security of these digital payment options have fostered a culture of cashless transactions among consumers (M.Ganesan et al., 2023). The digital economy in India has also experienced substantial growth, with its core digital economy contributing 12.5% to the Gross Value Added (GVA) in 2023, up from 8.5% in 2019 (pib.gov, 2023). This growth indicates a heightened reliance on e-commerce, digital banking, and online services (K.Bhal et al., 2023). Key players in the e-commerce industry, including Flipkart and Amazon, have significantly expanded their operations, especially during the COVID-19 pandemic, which facilitated the shift to online shopping (A. Ahmad, 2020).

Furthermore, the Digital India initiative has greatly enhanced e-governance services. Initiatives such as e-visas and the Digital Locker system have modernized government processes, reduced paperwork and improved accessibility for citizens (meity.gov). The government is also focused on increasing digital literacy through programs like the Pradhan Mantri Grameen Digital Saksharta Abhiyan (PMGDISHA), which aims to educate millions in rural areas on essential digital skills (S. Karunakaran, 2023). Despite these advancements, challenges persist in India's digitalization journey. A significant concern is the digital divide; while urban areas enjoy strong internet connectivity and access to technology, rural regions often lag. Approximately 50% of India's population remains offline due to inadequate access to technology and internet infrastructure. Moreover, only about 42% of the workforce possesses adequate digital skills, highlighting the urgent need for upskilling initiatives. This gap poses a risk of excluding certain demographics from the benefits of digitalized banking.

3. Analytical Framework of the Study

3.1 Transactional Speed

Transactional speed in modern banking refers to the speed at which financial transactions are executed and completed within the banking system. Over the years, technological innovations and the digitalization of banking services have significantly improved transactional speed, providing customers with faster and more efficient banking experiences. Automated front-office operations are now prevalent across all branches of public-sector banks, while their back-office operations and data-control systems are increasingly being automated and integrated (Uprit, 2012). As time progresses, customers experience increased stress and are inclined to choose a financial organization that can offer prompt services (Uppal and Chawla, 2009). The digital platforms enable instant processing of transactions, eliminating the need for manual intervention and reducing processing times (Awamleh, R., Fernandes, C. 2005). many types of payment systems are gaining prominence for large-value transactions. RTGS (Real-Time Gross Settlement), ECS (Electronic Clearing Service) for bulk payments, and National Electronic Funds Transfer (NEFT) for individual fund transfers are among these emerging systems. Additionally, mobile banking has become a widely embraced e-banking channel in India for speedy transactions (G. Ajimon and G.S. Gireesh Kumar 26,2012).

As a result, the first hypothesis proposed

H1: Transactional speed significantly and positively affects the adoption of digitalization

3.2 Security

As banking transactions increasingly move to online platforms and mobile devices, robust security measures are necessary to protect against various threats, including fraud, data breaches, identity theft, and

cyberattacks. The probability of restoring digital banking tools is elevated when customers acknowledge their security measures and believe they will enhance productivity and efficiency. In the interest to promote the utilization of these devices, banks need to guarantee customers their top-notch security (Rangriz and Basavaraja,2011). The study identified perceived usefulness, security, and trust, as significant variables that impact the adoption of digital payment solutions (Abdullah Alkhowaiter, P.,2020). Banks promote customer education and awareness regarding safe online banking practices. This includes providing guidance on password security, recognizing phishing attempts, and encouraging the use of secure devices and networks (Ahmed, 2010). Strong authentication mechanisms are employed for the authentication of users accessing digital banking services. This may involve multifactor authentication (MFA) using a combination of passwords, biometrics (such as fingerprint or facial recognition), and hardware tokens. The lack of security within digital banking challenged financial security and confidentiality as numerous people have faced their account information in jeopardy due to online banking (Ruby and Pankaj,2011). So, the second hypothesis as an outcome is.

H2: Security significantly and positively affects the adoption of digitalization

3.3 Convenience and Benefits

Unlike traditional banking hours, digital banking services are accessible round the clock. Account holders can access their account balance, transfer money, pay other types of bills, and conduct other transactions at any time even outside regular business hours. This convenience removes the necessity to go to the physical bank location, conserving time and energy (Adil M, et al, 2013). Digital banking lowers operational expenses related to managing physical branches with extensive paperwork (Agrawal, 2014). Banks can pass on these savings to customers through lower fees, competitive interest rates, and improved product offerings (Malik, 2014). Technological advancements have revolutionized the banking landscape in India. Over the last ten years, the country's banking sector has witnessed positive financial innovations, resulting in substantial upgrades in banking services, facilities, and operations (Ashok, ML, 2019). These innovations encompass a range of advancements such as debit and credit cards, NEFT, ECS, EFT, RTGS, ATM, retail banking, mobile banking, online banking, free advisory services, and many other value-added products and services. So, the third hypothesis is formed

H3: Convenience and benefits significantly and positively affect the adoption of digitalization

