

Impact of Digitalization on Various Market Activities in the Banking Sector

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ABSTRACT

The banking sector in India is growing rapidly. Its services are transforming people's lives and lifestyles, and it is undeniable that banks have become essential for everyone. Consumer needs and expectations regarding satisfaction levels have consistently risen, and the banking sector offers a wide range of services to its customers. The primary objective of this study is to analyze the impact of digitalization on various market activities within India's banking sector. The analysis reveals that this impact is evident across several dimensions—such as the adoption of digital services, the frequency of digital banking usage, applications for online loans, and varying customer perceptions, which are significantly influenced by factors like gender and education levels.

Keywords: Digitalization, Digitization, Indian economy, market activities, Indian banking sector etc.

INTRODUCTION

The phrases “digitalization” and “digitization” are closely related and frequently used synonymously in a variety of literary works. Digitization is defined as “the act or process of digitizing; converting analog data, especially later employing digital conversion of text, video, and photos.” In contrast, “digitalization” is described as “the adoption or increased use of digital or computer technology by a company, sector, nation, or other entity.” It is hard to envisage a large-scale data-driven solution without internet access. Digitization is a component of digitalization. The first step in adopting digitalization is to digitize. The transition to digital services and enterprises is known as digitalization. The banking industry is the most powerful service sector, and digitization has had a big influence on it.

Banking has evolved from a physical institution to a data-driven ecosystem as a result of digitalization. It focuses fundamental market activities on 24/7 omnichannel access, automated lending, hyper-personalized wealth management, and real-time settlements. This digital leap dramatically lowers operational expenses and promotes wider financial participation.

Reitz (2008) defines digitization as “the process of turning data to a digital format that a computer can handle. In information systems, digitization is often defined as the conversion of printed text or pictures (photographs, drawings, maps, etc.) into binary signals using a scanning

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equipment that allows the output to be displayed on a computer screen”. Prime Minister Narendra Modi inaugurated the Digital India program on July 1, 2015. This campaign highlighted the country's digital accomplishments, offering inhabitants virtual services and amenities to guarantee they were all digitally connected. The program's slogan is “Inclusive Growth in the Electronic Services Sector.” Digital India uses networking devices in both rural and urban locations to connect people to cutting-edge digital and electronic technology.

The ultimate objective is to transform India into a worldwide digital powerhouse. It consists of numerous projects coordinated under a cohesive platform, each with the goal of bringing the whole government together to prepare India for a knowledge economy and providing outstanding governance to its inhabitants. India is implementing the "Navaratnas" (Nine Pillars) of Digital India to make it a reality, and progress is being made at a rapid rate. The following are:

1. Broadband Highways
2. Universal access to mobile connectivity
3. Public Internet access program
4. E-Governance
5. E-Kranti
6. IT training for jobs
7. Electronics manufacturing
8. Global information
9. Early harvest programs

The Indian government's project, Digital India, is one of nine Digital India strengths. To increase openness with the public, the government prioritizes payment digitization. The government is particularly concerned with improving online platforms to speed up transactions and simplify operations. The success of this initiative is dependent on nationwide internet connectivity. This movement focuses on both urban and rural locations. Three fundamental components form the foundation of these initiatives.

- Making the environment secure for internet buying.
- Digital payment literacy is everywhere in the country

Setting of government services related to digital promotion in Hyderabad to achieve Digital India. The fundamental goal of this campaign is to assist the Indian government and people. It intends to assist programs like the recently announced Make in India, Startup India, and Bharat Net campaigns, among others.

CONCEPTUAL BACKGROUND

BANKING SYSTEM

The Bank of Hindustan was India's first modern bank, founded in 1770. Ms. Alexander and the firm founded this bank. In 1806, India's first president established the Bank of Calcutta, which subsequently became the Bank of Bengal. The Bank of Bombay was founded between 1840 and 1843 under the British East India Company's license, and it continued to function as a private bank, as did the other banks. The first wave of bank nationalisation occurred in 1969, when 14 banks with balances more than 50 crores were nationalised.

