

Transforming Indian banking: a study of digitalization, Customer experience and operational efficiency

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Abstract

As technology becomes more and more integrated into daily life, digital transformation in the banking industry has come to be seen as a means of meeting the needs of the modern world. Beyond simple automation, the digitalization of traditional banking activities signifies a significant change in the way financial organizations interact with their clients, oversee procedures, and provide value. The widespread use of smartphone and the internet, which have democratized access to financial services and given consumers previously unheard-of levels of convenience and choice, are two elements driving this transformation. This study investigates how digitalization has affected consumer perception, operational effectiveness, and the overall transformation of the banking business in India. The study looks into how customer satisfaction and other factors associated with the digitalization of the banking industry are affected by the adoption of digital technologies. It also discusses Challenges for Digital Transformation in Indian banking sector and suggestion for use of digital financial services.

Keywords: Digital Banking, Digital transformation, Operational Efficiency, Customer Perception, Artificial Intelligence

Introduction

A digital transformation is the improvement of current procedures or the implementation of novel approaches to conducting business operations through digital technology that improve customer satisfaction and increase conversion rates for the organization. In the banking sector, digitization essentially means that the many services that the bank offers are made available online. Aspects of the banking industry's digitalization include ATM use, phone banking, mobile banking, and more. Banks offering a number of services over the internet has resulted in the growth of banking sector in India. Banks have been able to expand their customer base, provide additional services, and ensure that customers are able to handle a number of banking tasks over the internet in

the comfort of their homes or offices. Each of these innovations offers distinct benefits that streamline banking operations, leading to increased productivity and efficiency. For instance, mobile and internet banking allow customers to perform transactions remotely, minimizing the need for physical branches and cutting down on costs.

Digital transformation in the banking industry

The rapid development of digital banking technologies has significantly transformed the operational framework of India's banking industry. 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.

Examples of Digital Transformation in Banking

- **Mobile Banking Apps:** Many banks now offer mobile apps that let customers do their banking from their smartphone. They can check balances, transfer money, pay bills, and even deposit checks remotely.
- **Digital-Only Banks:** Some banks operate entirely online without physical branches. These digital-only banks offer services through digital platforms, providing convenience and often lower fees for customers.
- **AI-Powered Chatbots:** Banks use AI chatbots to provide customer support, answer queries, and assist with transactions 24/7, improving customer service and satisfaction.
- **Digital On boarding:** Streamlined online account opening processes eliminate the need for physical branch visits and lengthy paperwork. Customers can open new accounts and access financial services in minutes.
- **Robo-advisors:** These automated investment platforms leverage AI and algorithms to offer personalized investment advice and portfolio management at a lower cost compared to traditional wealth managers.
- **Biometric Authentication:** To enhance security, banks are adopting biometric authentication methods such as fingerprint scanning, facial recognition, and voice recognition. These methods make it more difficult for unauthorized individuals to access accounts.
- **Wearable Payments:** Contactless payments using wearables like smart watches and fitness trackers provide a secure and convenient way to make purchases in stores and transit systems.

- **Blockchain for Secure Transactions:** Banks utilize blockchain technology to ensure secure and transparent transactions, especially for cross-border payments.
- **Personalized Financial Services:** Using data analytics, banks offer personalized financial advice and products tailored to individual customer needs, enhancing the customer experience.

Innovation in Digital Banking

Banks and credit unions have become more comfortable with a faster pace of innovation, using data and analytics more extensively and digitizing processes. The global banking sector is becoming both more strategically focused and technologically advanced to respond to consumer expectations. This transformation illustrates the increasing desire to become a 'digital bank'.

The following are the growing factors in banking sectors

- Cloud processing
- Robotics Process Automation (RPA)
- Internet of Things (IoT)
- Blockchain and crypto currency wallets
- Augmented and virtual reality
- Conversational interfaces (chatbot, voice device interface)

Review of Literature

Dr.S.Amudhan, Dr. Sayantani Banerjee, Dr.J.Poornima (2022), observe that the organization, data, software and technology are the four major players involved in digital transformation. In the context of India, its banking system plays a crucial role as trustees of public money and its parking in the relevant profitable business. Therefore, it is vital that the banks' stability be ensured. The article concluded that adoption of digital banking services has a significant impact on the rural customers.