3.4 Compatibility

Compatibility is defined as the perceived alignment amid innovation and individuals' current values, needs, and past experiences. It is a crucial characteristic that influences the acceptance of technology (Moore & Benbasat, 1991). Perception of compatibility is the innovation's compatibility concerning the user's job performance (Karahanna Straub, 1999) specification of compatibility is the extent to which an advancement aligns with the end-user's past experiences. The advancements in technology within the banking domain have significant consequences for banks leading to a fundamental transformation in how retail banks conduct their operations (Eyup Kahvec, 2018). Banks now have the choice to embrace Digital Banking (DB) services either as a way to gain a competitive edge or because it has grown as an essential strategic requirement. The service quality received positive feedback from customers across various aspects, including reliability, accessibility, privacy/security, responsiveness, and achievement, leading to their satisfaction (Eyup Kahvec, 2018). The hypothesis framed in this literature review is

H4: Compatibility significantly and positively affects adoption of digitalization

3.5 Connectivity

The banking landscape is transforming with advancements in banking and digital technologies (Chris Skinner,2014). This shift is reshaping the client-banking relationship. Every financial institution must embrace digitalization and incorporate cutting-edge banking technologies of the 21st century. Banks are offering a user-accessible graphical user connection that facilitates swift access and navigation through the array of services, promoting efficient management of banking activities (Redda, 2017). The emergence of new banking innovations and technologies is enhancing the customer experience by offering competitive pricing, convenience, safety, and security in banking operations (Gupta, V. S.,2018). the incorporation of social media elements as online channels acts as a compelling driving force behind the shift towards virtual banking transformation (Sudhesh K, et al., 2014). It is key to recognize that the availability and extent of these connectivity options may vary from bank to bank. Customers are free to pick the channels that best match their preferences and needs enabling them to stay engaged with their bank and manage their finances conveniently. As a result, the hypothesis is framed

H5: Connectivity significantly and positively affects the adoption of digitalization

3.6 Trust

Trust is frequently considered a vital component of financial transactions (Dwyer et al., 1987; Spekman,1988). According to Rempel Zanna (1985), Trust is the customer's general expectation of the company's words, promises, or statements. Several studies conducted on online banking (Kim and Prabhakar, 2000; McKnight, Choudhury, and Kacmar, 2002; Bhattacherjee, 2002; Mukherjee and Nath, 2003; Kassim and Abdulla, 2006) indicated that trust plays an important role in encouraging the implementation of digital banking services. The importance of the features of Internet Banking websites in establishing cognitive aids that foster trust in the online realm (Balasubramanian et al.,2003). Similarly, Wang et al.

(2003), Pikkarainen et al. (2004), and Erikson et al. (2004), discovered a correlation amidst the customer's perception about the usage of Internet Banking and their willingness to adopt it. A comprehensive literature review exhibits that brand image plays a critical role in strengthening the bond between customers and digitalization, contributing positively to customer loyalty. As a result, the hypothesis is framed

H6: Trust significantly and positively affects the adoption of digitalization

3.7 Adoption of Digitalization and Customer Satisfaction

The growth of digitization in banking services is closely related to customer contentment and loyalty (Puriwat W., 2017). Trust, reliability, and responsiveness are other factors of banking services that play a vital role in influencing customer satisfaction and loyalty. Ameme B. and Wireko J. in 2016, they found evidence supporting the existence of a positive correlation between technology and customer satisfaction in the banking sector given the highly competitive nature of today's world. Customers perceive digitalized banking knowledge as excessively complex concerning the benefits they receive and are puzzled in terms of convenience and user-friendliness (Waite and Harrison,2002). The advancement of digital banking is closely tied to the rapid expansion of e-commerce (Gupta, 2008). customer behaviour is evolving to encompass various channels like the website, mobile, social media, and in-person interactions when making a purchase. To remain competitive financial institutions must persist in developing the necessary capabilities to offer uninterrupted real-time banking access seamlessly across these different channels 24/7. So, as a result, the hypothesis is framed

H7: Adoption of Digitalization significantly impacts customer satisfaction

3.8 Customer Loyalty

Loyalty can be explained as a positive inclination toward a brand or an organization (Da Silva and Alwi, 2006). Bank loyalty is the subjective behavioural response exhibited gradually by a decision-making unit towards a specific bank within a set of options (Bloemer, Ruyter, and Peeters, 1998). This loyalty is a result of cognitive processes culminating in brand loyalty. For banks, the primary concern is on commitment loyalty which represents the outcome of emotional loyalty and display of faithfulness to a particular bank (L.E.Fern et.al., 2021). Banks also desire their feedback to be acknowledged by management to upgrade service quality. A few factors like reliability, privacy, and security of electronic banking services play an important role in increasing customer loyalty. Additionally, trust also impacts customer loyalty but its level varies among customers ranging from high to low. Customer loyalty in the banking operation is primarily influenced by increased customer satisfaction as well as improved quality of banking activities. Ultimately, the loyalty of customers serves as a competitive benefit for banks. As a result, the hypothesis is formed.