The Regional Rural Bank (RRB) was created in 1975 to defend rural inhabitants' interests. Its aims include promoting new job opportunities and revenue-generating companies. In 1972, the Indian government planned to establish a "rural bank". M. Narasimham was the chair when the bank commenced for operations on July 1, 1975. The Indian President issued a decree on September 26, 1975. On October 2, 1975, five RRBs were briefly established. The previous ordinance was repealed on February 9, 1976, by the RRBs Act, a special act of parliament. The RRBs Act of 1976's principal aims were to aid small farmers with loans and other services, as well as to promote business, trade, companies, and other beneficial activities in rural areas.

The RBI's 1993 liberalization approach enabled a few new-generation private banks to open their doors. The government awarded these banks licenses. Axis Bank, Kotak Mahindra Bank, YES Bank, Housing Development Finance Corporation (HDFC), and Industrial Credit and Investment Corporation of India (ICICI) are some of the major banks that emerged after deregulation.

On the suggestion of the 2015 Nachiket Mor Committee, the RBI established the payment bank, a new financial model that delves into the digital realm. The Reserve Bank of India has approved the operations of eleven payment banks. Payment banks differed from typical banks in that they were not authorized to provide credit cards or loans, and the highest possible deposit was one lakh.

With a need to create at least 25% of its branches in regions without banks, the RBI gave authorization to ten organisations to promote financial inclusion through the development of small financing banks. These banks were required to lend at least 25% of their total loans, up to Rs. 25 lakhs, from their portfolios, while allocating 75% to priority sector enterprises.

IMPACT OF DIGITALIZATION

Digitalization has made a significant contribution to India's economic success. An apparent illustration is the increasing number of youthful job opportunities in India. In addition to the foregoing, the "Made in India" movement has immensely motivated young people to generate creative ideas and launch new businesses. to help in India's digitalization. The Indian government is encouraging its citizens to move to cashless transactions. Transition to a digital economy. The goal is to enable us to begin accepting digital payments. Because digital transactions oblige us to follow the law, the economy benefits. Plastic money empowers citizens with freedom and security since it is based on technology principles. Digital commerce has a positive impact on the global economy.

“India's GDP is at \$4.15 trillion, making it the world's sixth biggest. The GDP of this country is growing at one of the quickest rates on the world. According to the 2024-25 Economic Survey, India's GDP is predicted to rise by 6.3 to 6.8 percent in FY26”. “2025-26 Economic Survey data tabled in January 2026, the realized advance estimate for FY26 growth reached 7.4%, while the forecast for the upcoming financial year (FY27) is set at 6.8% to 7.2%.” (<https://cleartax.in/s/world-gdp-ranking-list>)

The country has one of the highest concentrations of billionaires in the world, despite the fact that only 6.25 percent of the population pays income taxes, reflecting the country's severe economic disparity. Despite recent large advances in per capita income, millions of people remain in abject poverty. The digitization of all aspects of the Indian economy, particularly the banking industry, is primarily responsible for the country's current strength.

Digitization has profoundly revolutionized the Indian economy, boosting efficiency, innovation, and financial inclusion. With fast technological breakthroughs, India has used digital solutions in a variety of areas, hence promoting economic growth and improving governance. From digital payments to e-governance, digitization is transforming the way businesses and individuals work in the country.

- **Economic Growth and Employment Generation**

The use of digital technology has boosted India's economic growth by increasing businesses including IT, finance, online commerce, and digital services. The emergence of startups and digital platforms has resulted in millions of new job possibilities, promoting entrepreneurship and innovation. Government programs, such as "Make in India" and "Startup India," have boosted digital-based economic growth.

- **Financial Inclusion and Online Transactions**

Digitalization has played a significant role in our country's expanded financial inclusion. Initiatives such as the Jan Dhan Yojana, Unified Payments Interface (UPI), and mobile banking have made financial services available to millions of people, particularly those in rural regions. The transition from cash to digital payments increased transparency, eliminated corruption, and strengthened the formal sector.

- **E-Governance and Public Services**

The Indian government has used digital platforms to improve governance and service delivery. Programs like Digital India, Aadhaar-based identification, and the Goods and Services Tax (GST) site have expedited administrative procedures, decreased bureaucracy, and increased transparency. Citizens may now access key services like as income tax filing, passport applications, and assistance programs online, increasing efficiency and minimizing delays.