Lambert Kofi Osei, Yuliya Cherkasova and Kofi Minta (2023) conducted a study primarily to review the intellectual framework of the digital banking transformation. The authors' findings conclude that countries including UK, USA, Germany and China have conducted the largest number of studies regarding the issue of digital banking transformation.

Statement of Problem

The aim of the study is to identify 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.

Scope of the Study

- The study mainly aims in impact of digitalization on the Indian banking sector
- This research helps to adoption of digital technologies influences customer satisfaction.
- This study determines the adoption of digital banking solutions

Objectives

The objectives of the study are listed below: -

- To understand the importance of digitalization in the Indian banking sector.
- To examine its effects on customer perception, operational efficiency and overall industry transformation
- To investigate how the adoption of digital technologies influences customer satisfaction.
- To know the Challenges for digital transformation in Indian banking sector and suggestion for use of digital financial services.

Research Methodology

The present study is based on both primary data and secondary data. The primary data is collected through questionnaire and secondary data has been collected from various published sources like literature published by Ministry of Finance, Government of India, RBI, NITI Ayog, journals, magazines, newspapers, research papers, websites, etc. On the basis of simple random sampling 50 respondents were chosen for the study.

Importance of Digital Transformation in banking sector

- **Evolving Customer Demands:** Today's tech-savvy customers expect a convenient and mobile-first banking experience. Digital transformation allows banks to meet these expectations and stay competitive.
- **Rise of FinTech Startups:** FinTech startups are disrupting the traditional banking landscape with innovative, digital-first financial products and services. Banks need to embrace digital transformation to compete effectively.
- **Enhanced Security and Compliance:** Digital transformation can strengthen cybersecurity measures by adopting advanced data encryption and fraud detection techniques. It can also streamline compliance processes with regulations like open Banking.

- Improved Operational Efficiency: Automation and streamlined workflows reduces costs and improves operational efficiency. Banks can invest these savings in further innovation and customer-centric initiatives.
- Omni channel Experience: Customers expect a consistent and seamless experience across all touch points, whether it's a mobile app, online banking platform, or physical branch visit. Digital transformation fosters this by integrating all channels and ensuring a unified experience.

Customer Perception towards digital banking

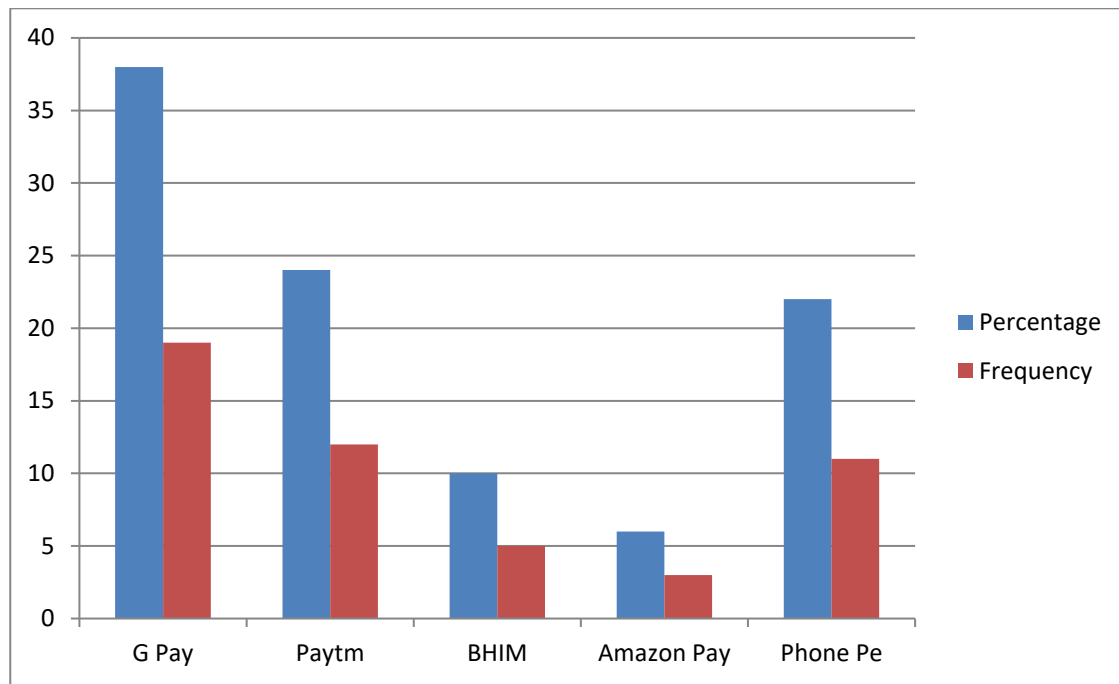
Digital banking plays a vital role in today's world where people are looking beyond the traditional way of going to the bank for doing their bank transactions. Therefore, with the world getting adapted to digitalisation some yet avoid or restrict themselves from digital banking interface. Various factors affect the Customers Perception towards Digital Banking. These factors include Trust, Usability, and Technology etc. Digital Banking is becoming the next mandatory development step in Banking. Therefore it is not only a tool for easy use of banking it soon is probably to become an essential mode for any kind of banking service. Therefore it is the need of hour to study the factors that affect the Customers Perception towards Digital Banking and for banks to find essential measures to address such impacting factors in the present to avoid an error filled system in the future.