H8: Adoption of Digitalization significantly impacts customer loyalty

H9: Customer satisfaction significantly impacts customer loyalty

3.9 Brand Awareness and Brand Association

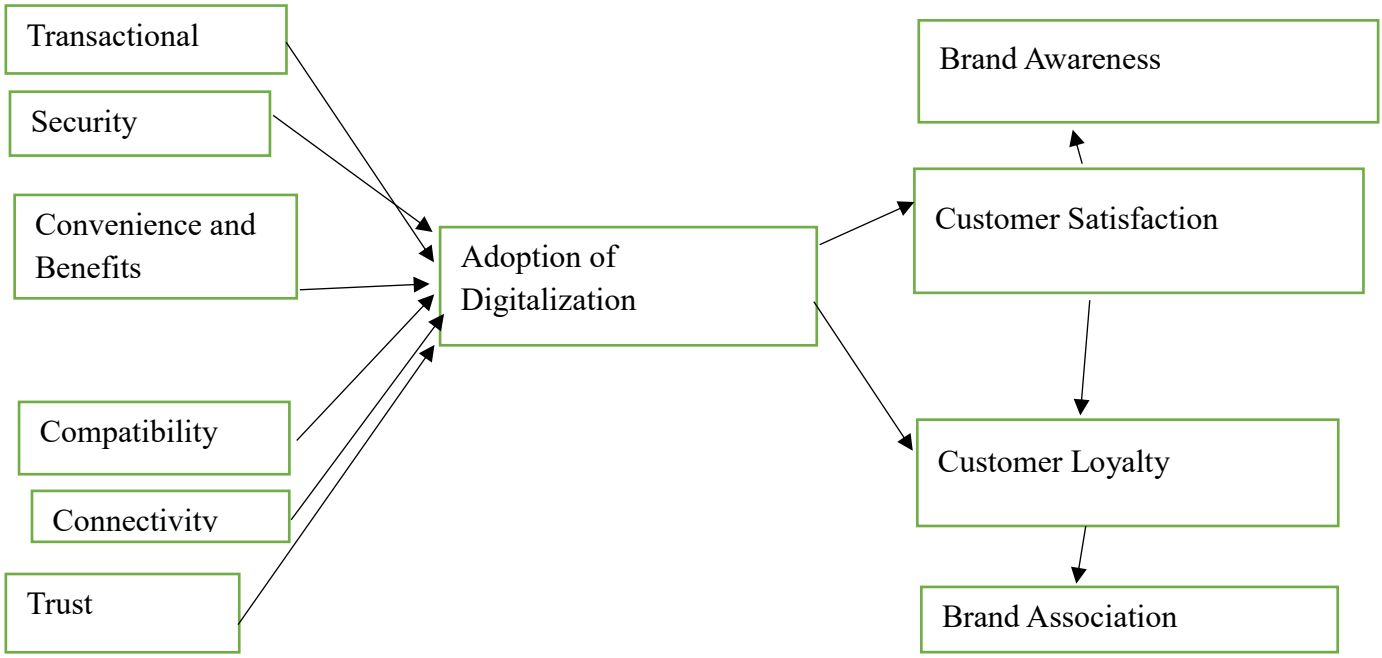
The role of the staff is crucial in building the bank's branding. Staff members are assigned as relationship managers for particular accounts initially focusing on high-valued accounts and latterly extending to cover other accounts. This practice has become common among banks as noted by Paraiyar & Sheth (2002) who argued that this perspective should be considered a distinct marketing area. The customer relationship management department has been employed to segment the bank's diverse customers into different categories contributing to the development of a segmented customer database. As banks evolved their marketing strategies branding became an integral part of their systems allowing them to be recognized for specific distinctive features. According to Deblin (2000), Direct Marketing (DM) plays an essential role in shaping bank brands, specifically in brand building. Furthermore, strong brand building is believed to be essential for ensuring that desired values are received (de Chernatony, Wallace & McDonald, 2010). The banking staff plays a pivotal role in a company when operates across multiple locations worldwide as it contributes to establishing a cohesive identity. This is particularly relevant in the banking sector, where different banking cultures distinguish domestic banks from foreign-owned ones. The domestic banks tend to enjoy higher levels of affinity and assurance as compared to their foreign counterparts (Kingshott, Sharma & Chung, 2018).

According to the foregoing literature, the subsequent hypotheses were proposed:

H10: Customer satisfaction has a positive influence on brand awareness

H11: Customer loyalty has a positive influence on a brand association

Figure 3.1: The Proposed Research Model



4. Research Methodology

The research process is a crucial and effective strategy that significantly impacts the reliability of social research (Cresswell, 2007). The approach encompasses various techniques, including quantitative, qualitative, and mixed methods, to ensure the effective acquisition of study data. A qualitative research approach is employed in this research study to collect data on the adoption and perception of customers towards the digitalization of the banking sector in India. Quantitative research enables the establishment of relationships between several variables through numerical analysis. Employing deductive strategies, this approach investigates the adoption and perception of digitalization in India's banking sector, specifically focusing on digital platforms.

