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Digital Revolution in the Indian Banking Sector

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Abstract: *This paper provides an overview of the implementation of digital banking within the banking sector in India. The role of the banking sector in the economic development of a country is crucial, acting as the lifeline of the economy. A robust and healthy banking system is essential for fostering economic growth. The Indian banking industry has undergone significant changes and is currently experiencing an IT revolution. A bank, as an institution handling money and credit, accepts deposits from the public, facilitates fund availability to those in need, and aids in the remittance of money between different locations. It serves as a financial institution creating demand deposits, allowing withdrawal by the account owner on demand and facilitating transfer to a third party through cheque. The modern bank performs a diverse range of functions, making it challenging to provide a precise and general definition. Digital banking, supported by an internet connection, encompasses online banking activities. A substantial portion of consumer transactions now occurs through digital banking apps and online platforms, providing traditional banks with respite. Utilizing digital devices such as smartphones, tablets, laptops, desktop computers, and ATM, customers can easily access their accounts and conduct transactions. The COVID-19 pandemic highlighted the significant advantages of digital banking, especially when people were confined to their homes due to social distancing measures.The primary objective of this paper is to assess and analyze the progress of digital banking in India, with a specific focus on the associated challenges and opportunities*

Keywords: Digital Banking, Information Technology, Internet Banking, India, Core Banking Solution, Online Payments, UPI

I. INTRODUCTION

Digital banking refers to the automation of traditional banking services through a digital platform, presenting numerous advantages for both users and financial institutions. The transition to digital banking eliminates the need for cumbersome paperwork such as checks, demand drafts, and pay stubs. Users of digitally-connected banks can conveniently access all banking services at any time without the necessity of physically visiting a bank office; a smartphone or computer is all that is required. The customer-centric features of digital banking solidify its enduring appeal. Digital banks, available 24/7, provide responsive services that cater to the fast-paced nature of today's society, where time is equated with money.

In the contemporary era, the success of service industries, including banking, hinges on information technology. The integration of information technology has significantly enhanced the banking industry's contribution to the economy. Swift and efficient processing of financial transactions and payments is now achievable within seconds. Ongoing developments in Information Technology (IT) and its widespread adoption by commercial banks in India enable them to extensively utilize IT not only for back-office processes but also to offer a wide range of products and services to customers. Banks leveraging the latest IT techniques tend to thrive in the fiercely competitive market, generating more business opportunities and increased profitability. The IT revolution in the banking sector not only enhances customer service but also results in reduced operational costs.

In India, various digital banking systems are making a notable impact, reaching beyond the urban elite to influence the rural sector as well. Different forms of digital payments categorize digital banking, replacing traditional cash and check transactions.

is the automation of traditional banking services through a digital platform. There are many advantages to digitally-enabled banking, not just for the user, but also for banks. Digital banking allows financial institutions to do away with cumbersome paperwork like checks, demand draughts, and pay stubs. Users of digitally connected banks can access all banking services around the clock without having to physically visit a bank office; all you need is a smartphone or a

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computer. The features of digital banking are undoubtedly more geared towards the needs of the customer; thus the trend is here to stay. Digital banks are open around the clock and ready to help you whenever you need them. Responsive services are a blessing in today's fast-paced society when time is money.

UPI (Unified Payment Interface)

The most well-liked kind of digital payment is UPI. This enables mobile money transfers from your bank account to the seller utilizing a single window. For this type of digital payment, the payee's virtual address with permission for mobile payment must be entered. One app can be connected to multiple bank accounts.

Web-based banking

Mobile banking is yet another well-liked form of online banking. Customers who have accounts download the bank app to their smartphones. Smartphones may access all bank services, including payments and balance inquiries.

Cellular Banking

The most well-liked kind of digital payment is UPI. This enables mobile money transfers from your bank account to the seller utilizing a single window. For this type of digital payment, the payee's virtual address with permission for mobile payment must be entered. One app can be connected to multiple bank accounts.

Financial Cards

All forms of digital payment require banking cards. Cards are evaluated based on their issuance, use, and digital payment methods. Debit, credit, prepaid, and electronic cards are the four different forms of financial cards. Debit cards issued by the bank are connected to the bank account and can be used to withdraw cash from ATMs. These banking cards enable virtual payment for goods and services purchased from online and brick-and-mortar retailers. Banks and non-banks both issue credit cards. These prepaid cards are employed for credit-based purchases of goods and services. Bank Prepaid Cards support overdraft facilities and are not connected to bank accounts. The only amount that may be spent on these cards is the present value. For online e-commerce transactions, virtual debit cards which are electronic cards that function like debit cards are employed.

Phone Wallets

Mobile wallets are the equivalent of a wallet in the digital world that let users conducts various online digital transactions. Money added by the user and linked to their bank account is stored in a digital wallet. This is one of the most secure ways to make payments online, and it can be used for any transaction with the use of an internet connection and an app that is downloaded to a smartphone.