Digital banking optimizes customer convenience by eliminating the need for physical visits to bank branches, reducing paperwork, and offering services beyond traditional working hours. Features like instant fund transfers and seamless e-commerce transactions have redefined customer expectations, enabling users to access banking services anytime, anywhere.

Customer perception towards various Digital modes

Modes	Frequency	Percentage
G-Pay	19	38%
Paytm	12	24%
BHIM	5	10%
Amazon Pay	3	6%
Phone Pe	11	22%
Total	50	100%

Source: Primary Data

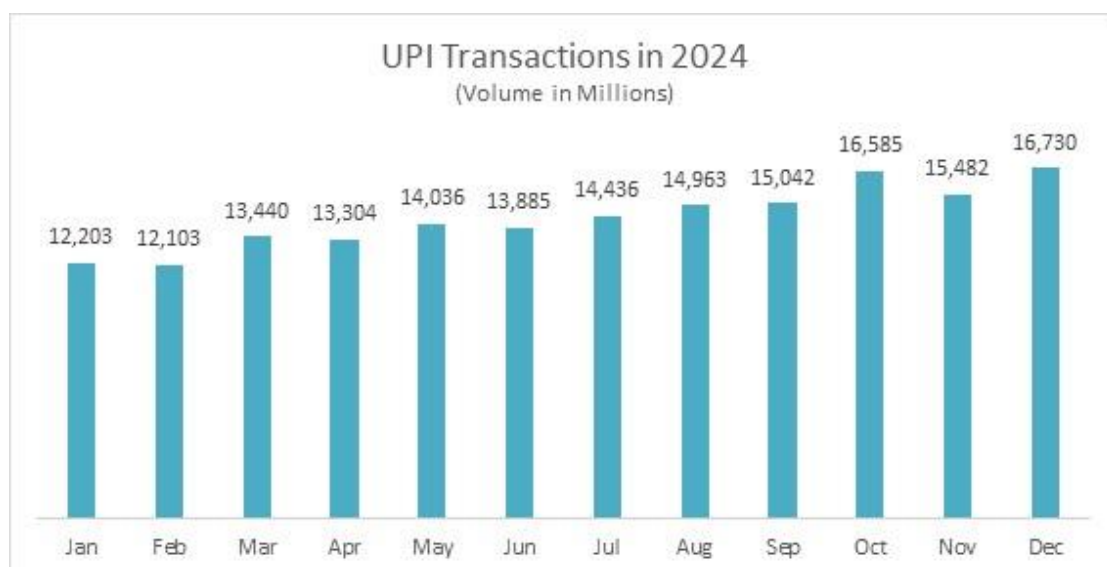


Source: Primary data

Interpretation

The above table represents the Customer perception towards various Digital modes of the respondents which results that 38% of the respondents uses Google pay (Gpay), 24% uses Paytm, 22% uses Phone pe, 10% uses BHIM, 6% uses amazon pay.