The entire customer base of banks in Delhi-NCR and Pune district, Maharashtra, who utilize one or multiple forms of digital banking services, was considered as the complete study population. To put it differently, any individual holding an account with banks from these two regions, irrespective of whether they are customers of the public sector, private sector, or cooperative banks, was included in the overall population considered for the study. Hence, the primary study encompassed interviews with a total of 458 customers comprising both males and females. Among these, about 60% were female customers. A survey containing a significant number of unanswered questions and responses showing no engagement was not accepted. As a result, the final data collection for analysis was reduced to 450 entries. To be precise, the purposive sample consisted of 197 male customers and 253 female customers as outlined in the below table:

Table Error! No text of specified style in document.**.1: Details of Respondents**

Sr No.	Count of Male Respondents	Count of Female Respondents	Total
1	197	253	450

(Source: Prepared by the author)

Participants in the study were asked to rate their level of "agreement" about each component of services and facilities on a five-point Likert scale ranging from "Strongly Disagree" on a scale point 1 to "Strongly Agree" on a scale point 5. The Likert scale permits respondents to express opinions with varying degrees of agreement, making it a widely used tool in marketing research for measuring opinions, beliefs, and attitudes. Conducting surveys through the administration of questionnaires represents a primary approach for gathering data in research studies (Gay et al., 1992; Veal, 2005; Sekaran, 2003.

Table Error! No text of specified style in document.**.2 : Research Variable**

Construct	**Type**	**Operational Definition**	**Supporting Literature**
Transactional Speed	Independent	Transactional speed in the banking process is termed as the efficiency and speed at which banks can process transactions, influencing customer satisfaction and effectiveness.	(Vanitha S, 2020), (Muluka et al.; 2015).
Security	Independent	Security is an extensive framework designed to protect financial data, customer trust, and ensure regulatory compliance.	(Rangriz and Basavaraja,2011, Rao & Budde,2015
Convenience and Benefits	Independent	Convenience and Benefits refer to the ease with which customers can access banking services without a physical visit to the bank branch.	Murugarathinam,2012, Adil M, et al, 2013
Compatibility	Independent	Compatibility is how well an institution integrates new technologies and processes into their existing framework.	Karahanna et al., 1999, Shamsher et al., (2019)
Connectivity	Independent	Connectivity is the seamless integration and interaction between various digital platforms, technologies and services to facilitate a better customer experience.	Chris Skinner,2014
Trust	Independent	Trust is the belief of the customer while utilizing the services of the institution.	Suh & Han (2002), Alsajjan & Suh (2010)
Adoption of Digitalization	Dependent	Adoption of technology is known as the process through which the data integrates into their operations	Reepu et al.; 2021, A Mansour et al.; 2022.
Customer Satisfaction	Independent	Customer satisfaction refers to an individual's emotional response, either satisfaction or dissatisfaction, based on the contrast between the perceived performance of the product and their expectations.	Kotler and Keller (2009)
Customer Loyalty	Independent	Customer Loyalty is the commitment of customers to continuously engage with the services of the bank.	Reichheld, Markey Jr, & Hopton, 2000; Kumar & Shah, 2004
Brand Awareness	Dependent	It refers to which extent the customer knows about the brand.	Keller (2003
Brand Association	Dependent	It is the connection and perception that customers form with the experience of the brand.	Steenkamp (2014)

(Source: Prepared by the author)

All collected data underwent appropriate analytical procedures. Before analysis, the validity and reliability about these measurement scales were assessed. At the initial stages, descriptive statistics that comprise frequency, mean, percentage, standard deviation, kurtosis and skewness were employed along with correlation and regression methods. These statistical techniques were conducted using SPSS. For testing the significance, Pearson's Chi-Square was employed. To evaluate variations among multiple groups an ANOVA was utilized as outlined in Field (2006). Confirmatory and exploratory factor analyses were executed to have intensive insight into the relationships between dependent and independent variables. These analyses were executed using SPSS 23.0 and PLS-SEM 3. The proposed model underwent testing and the interdependencies were established using Structural Equation Modelling through PLS-SEM following the approach outlined in Field (2006).

5. Analysis and Findings

The various demographic variables considered in the current research are gender, age, educational qualification, and occupation.

Table Error! No text of specified style in document.**.1 : Demographic Profile of the Respondents**

Variable	Categories	Frequency	Percentage
Gender	Male	197	44
	Female	253	56
Age (in years)	15-20	49	11
	20-25	50	11
	25-30	48	11
	30-35	50	11
	35-40	50	11
	40-45	49	11
	45-50	49	11
	50-55	50	11
	55-60	55	12
Educational Qualifications	Intermediate	108	23
	Graduate	88	20
	Post- Graduate	148	33
	Others	111	25
Occupation	Student	78	17
	Employed (Govt/ Public Sector)	79	18
	Employed (Private Sector)	63	14
	Business	63	14
	Homemaker	104	23
	Retired	63	14

(Source: Prepared by the author as per primary survey)

SEM is a comprehensive statistical approach to analyzing the relationship between observable variables and latent variables (Hoyle, 1995). It is also defined as "a methodology for representing, estimating, and testing a theoretical network of (mostly) linear relations between variables" (Rigdon, 2010). SEM tests hypothesized directions and non-directional relationships among many variables, observable (measured) and non-observed (latent). It helps to evaluate correlation/covariance patterns between the different variables and then also explains their variance within the model as far as feasible. SEM assesses a relationship that occurs between the variables and, in addition to CFA, it permits to acceptance or rejection of a hypothesis framed by the proposed research model (Shadfar, 2013).