Indian Money Interface

Simple financial transactions can be made via the Bharat Interface for Money (BHIM) app, among other digital payment methods. Using your cell number and address, you can send and receive money instantly from one bank to another using the Unified Payments Interface (UPI). With their UPI ID or by scanning their QR code with the BHIM app, UPI users can send direct bank payments to anyone on the platform. A UPI ID can also make a money request through the app

The Indian government is actively promoting digital transactions, with key initiatives like the United Payments Interface (UPI) and Bharat Interface for Money (BHIM) introduced by the National Payments Corporation of India (NPCI), marking significant strides in the innovation of payment systems. UPI serves as a mobile interface enabling instant fund transfers between accounts in different banks through virtual addresses, eliminating the need to specify bank account details.

Modern banks in India are focused on delivering a fast, accurate, and high-quality banking experience to their customers, making digitization a top priority. As per the RBI Report in 2018-23, the National Financial Switch (NFS) network comprises over 266 thousand ATMs as of June 2023, with nearly 1,200 affiliated members and over 300 million transactions. Electronic payment systems such as NEFT (National Electronic Fund Transfer), ECS (Electronic Clearing Service), RTGS (Real Time Gross Settlement), Cheque Truncation System, Mobile banking, Debit cards, Credit cards, and Prepaid cards have gained widespread acceptance, marking significant milestones in the digital revolution within the banking sector. Online banking has transformed banking operations fundamentally.

NEFT, the National Electronic Funds Transfer, is the most widely used electronic payment method for transferring money between different bank branches in India, operating in half-hourly batches with a total of 48 batches. RTGS, primarily used for high-value transactions in 'real time,' has no upper limit, and the minimum amount for remittance is

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Rupees Two Lakhs. Immediate Payment Service (IMPS), a 24/7 instant electronic funds transfer facility offered by NPCI, further contributes to the digital landscape.

The use of prepaid payment instruments (PPIs) for goods and services purchases and fund transfers has seen a substantial increase. The value of transactions through PPI Cards and mobile wallets has experienced a significant surge from Rs.105 billion and Rs.82 billion in 2015-16 to Rs.277 billion and Rs.532 billion in 2017-18. In the financial year 2023, over 103 billion digital transactions, totaling more than 166 trillion Indian rupees, have been conducted across India.

II. BENEFITS OF DIGITAL BANKING

Digital banking helps the customers as well as banks by overcoming the drawbacks of manual systems as computers are capable of storing, analyzing, consolidating, searching and presenting the data as per the requirement of customers and banks with a lot of speed and accuracy.

2.1 Advantages to the Banking institutions

- Digital banking helps reduce the cost of delivering the services to the customers.
- It provides banks with a competitive advantage among their peers.
- It reduces the use of paper money which helps the central bank in printing fewer paper notes.
- Through websites, banks can earn revenue through promotional activities.
- FAQs uploaded over the bank's website will reduce the workload on employees.
- Customers can avail of digital banking facilities at any time, any place, therefore there is a need to invest more and more in relevant infrastructure.

2.2 Advantages to the Customers

- Digital banking delivers 24x7 services to customer.
- Easy access to account information in quick time.
- Payment can be made online for the purchase of goods and services.
- Through websites, banks can earn revenue through promotional activities.
- With digital banking, customers can check account balances, get statements of their accounts, apply for loans, check the progress of their investments and collect other relevant information.

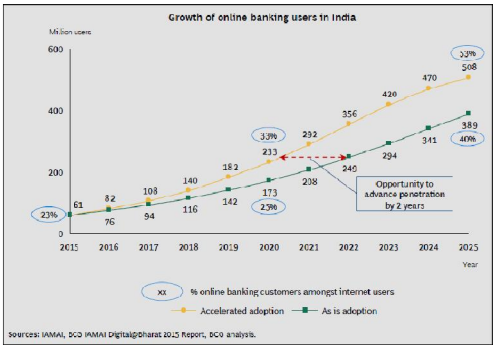

Figure: Growth of online banking users in India

III. CHALLENGES IN DIGITAL BANKING

The reliance on online banking increased under COVID. Digital lending, wealth management, and investing have all benefited from the growth of online banking. Banking is now more widely available, and customers are becoming more eager to use better technologies. But, due to the pressure of digital banking and the increasing demand, banks are finding it difficult to adjust to the new client behavior.