Customer perception towards UPI transaction in 2024



Source: Ministry of finance 17 JAN 2025 5:23 PM by PIB Delhi

Interpretation

This chart shows Customer perception towards UPI transaction in 2024 month by month. There is a clear upward trend in UPI transactions over the year. January starts at 12,203 million transactions, while December peaks at 16,730 million an increase of about 37% over the year. The growth is not perfectly steady. There are slight dips in February (12,103M) and June (13,885M) compared to the previous months. The largest jump happens between September (15,042M) and October (16,585M), showing a strong festive season boost.

Operational Efficiency and Digitalisation

Productivity and Enhanced efficiency

In the Indian banking sector to improve the operational efficiency digital solutions have proven efficient. The banks using the help of Ai with customer service platforms have seen a quick solving of customer problems also improving relations with customers. The launch of Applications and website of banks on Mobile phone and on online mode it has significantly reduced the need of going to the bank in person, resulting in minimum operational cost and optimized staffing. Also the change in everyday tasks being given to Ai has resulted in less human error and boosted the transaction speed thus saving time and cost.

Profitability and Reduction in cost

Since the introduction of Digital technologies in the banking sector it has profited by cutting costs and also satisfaction of customers. An increased financial efficiency has been seen because of improved income to cost ratios, with the growth in the revenue and in reduced costs. With the digitalisation banks are able to collect and process large amounts of data and to use it to provide future insights making the banks able to make timely decisions for risk management and resource allocation.

Competitive Advantage:

To stay in the competition banks need to grow to meet customer demands. This can be achieved by the introduction of digital banking. On the other hand, banks who do not meet the needs with the growing trends are at risk of losing the market to more advanced technologies used in other banks. The pressure Of Competition makes the banks to adapt new technologies and continue to grow to remain in the Competitive marketplace.

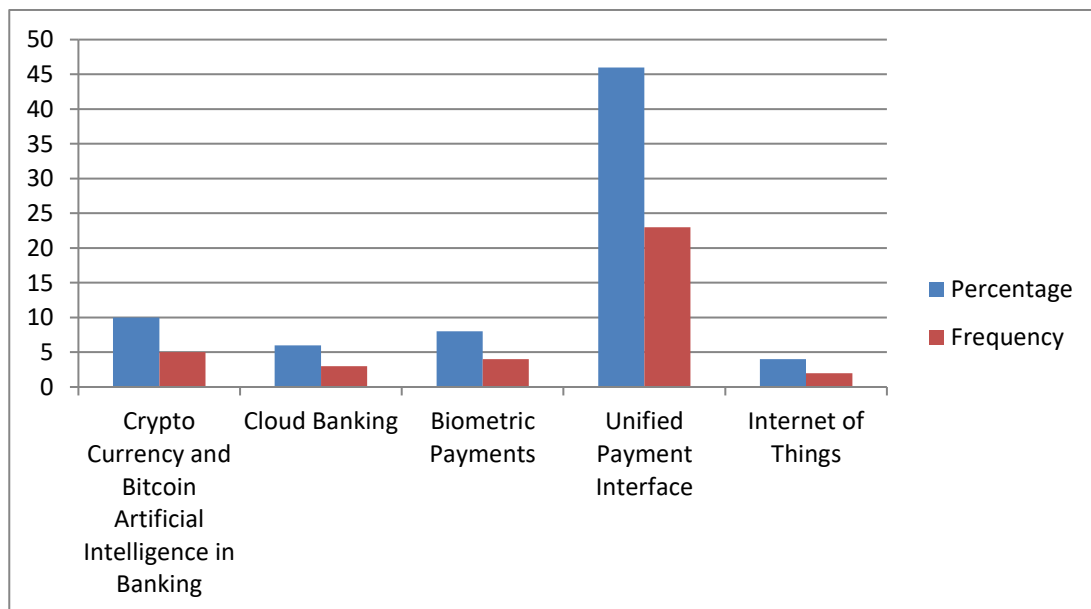
The operational Efficiency Index:

This is an operational approach that is used to generate the outcomes of banking operations that are computed by dividing costs by revenues. It makes the financial analyst and investors do the comparison and analysis of different companies. It enables the identification of various elements such as payrolls and income of different business sectors.