The structural model was evaluated by utilizing PLS-SEM.

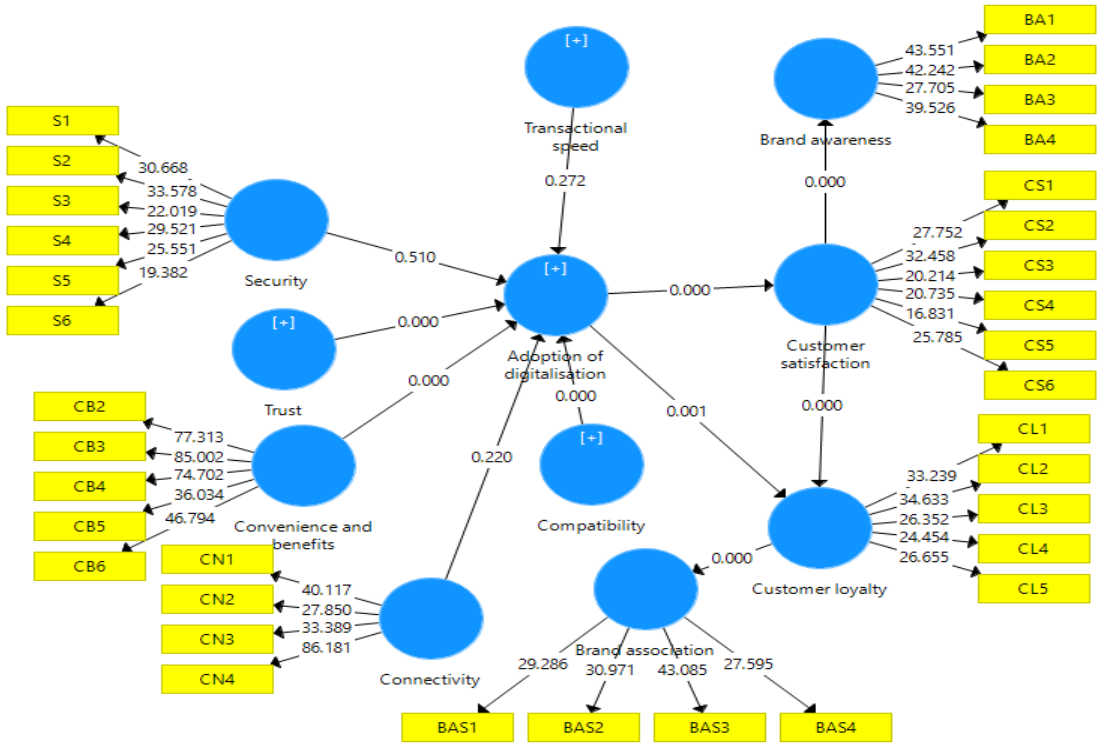


Table Error! No text of specified style in document.**..2: Summary of SEM Results and Hypotheses Testing**

Hypothesis	Path	Path coefficient	Standard error	t-static	P	Remark
H_1	TS → AOD	-0.040	0.036	1.100	0.272	Not supported
H_2	SCRT → AOD	-0.023	0.035	0.659	0.510	Not supported
H_3	CB→ AOD	0.843	0.034	24.595	0.000	Supported
H_4	CMT → AOD	0.627	0.126	4.967	0.000	Supported
H_5	CNT → AOD	-0.060	0.048	1.228	0.220	Not supported
H_6	*T* → AOD	0.440	0.110	3.986	0.000	Supported
H_7	AOD → CS	0.763	0.037	20.681	0.000	Supported
H_8	AOD → CL	0.211	0.066	3.211	0.001	Supported
H_9	CS → CL	0.603	0.060	10.097	0.000	Supported
H_{10}	CS → BA	0.758	0.026	28.654	0.000	Supported
H_{11}	CL → BAS	0.763	0.033	23.454	0.000	Supported

(Source: Prepared by the author)

In this study, transactional speed (p=0.272), security (p=0.510) and connectivity (p=0.220) did not affect the adoption of digitalization as the value of p is greater than 0.005. So, these variables did not support the hypotheses. Other variables are in support of hypotheses.