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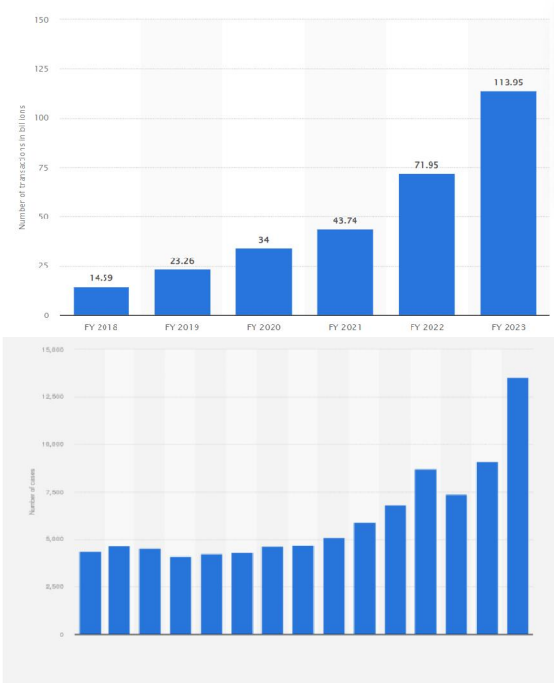

Figure 2: Statistic: Value of bank frauds across India between from financial year 2009 to 2023 (in billion Indian rupees)

3.1 Advantages to the Banking institutions

Security concerns have emerged as a significant issue for banks, posing a substantial challenge in promoting digital banking services. A considerable portion of customers hesitates to embrace digital banking, citing uncertainties and security apprehensions as primary reasons. As reported by the IAMAI in 2006, 43% of Internet users in India refrain from using Internet banking due to security concerns. Addressing and alleviating these security concerns is a crucial challenge for marketers aiming to enhance consumer satisfaction and potentially boost the adoption of online banking services.

3.2 The Trust Factor

For many customers, the primary challenge with online banking is the issue of trust. The preference for conventional banking stems from a lack of confidence in online security. Customers harbor a perception that online transactions carry inherent risks, making them susceptible to fraud. When utilizing digital banking services, numerous questions arise in the minds of customers, including concerns about whether the transaction was successfully completed and whether they inadvertently pressed the transfer button more than once. Trust stands out as a pivotal factor influencing customers' readiness to participate in transactions with online merchants.

3.3 Customer Awareness

In the Indian context, there is a limited awareness among consumers regarding digital banking services and procedures. Banks struggle to effectively communicate information about the use, advantages, and facilities of internet banking. The lack of awareness about new technologies and their associated benefits stands out as a significant obstacle in the advancement of electronic banking.

3.4 Privacy risk

Concerns about revealing personal information and the apprehension of identity theft are significant barriers preventing consumers from embracing internet banking services. A considerable number of consumers perceive that engaging in

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online banking exposes them to the risk of identity theft. The study indicates that consumers are anxious about the privacy of their information, apprehensive that banks might infringe upon their privacy by employing their data for marketing and other secondary purposes without obtaining proper consent from the consumers.

3.5 Strengthening the public support

Historically, many e-finance initiatives in developing countries have been collaborative efforts between the private and public sectors. When the public sector lacks the necessary resources for project implementation, fostering joint endeavors involving public and private sectors, along with multilateral agencies like the World Bank, becomes crucial to garner public support for e-finance initiatives.

3.6 Availability of Personnel services

In the contemporary banking landscape, financial institutions offer a multitude of services such as social banking, selective upgrades, computerization, innovative mechanization, enhanced customer services, effective managerial culture, internal supervision and control, sufficient profitability, and a strong organizational culture. Therefore, banks must ensure the provision of comprehensive personnel services to meet customer expectations.

3.7 Implementation of global technology

Before adopting global technology for local requirements, developing countries need to establish adequate infrastructure and focus on human capacity building. In these nations, many consumers either lack trust in or lack access to the necessary infrastructure for processing e-payments.

3.8 Non- Performing Assets (NPA)

Nonperforming assets pose another challenge to the banking sector. Factors like vehicle loans, unsecured loans, rising interest rates, restrictions on collection practices, and soaring real estate prices contribute to the increase in NPAs. It is imperative for banks to manage regular loan repayments effectively.

3.9 Competition

Nationalized and commercial banks face competition from foreign and new private sector banks. This competition introduces various challenges, including product positioning, innovative ideas and channels, adapting to new market trends, cross-selling, and effective managerial and organizational strategies.

3.10 Handling Technology

The adoption and efficient utilization of technology are crucial for achieving and maintaining high service and efficiency standards in the banking sector. Managing technology poses a key challenge, particularly in addressing concerns about disconnectedness, unreliable data, and adapting to modern technology while ensuring flexibility and future readiness.

3.11 Personal Connections are lacking

Customer service remains pivotal for banks to retain and expand their clientele. In the era of digital banking, the shift to non-human bots and customer care helplines challenges the personalized service that clients still desire. Personalized support should coexist with AI, as clients prefer immediate assistance and tailored solutions. Efforts should be directed towards refining automated systems to handle specific consumer queries and elevate customer expectations, especially in the face of a rapidly evolving digital landscape.