Operational Efficiency of various digital banking channels:

Digital banking channels	Frequency	Percentage
Crypto currency and Bitcoin Artificial intelligence in banking	5	10%
Cloud banking	3	6%
Biometric Payments	4	8%
Unified Payment Interface	23	46%
Internet of things	2	4%
Paying through scanning QR codes	13	26%
Total	50	100

Source: Primary data



Interpretation

The above table represents the Operational Efficiency of various digital banking channels of the respondents which results that 46% of the respondents uses Unified Payment Interface, 26% uses Paying through scanning QR codes, 10% uses Crypto currency and Bitcoin Artificial intelligence in banking, 8% uses Biometric Payments, 6% uses Cloud banking and 4% uses Internet of things.

Challenges

Challenges for Digital Transformation in Indian banking sector:

- **Increasing Risks to Cybersecurity:** As banks become more digitally integrated, they are more susceptible to cyber attacks. The RBI claims that the increase in malware detections calls for immediate reforms and strong IT governance.
- **Changing Regulatory Adherence:** Financial stability risks are being addressed through the implementation of Prompt Corrective Action frameworks and stricter digital lending standards.
- **Uncertainties in the global economy:** Other external variables that put growth and stability at risk include changing global economic dynamics.
- **Technology Disruptions:** Like other technologies, UPI systems are susceptible to malfunctions or outages. Such interruptions might disrupt transactions and cause inconvenience to users.
- **Reliance on Smart phones:** UPI transactions rely significantly on mobile devices and smart phones. This can exclude folks who do not possess smartphone or are uncomfortable with digital
- **Limited Digital Education:** A sizable section of the Indian population is not digitally literate, which may make it more difficult for them to use UPI safely and successfully.
- **Network Congestion:** UPI networks may experience congestion during periods of high usage, which can cause processing delays and occasionally unsuccessful transactions.
- **Phishing Websites and Fake Apps:** To steal consumers' financial and personal information, malicious actors may produce phishing websites or fake UPI apps. These fraudulent sites have the ability to trick unwary consumers.
- **Language Barriers:** The bulk of the people cannot understand English, which is the primary language used in the payment interfaces. It is therefore recommended that all interfaces be multilingual and make more use of regional and local languages.
- **Interoperability Issues:** Despite UPI's interoperability design, smooth transactions between various banks and payment service providers may still present difficulties.
- **Limit on the Transactions:** UPI transactions have daily transaction limits for security reasons. Large-value transactions may occasionally be hampered by these restrictions.
- **Legacy Systems:** The antiquated IT infrastructure that many banks continue to use is one of the biggest obstacles. Transitioning from legacy systems to modern, agile platforms is costly and complex, often requiring a complete overhaul of core banking systems.

- **Customer Adaptation:** While digital banking services are growing, a significant portion of the customer base, especially in rural areas, still prefers traditional banking methods. Banks face the dual challenge of promoting digital adoption while maintaining service quality for non-digital customers.

Suggestions

- **Enhanced Digitization:** Increased use of AI and predictive analytics for highly customized services is an example of enhanced digitization.
- **Sustainability Initiatives:** To encourage responsible banking, an emphasis is placed on climate risk management and green financing.
- **Fintech Collaborations:** Partnerships with fintechs to enhance customer experiences and streamline operations.
- **Global Leadership:** International cooperation to advance digital finance technologies, especially with nations like the United Arab Emirates.

With robust economic fundamentals, a forward-looking regulatory framework, and a focus on technology-driven growth, the Indian banking sector is set to play a pivotal role in shaping the country's economic future.

Conclusion

The banking sector in India is about to undergo a radical change. The industry is laying a strong and vibrant basis for the years to come by embracing innovation, tackling issues like cybersecurity, and upholding its dedication to inclusivity. All things considered, digitization is changing the banking industry, spurring innovation, boosting security, boosting service quality, and promoting financial inclusion. The way services are provided and used in the banking sector is probably going to undergo even more significant changes as technology develops.

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