Model Fit Measures

Fit refers to how different the predicted covariance (or correlations) from the covariance is actually (or correlations). Small, squared (residual) differences indicate a model fit satisfactory. The appropriate indicators show in the structural equation modelling whether the model is suitable in general (Moss, 2016). It's also very crucial to assess whether or not the stated model matches the data (Yuan, 2005). If the model is satisfactory, researchers will then determine if certain pathways are important. No golden guidelines are available to assess the fit of the model (Shadfar, 2013).

Table Error! No text of specified style in document.**3: Summary of the Model Fit Indices for the Structural Model (SEM)**

Fit index	Observed levels	Threshold Levels	Model fit
"Chi-Square χ2	981.528	Lower χ2 relative to df 2:1	Acceptable
Normed χ2 (χ2 / df) (CMIN)	1.467	3:1	Acceptable
Goodness of Fit Index (GFI)	0.831	≥ 0.80	Acceptable
Adjusted Goodness of Fit Index (AGFI)	0.827	≥ 0.80	Acceptable
Root Mean Square Error of Approximation (RMSEA)	0.047	<0.06	Acceptable
Standardized Root Mean Square Residual (SRMR)	0.067	<0.08	Acceptable
Comparative Fit Index (CFI)	0.901	≥0.90	Acceptable
Non-Normed Fit Index (NNFI)	0.845	≥0.80	Acceptable
Parsimony Normed Fit Index (PNFI)	0.688	No threshold levels	Acceptable
Standardized Residuals	1.153	<2.58	Acceptable
P Close"	0.214	>0.05	Acceptable

Validity Analysis

After the scale was confirmed to be reliable, one final evaluation was carried out: scale validity (Hair et al., 2006). The correlation between the theoretically established set of variables measures validity (Hair et al., 2006). By assuring that a construct is valid, we assess whether it accurately measures what it is intended to measure, which can be categorized into convergent and discriminant validity (Cronbach and Meehl, 1955). There are three types of widely accepted validity: convergent, discriminant, and nomological. Convergent and discriminant validity constitute construct validity.

Correlational or Convergent Validity: Correlational analysis validated the validity of the construct. The correlational analysis evaluates the degree to which two measures of the same concept are correlated. The inter-item correlation values of the indicators in each construct were found satisfactory (higher than 0.30) except few inter-item correlation values. Item-total correlation values of the indicators in each construct were above 0.3 as shown in Table 5.11. Cohen (1998) suggested that correlations r=0.10 to 0.29 indicate a small correlation, r=0.30 to 0.49 indicate a medium correlation and r=0.50 to 1.0 indicate a large correlation. These findings suggest that the scale has convergent validity.

Table Error! No text of specified style in document.**4 : Reliability and Validity**

Construct	Cronbach's alpha	CR	AVE
Adoption of digitalization	0.954	0.958	0.521
Brand association	0.793	0.866	0.618
Brand awareness	0.843	0.895	0.680
Compatibility	0.929	0.940	0.637
Connectivity	0.849	0.896	0.684
Convenience and benefits	0.906	0.929	0.691
Customer loyalty	0.841	0.883	0.558
Customer satisfaction	0.839	0.882	0.554
Security	0.859	0.895	0.587
Transactional speed	0.806	0.866	0.564
Trust	0.915	0.932	0.661

(Source: Prepared by the author)

Discriminant validity: Discriminant validity evaluates whether items that are supposed to be unrelated are unrelated (Lange et al., 2014). According to Gefen and Straub (2005), discriminant validity is confirmed when the AVE (Average Variance Extracted) square roots are higher than the correlation between constructs for the same row and column which is the case for all constructs. It was calculated using the PLS-SEM package. The results in Table 5.12 illustrate that the square roots of AVEs were higher than the correlations between constructs/variables. These findings suggest that the scale possesses discriminant validity.

Table Error! No text of specified style in document.**.5: Discriminant Validity**

Construct	Adoption of digitalization	Brand association	Brand awareness	Compatibility	Connectivity	Convenience and benefits	Customer loyalty	Customer satisfaction	Security	Transactional speed	Trust
Adoption of digitalization	0.722										
Brand association		0.786									
Brand awareness			0.825								
Compatibility				0.798							
Connectivity					0.827						
Convenience and benefits						0.831					
Customer loyalty							0.747				
Customer satisfaction								0.744			
Security									0.766		
Transactional speed										0.751	
Trust											0.813

6. Discussion and Conclusion

6.1 Theoretical Contribution

The study enhances our insight into the interrelations among various banking digitalization components like Transactional Speed (TS), Security (SCRT), Convenience and Benefits (CB), Compatibility (CMT), Connectivity (CNT), Trust (TS), Adoption of Digitalization (AOD), Customer Satisfaction (CS), Customer Loyalty (CL), Brand Awareness (BA) and Brand Association (BAS). The analysis enriches the field by proposing refined and validated metrics to evaluate the different constructs including TS, SCRT, CB, CMT, CNT, TS, AOD, CS, CL, BA, and BAS. These can serve as tools for upcoming researchers to examine the significance and importance of adoption levels of bank customers. The study can be a resource for policymakers, offering insights for developing better strategies to promote and facilitate digitalization in the country.