- **Transformation of E-Commerce and Retail**

The digital boom has transformed India's retail sector, with e-commerce sites like Flipkart, Amazon, and JioMart seeing rapid expansion. Consumers now prefer to purchase online, and digital marketplaces have helped small firms reach a larger audience. The widespread use of

digital payment systems such as Google Pay, Paytm, and UPI has accelerated growth in the e-commerce business.

- **Impact on Education and Healthcare**

Digitalization has greatly enhanced access to education and healthcare in India. Online learning platforms such as BYJU's and Unacademy, as well as government-led initiatives such as DIKSHA, have increased access to education, particularly for pupils in distant locations. Similarly, telemedicine services, AI-powered diagnostics, and digital health records have improved healthcare delivery by bringing medical treatment to neglected populations.

- **Challenges and the Road Ahead**

Despite its numerous advantages, digitization in India confronts obstacles such as cyber security concerns, digital illiteracy, and infrastructural deficiencies in rural regions. To ensure long-term digital progress, it is vital to bridge the digital gap and protect data privacy. Continued investments in digital infrastructure, education, and cyber security will be critical for fully realizing the potential of digitalization.

Digitalization is currently propelling India's economic progress by transforming sectors, increasing financial inclusion, and enhancing governance. As India evolves toward a more technologically advanced future, embracing digital breakthroughs and tackling current difficulties will be critical to ensuring long-term economic development and prosperity.

LITERATURE REVIEW

Jain and Popli (2012) investigate the role of innovation in India's banking industry development. The study's goal is to establish the extent of computerization in all Indian public sector banks, as well as advances in innovation and ABM technology, and to identify the barriers to the adoption of IT solutions in Indian public sector banks. The survey found that commercial banks in India have grown more aware of information technology as a result of fierce competition and increased client demands. With their better technological items, foreign and new In addition to official data from public sector banks and the RBI, secondary data acquired from numerous websites, publications, and magazines served as the foundation for the subsequent analysis.

Jadhav and Mangesh (2014) investigated the Indian economy, which has seen significant changes, with the industrial sector giving way to the increasing service sector. Banking has experienced a major shift. The study's primary results are that SBI has increased its footprint into rural parts of the country through digital mobile banking. Rural customers have been unable to save and invest their earnings owing to transportation constraints. Digital Mobile Banking is critical in helping rural consumers realize the value of saving and investing, hence increasing SBI's symbiotic connection with its rural clients. SBI, being a public sector bank, reaches rural areas and offers consumers a platform to save. SBI acts as a channel for rural consumers' financial growth.

Reddy and Reddy (2015) found that consumer satisfaction with and perceptions of electronic banking in the Khammam District. The research was exploratory in nature. Both primary and

secondary data provided support for the study. The majority of the data came from a survey administered by participants themselves. The judgment sampling approach was utilized. The secondary info came from the Internet. The data was analyzed using the statistical technique known as ANOVA. According to the study's findings, customers use a variety of bank services, with bill payment and ABM use ranking top and second across all income levels.

Soni and Pandey (2016) looked at the link between e-marketing and digitalization. The study's aims are to examine the role of digital literacy in e-marketing and to analyze the significance of digitization. The researcher relied on secondary data, and the conceptual study served as the basis for this paper. He examined the DPL project and the factors of digital empowerment and literacy. The discovery of digitization gives customers alternatives. Despite the multiple challenges they encountered, customers utilized digital resources. He stated that while the negative impact of digitalization, such as e-payment fraud, cannot be dismissed, the usage of digitalization increases transparency in the marketing system.

Sheokand and Gupta (2017) finished their examination of the Digital India program and its implications on India's economy. The fundamental goal of this research is to introduce the digital India initiative and its pillars. The study article finds that digitalization increases the efficacy and efficiency of labour performed. Digitalization lowered the time required to complete certain tasks while increasing their speed.

Ashish Baghla (2018) examined India's present trend toward the adoption of digital payments. The study's main aims were to identify the challenges consumers have while making digital transfers and to determine the most prevalent method of making digital payments. Primary and secondary data were used to support the study. A questionnaire was used to collect primary data, while secondary data was acquired from a range of sources such as books, journals, websites, and news articles. He utilized bar graphs and pie charts to present the facts. The study's findings revealed that, while the transition to a cashless economy is unquestionably advantageous, its full potential will not be realized for some time.

Korobeynikov et al. (2019) examined the digital market and its broad adoption in Russia. More new digital infrastructure is found in the finance industry than anywhere else. People working in the Russian payment business are receptive to new ideas and have already taken on positions in the digital economy. The accelerated scenario consists of three steps: integrating payment service users and stakeholders from all domains, moving payment systems and services to digital standards, developing new market groupings and talents, and encouraging greater digital unity. Russia's long-term goals for social and economic progress are consistent with the ways recommended for implementing the essential market innovations.

Gurram and Velagapudi (2020) investigated the impact of digitization on traditional banking. The study's major goal is to assess e-banking customers and their actions in digital banking, such as e-wallets and digital banks, as well as the consequences of all of these services. This study utilizes qualitative and quantitative research methods. The study revealed that the Indian government continued to engage with its clients using digital technology even after the Digital India initiative was implemented. They used internet transactions rather than physical transactions. He discovered that bank clients used a variety of payment methods, such as card

payments, mobile banking, POS, and UPI transactions, all of which are available around the clock. Finally, he realized that digital banking is better than traditional banking.

Druhova et al. (2021) used factor analysis to investigate the relationship between the profitability of online payments and the proportion of nonperforming loans in 87 countries. The study's findings and suggestions indicate that conventional technology may improve human capacities, and that digitalization offers the essential assistance, notably in the banking sector.

Rashi Singhal (2021) did research to give light on the importance and implications of digital payments in India. They looked at five factors: USSD, Digital Wallet, MMID, UPI app, and QR Code-based payment. The author explores digital payment techniques in this work. This study's secondary data sources include official data that has been collected, studied, and assessed, as well as publications and research articles. He stated that the availability of cheques and installments for consumers in India provides an appropriate foundation for operations. Payment and payback techniques use computerized technologies to make digital payments.

Allen et al. (2022) argue that digital payment use is critical to attaining financial inclusion. Despite increased customer awareness, MSMRs still do not accept and employ digital payments. Killer applications, such as mobile payment apps, promote P2B digital transactions in locations with few POS terminals. MSMR employee and supplier payments boost digital P2B transactions. Countries that encourage financial inclusion are more likely to employ point-of-sale (POS) terminals and mobile money service (MMS) P2B digital payments. MSMR P2B electronic payments benefit from tax incentives for both merchants and consumers.

Xiong and Badarch (2023) investigate the design of Chinese third-party payment systems in their research. According to our findings, Alipay may compete with WeChat by offering direct in-app payments. This investigation discovered trustworthy and secure third-party online payment links with banks and internet infrastructure. Certificates for third-party online payments encrypt internet bank system data, protecting client account transactions and digital signatures. This article showcases Jindong's architectural design, which improves China's payment system. The paper states that third-party systems enable novel financial collections, commercial transactions, networking, digitization, and multi-point distribution.

Giraldo et al. (2025) evaluated the adoption intentions of quick payment systems based on various critical features. The Technology Acceptance Model (TAM) is used to explain the acceptance of financial innovation by combining financial literacy and monetary assumptions. According to the findings, currency beliefs, perceived usefulness, perceived ease of use, and attitude all serve as mediators in increasing FPS adoption via financial literacy. Designers must design useable platforms to improve FPS acceptance. However, given that FPS competes directly with cash, increasing its perceived utility may be more important. FPS adoption will fall if people have strong, positive monetary sentiments. Policymakers and designers may also impact currency views by identifying and addressing the root problems, such as financial literacy.

Emiru TM and Wajebo T (2026) investigate the link between digitization and economic activity in Sub-Saharan Africa (SSA). The study uses two-stage least squares (2SLS) on an imbalanced

panel data set spanning 33 SSA nations from 1996 to 2019. This technique examines the possible endogeneity of digitalization and economic activity. The findings show that digitization has a statistically significant beneficial influence on per capita GDP in SSA nations. A one-percentage-point improvement in the digitalization index corresponds to a 2.13% increase in GDP per capita. The paper addresses some of the mechanisms by which this impact occurs.