6.2 Practical Implication

The study yields that as convenience and benefits were found to have a substantial and beneficial impact on the adoption of digitalization, banks as well as businesses should prioritize offering user-friendly and value-added digital solutions. Identify pain points and areas where digitalization can enhance customer experience, and invest in technologies that streamline processes and provide tangible benefits to customers. The study's results provide valuable insights, but the digital landscape is continually evolving. Banks should conduct regular research and analysis to monitor customer preferences and expectations regarding digitalization. This ongoing assessment will help banks stay ahead of changing customer needs and tailor their digital offerings accordingly. Although connectivity was not found to be a significant factor in the study, it remains important for banks to ensure that digital services are accessible to all customers. Consider partnerships with telecommunication providers to improve connectivity in underserved areas and ensure all customers benefit from digitalization.

For customers who may have lower digital literacy, banks should provide educational resources and training to help them feel more comfortable using digital channels. Enhancing digital literacy can boost adoption rates and empower customers to utilize digital banking services fully. Given the positive perception of sustainability, banks should consider highlighting their eco-friendly practices related to digitalization. Emphasizing the environmental benefits of going paperless can resonate with environmentally conscious customers. Digitalization is an ongoing process, and banks should embrace a culture of continuous improvement. Regularly assess the effectiveness of digital solutions, seek customer feedback, and adapt approaches to coordinate with the changing competitive landscape and customer expectations.

In conclusion by taking these suggestions into account, banks can better navigate the digital landscape, improve customer engagement, and foster stronger relationships with their customer base, ultimately leading to increased adoption of digitalization and positive business outcomes.

6.3 Limitations and Future Research

While this study offers valuable insights, it has several limitations that suggest avenues for future research. The study studied two banks of public sector banks, private sector banks, and cooperative banks which are the most popular and leading organizations concerning technology in India. The results are generalized for the whole banking sector in India which may have some bias selection. Since the selection of banks was not random convenience and purposive sampling was done according to the performance of the banks in the Information Technology (IT) area during the last five years. As the primary data was collected via a questionnaire, it could potentially be subject to inherent limitations including the risk of capturing unreliable

opinions. Survey respondents may not have approached the questionnaire with the necessary seriousness, introducing the potential source of bias. The study focused only on digital services provided by the banks, but many other elements of the banking sector are necessary parts of digitalization. Thus, the present study may not provide a comprehensive view of digitalization in the banking sector.

Despite these limitations, the study contributes significantly understanding to understand that the current study adopts a cross-sectional approach, assessing the perception and satisfaction levels of bank customers at a singular time point. However, such a perspective can evolve with individual experiences over time. To comprehensively capture shifts in attributes among customer respondents, future research should employ longitudinal studies over a timeframe. Conducting longitudinal studies not only aids in predicting evolving beliefs and behaviours but also elucidates casual relationships and interconnections between key variables, providing a detailed assessment of digitalization and its derived services and facilities. Fresh studies could be undertaken by the researchers to substantiate the validity of the perception of customers about digitalization in the banking sector. Future research may be done to identify the gap between the perception and agreement of customers toward various digitalized attributes.