Dai, W., and L. Song (2026) look at the influence of bank digital transformation on market risk from an economic capital standpoint. Using panel data from 32 Chinese A-share-listed commercial banks between 2013 and 2021. They discover that greater levels of bank digitization correlate with reduced market risk economic capital. This effect persists over time and is primarily driven by financial innovation and risk management channels. Nonetheless, the inhibitory effect of digital transformation on bank market risk economic capital is weaker in large banks, national banks, and institutions with a smaller capital cushion. Furthermore, bank digitalization-induced market risk reduction improves corporate performance.

OBJECTIVES OF THE STUDY

1. To study the significance of digitalization on the Indian Economy.
2. To analyze the Impact of Digitalization in the Banking Sector on different services.

HYPOTHESES

H0: Digitalization has no significant impact on different market activities in the banking sector.

RESEARCH METHODOLOGY

This study employs a mixed-methods research strategy. Based on the stratified random sampling method, Western UP was selected as the study area for primary data collection. The study population comprises two Public Sector Undertaking (PSU) banks (SBI and PNB) and two private sector banks (HDFC and ICICI). A total sample of 400 was collected, with at least 100 samples drawn from each bank. Sources for secondary data included the Reserve Bank of India's publications such as 'Banking Developments and Trends', 'Statistical Tables Relating to Banks in India', the 'Monthly Bulletin', and other RBI bulletins. Additionally, the study utilized newspapers, magazines, journals, annual reports of the banks, and other reliable sources. 'Statistical Package for the Social Sciences' (SPSS) version 29 and 'Microsoft Excel' were used for the overall analysis.

RESULTS AND DISCUSSION

Analysis of digitalization impact on different market activities in the banking sector across the gender categories

The Independent Sample The Mann-Whitney U test is a non-parametric test designed to assess respondents' perceptions of the digitalization impact of various market operations in the banking industry across gender categories.

Table 1: Independent-samples Mann-Whitney U test summary

Ranks						Test statistics			
Statement		Gender	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Wilcoxon W	Z-score	Sig. (2-Tailed)
1	Do you use digital banking services, such as mobile or internet banking, UPI, or wallets.	Male	227	164.04	37,236.00	11358.00	37,236.00	-7.23	0.000
		Female	173	248.35	42,964.00				
2	Use online banking services regularly	Male	227	233.31	52,961.00	27,161.00	52,961.00	-6.53	0.000
		Female	173	157.45	27,239.00				
3	Have you applied for a loan (home, personal, auto) through digital banking?	Male	227	128.87	29,254.00	3,376.00	29,254.00	-14.19	0.000
		Female	173	294.49	50,946.00				

The Mann-Whitney U test was used to compare the use of digital banking services between men and women. The results show a considerable change in usage habits. The Mann-Whitney U value (11,358.00) and Wilcoxon W value (37,236.00) indicate a considerable difference in rank distributions between the two groups. The Z-score (-7.23) underlines the discrepancy. Most crucially, the asymptotic significance (p-value =0.000) shows that the difference is statistically significant at the 0.05 level. Since the p-value is 0.000, which is less than 0.05, we reject the null hypothesis (H01). This suggests that digitalization influences the adoption of digital banking services (mobile/internet banking, UPI, and digital wallets) across gender groups in the banking industry. Digitalization has a substantial influence on several market operations within the banking sector. This means that the observed difference in digital banking usage between men and women is unlikely to be chance. These data indicate that females are substantially more likely to use digital banking services than males, emphasizing possible gender inequalities in financial technology adoption.

The Mann-Whitney U test was used to evaluate how gender affects the frequency of utilizing online banking services. It shows a substantial difference between men and females, as indicated by a Mann-Whitney U value of 27,161.00, a Wilcoxon W value of 52,961.00, and a Z-score of -6.53. The asymptotic significance confirms this difference as very significant at the 0.05 level (p-value =0.000). We reject the null hypothesis (H02) since the p-value is less than

0.05. This suggests that digitalization has an influence on the frequent usage of online banking services in the banking sector across all gender categories. The average rank for males (233.31) is much higher than that for females (157.45), indicating that males utilize online banking services more frequently than females. These findings suggest a possible gender discrepancy in the adoption and use of digital banking systems, necessitating more study into the factors that influence these behavioural variations, such as digital literacy, access to technology, and financial habits.