References

1. Aaker, 2011. The Malleable Self: The Role of Self-Expression in Persuasion. Journal of Marketing Research, 36(1), 45–57.
2. Adil, M., Akhtar, A., & Khan, M.N. (2013). Refinement of Internet banking service quality scale: A confirmatory factor analysis approach. International Journal of Services and Operations Management, 14(3), 336-354.
3. Agarwal, J. (2009). Customer satisfaction in Indian Banking Services- A Study in Aligarh District. International Journal of Computing and Business Research, 3(1), 4-5.
4. Ahmed, T., & Mort, G. S. (2016). Countering Counterfeit Branding: An Understanding Incorporating Mimesis and Cultural Appropriation for Emerging Markets. In Looking Forward, Looking Back: Drawing on the Past to Shape the Future of Marketing (pp. 245-245). Springer International Publishing.
5. Ajimon, G., & Gireesh Kumar, G.S. (2012). E-banking – India's Experience. Managing the Future, 2(1), 148-166.
6. Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behaviour. New York: Springer Verlag.
7. Alkhowaiter, W. A. (2020). Digital payment and banking adoption research in Gulf countries: A systematic literature review. International Journal of Information Management, 53.
8. Al-Qeed, M. A., ALsadi, B. Y., & Al-Azzam, Z. F. (2017). The Impact of Customer Relationship Management on Achieving Service Quality of Banking Sector of Jordan. International Journal of Business and Management, 12(3), 180-190.
9. Bouwman, H., Nikou, S., de Reuver, M., 2019. Digitalization, business models, and SMEs: how do business model innovation practices improve performance of digitalizing SMEs? Telecommun. Pol. 43 (9), 101828.
10. Bapat H B, Soni V, Khare V (2014). A Comparative Study of Service Quality of Selected Indian Banks: A study in Indore Region. International Journal of Research in Commerce & IT & Management, 4(9), 1-7.
11. Berger, S. C., & Gensler, S. (2007). Online banking customers: Insights from Germany. Journal of Internet Banking and Commerce, 12(1), 1-6.
12. Cheng, B.-L., & Rashid, M. Z. A. (2013). Service Quality and the Mediating Effect of Corporate Image on the Relationship between Customer Satisfaction and Customer Loyalty in the Malaysian Hotel Industry. Gadjah Mada International Journal of Business, 15(2), 99-112.
13. Chiguvi, D., & Guruwo, P. T. (2018). Impact of Customer Satisfaction on Customer Loyalty in the Banking Sector. International Journal of Scientific Engineering and Research (IJSER), 5(2), 55-63.
14. Curry, B., Davies, F., Evans, M., Moutinho, L., & Phillips, P. (2003). The Kohonen Self-Organising Map as an Alternative to Cluster Analysis: An Application to Direct Marketing. International Journal of Market Research, 45(2), 1–20.
15. Da Silva, R. V., & Syed Alwi, S. F. (2006). Cognitive, affective and conative behavioural responses in retail corporate branding. Journal of Product and Brand Management, 15(5), 293-305.
16. Dilpreet Singh, H Singh, N Sandhu (2017). Service Development Strategies Employed by Public and Private Sector Banks in India: A Comparative Study. The IUP Journal of Business Strategy, XIV (1), 18-35.
17. Dipayan Biswas, Bidisha Burman (2009). The effect of Product Digitalization and Price Dispersion on Search Intention in Offline Versus Online Setting: The Mediating effects of Perceived Risks. Journal of Product and Brand Management, 18(7), 477-486.
18. Furst, K., Lang, W. W., & Nolle, D. E. (2002b). Internet Banking. Journal of Financial Services Research, 22(1&2), * 93-117.
19. Gallivan, M. J. (2001). Organizational adoption and assimilation of complex technological innovations: Development and application of new frameworks. The Database for Advances in Information Systems, 32(3), 51-81.
20. Kassim, N.M., & Abdulla, A.K.M.A. (2006). The influence of attraction on internet banking: an extension to the trust-relationship commitment model. International Journal of Bank Marketing, 24(6), 424-442.
21. Katarzyna Kolasinska-Morawska, Lukasz Sulkowski, Pawel Morawski (2017). Agility in

Customer Service using Cloud Based CRM Systems and Enterprise Collaboration Tools. 21st International Scientific Conference on Economics and Social Development.

22. McCoy, S., & Venter P., (2016). Corporate brands as catalysts in times of change: Lessons from a South African bank. Journal of Brand Management, 23(1), 38-49.
23. Parker, B. T. (2012). Candidate brand equity valuation: A comparison of US presidential candidates during the 2008 primary election campaign. Journal of Political Marketing, 11(3), 208-230.
24. Parvatiyar, A., & Sheth, J.N. (2002). Customer relationship management: Emerging practice, process, and discipline. Journal of Economic and Social Research, 3(2) Preliminary Issue, 1-34.
25. Ragu, P. R. (2018). Examining The Roles of Perceived Quality and Customer Satisfaction as Predictors of Customer Loyalty in The Indian E-Banking Context. Journal of Management Research, 18(3), 38-49.
26. Rishi Kant, Deepak Jaiswal (2017). The impact of perceived service quality dimensions on customer satisfaction: An empirical study on public sector banks in India. International Journal of Bank Marketing, 35(3), 411-430.
27. Roy, S. K., Balaji, M. S., Kesharwani, A., & Sekhon, H. (2017). Predicting Internet banking adoption in India: A perceived risk perspective. Journal of Strategic Marketing, 25(5), 418–438
28. S Plaxcedes Mandina (2014). Contribution of CRM Strategies in Enhancing Customer Loyalty. Journal of Marketing Development and Competitiveness, 8(2), 69-87.
29. Saeed, R., Rehman, A. U., Akhtar, N., & Abbas, M. (2014). Impact of Customer Satisfaction and Trust on Customer Loyalty Mediating Role of Commitment (Evidence from Petroleum Sector of Pakistan). Journal of Basic and Applied Scientific Research, 4(2), 214-221.
30. Yooet al., 2011. Yoo, B. and Donthu N.(2011) Developing and validating a multidimensional consumer-based brand equity scale. Journal of Business Research 52(1): 1-14.
31. Yousafzai, S., Pallister, J., & Foxall, G. (2009). Multi-dimensional role of trust in Internet banking adoption. The Service Industries Journal, 29, 591–605.
32. Yusheng K., Ibrahim M. (2019). Service innovation, service delivery and customer satisfaction and loyalty in the banking sector of Ghana. International Journal of Bank Marketing, 37(5), 1215–1233.
33. Zu'bi, Z., Al-Lozi, M., Dahiyat, S., Alshurideh, M., & Al Majali, A. (2012). Examining the effects of quality management practices on product variety. European Journal of Economics, Finance and Administrative Sciences, 51(1), 123-139.