Mann-Whitney U Value (3,376.00): This is the rank sum for the smaller group after accounting for sample size variations. A lower U value suggests a clearer separation between the groups. Wilcoxon W Value (29,254.00): This statistic is consistent with the sum of ranks for one of the groups, which supports the Mann-Whitney U test findings. Z-Score (-14.19): A big negative Z-score shows a significant departure from the predicted distribution under the null hypothesis, implying a significant difference between the groups. Significance Level (p-value = 0.000): Because the p-value is significantly lower than the conventional threshold of 0.05, reject the null hypothesis (H03) and conclude that digitalization has an impact on loan applications (home, personal, auto) in the banking sector across gender categories.

The above all results shows that the consistent rejection of all three sub-null hypotheses strongly supports the conclusion that digitization has a major influence on numerous market operations in the banking industry. Gender variations in the use of digital services, frequent online banking, and digital loan applications demonstrate how digital tools and platforms change consumer behaviour and service delivery in the banking industry.

The main null hypothesis (H0), which claimed that there was no substantial effect of digital transformation, is rejected, and the alternative is accepted. Digitalization greatly influenced different market activities in the banking sector, including usage frequency, service preferences, and transaction procedures, with noticeable variations across gender groups.

Analysis of digitalization impact on different market activities in the banking sector across educational qualification levels

The Independent-Samples Kruskal-Wallis Test is a non-parametric test designed to analyze respondents' perceptions on the influence of digitalization on various market activities in the banking industry across different levels of school qualification.

Table 2: Independent-samples Kruskal-Wallis test (N=400)

	Statement	p-value	df	Sig. (2tailed)
1	Customer satisfaction with digital banking support	14.065 ^a	3	0.004
2	Generating account statements in the banking sector, different market activities	7.542 ^a	3	0.056
3	Digital payment systems, financial transactions, and different market activities	14.101 ^a	3	0.004

4	The conduct of banking transactions (online banking and mobile banking) across	17.732 ^a	3	0.000
a. The test statistic is adjusted for ties				

The Independent-Samples Kruskal-Wallis Test is used when the assumption of normality is violated when a number of independent groups are compared using a non-parametric test. The p-value of 0.004 is statistically significant at the 0.05 level (and also at the 0.01 level). This indicates a substantial difference between at least one pair of groups. We reject the null hypothesis because the p-value (0.004) is less than 0.05. It indicates that digitization has a substantial influence on consumer satisfaction with digital banking support at all levels of schooling.

The p-value indicates if the differences between groups are statistically significant. We do not reject the null hypothesis since the p-value (0.056) is larger than 0.05. It also indicates that digitalization has no substantial influence on creating account statements in the banking sector, as well as on other market operations across different educational qualification levels.

The p-value indicates the likelihood that the observed differences between groups are attributable to chance. We reject the null hypothesis because $p = 0.004$, which is less than the 5% level of significance. It also indicates that digitalization has a substantial influence on digital payment systems, financial transactions, and various market operations in the banking industry, regardless of educational level.

The p-value indicates the likelihood that the observed differences happened by coincidence. We reject the null hypothesis because $p\text{-value} = 0.000$, which is less than 0.05. It indicates that digitalization has a substantial influence on the conduct of financial transactions (online and mobile banking) in the banking sector at all educational levels.

Based on the Kruskal-Wallis H test findings, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1). This suggests that digitization has a substantial influence on numerous market operations in the banking sector, regardless of educational qualification level. The educational background of clients influences their opinions and experiences with digital banking services and related financial activities.

CONCLUSION

The study aimed to investigate whether digitalization significantly impacts various market activities within the Indian banking sector, especially across gender categories and educational qualification levels. Through the use of Mann-Whitney U Tests and Kruskal-Wallis H Tests, the study provides strong statistical evidence to reject the null hypothesis and accept the alternative hypothesis. This conclusion holds true across different dimensions-usage of digital services, regularity in digital banking, online loan applications, and various customer perceptions, which are shaped significantly by gender and education levels.

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