IV. OBJECTIVES OF THE STUDY

- Examine the utilization of Information Technology in the Indian banking sector.
- Identify the diverse digital banking services offered by banks in India.
- Investigate the challenges associated with digital banking.
- Explore the opportunities present in the realm of digital banking.

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V. RESEARCH METHODOLOGY

The study is descriptive in nature. It is based on secondary data, collected from the concerned sources as per the need of the research. The relevant books, documents of various ministries/departments and organizations, articles, papers and websites are used in this study.

5.1 Literature Review

Numerous studies, both by banks and researchers, have delved into the awareness and preferences of retail customers regarding digital banking products. For instance, Milind undertook a study examining the factors influencing the adoption of Internet banking in Australia. Analyzing a sample of individual residents and business firms, the study concluded that major obstacles to Internet banking adoption in Australia included security concerns and a lack of awareness.

Mittal and Rajeev focused on E-CRM in Indian banks, emphasizing its importance, current status, techniques used, and prospects. The study concluded that while e-banking may not suffice for high-end products, traditional brick-and-mortar branches remain essential for social interactions. The success of e-CRM hinges on robust infrastructure, e-commerce capabilities, cost reduction through productivity gains, lower complexity, and administrative function automation.

Ruby and Pankaj investigated the problems and prospects of E-Banking, highlighting advantages and risks associated with electronic banking growth. Drawing on secondary sources, the study concluded that while e-banking offers convenience for financial management, it poses challenges to financial security and personal privacy, evidenced by instances of compromised account details.

Vishal et al. explored the perceptions and opinions of urban mobile banking users in India, focusing on practices, challenges, and security issues. Utilizing quota sampling in Ghaziabad city, the study underscored the importance of 'mobile handset operability' as a significant issue in mobile banking, given the diverse technology supported by various handset models in the market.

Simeon and Bamidele investigated the consequences of implementing cashless banking in Nigeria, utilizing a comprehensive approach. The study employed descriptive statistics to underscore the effectiveness of the Central Bank of Nigeria's cashless policy. Despite concerns about security and efficient cost savings management, the findings indicated that transitioning to a cashless system in Nigeria appeared advantageous.

Ankit and Singh conducted a study on the influence of the Technology Acceptance Model (TAM) on Internet banking adoption in India, particularly in the context of security and privacy threats. Based on Davis's TAM, the research highlighted that perceived risk negatively affected the intention to adopt Internet banking, while trust played a crucial role in mitigating perceived risk. Additionally, a well-designed website was identified as a key factor in enhancing user-friendly experiences and addressing concerns related to perceived risks associated with Internet banking.

Security issues have emerged as a major concern for banks, leading a significant portion of customers to refrain from opting for digital banking facilities due to uncertainties. According to the IAMAI Report (2006), 43% of Internet users in India abstain from using Internet banking due to security concerns, posing a significant challenge for marketers to assure consumers about their security and potentially boost online banking usage.

5.2 Findings

To ensure the success of digital banking services amidst a dynamic environment, banks must implement specific measures to address security loopholes in electronic service delivery. Key initiatives include:

- Banks should prioritize ensuring reliable service delivery by investing in and implementing the right technology.
- Since implementing technology-related solutions involves substantial investment, banks should explore ways to optimize resources for technology applications. Global partnerships in information technology and skills sharing can be valuable in this regard.
- Despite various measures taken by banks, cyber fraud remains a prevalent concern. Staying ahead of fraudsters requires continuous investment and adoption of the latest technology.

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- To minimize risks, banks should conduct pilot surveys, seek input from experts, and monitor performance. They need to assess the availability of additional resources and the cost of service delivery, regularly evaluate new technology, and consider the cost of IT equipment upgrades.
- Banks should employ a proxy server-type firewall to establish no direct connection between the internet and the bank's system. This setup allows for a high level of control and in-depth monitoring using logging and auditing tools.
- Banks should routinely back up their data and perform periodic checks to ensure seamless recovery without transaction loss.
- Organizing meetings with customers is crucial to educate them on securely using digital banking services.
- Regular training for available human resources is essential to equip them with the knowledge to address queries from digital banking customers.
- Business Analytics and Artificial Intelligence (AI) have transformative potential. Robotics, driven by AI, is anticipated to be a game-changer in the banking sector, with private banks considering the deployment of robots for customer service, investment advisory, and credit-approval processes to enhance services and achieve long-term cost-effectiveness.

VI. CONCLUSION

The aspirations of a digital India are consolidated by various forms of digital payments. To facilitate a "Faceless, Paperless, Cashless" economy, the government is encouraging more digital transactions through bank accounts. The digitally empowered economy will increase financial independence by enabling simplicity of payment and greater inclusion that affects even the small-time store owner in a village. India is experiencing a revolution in banking and financial technology that is being driven by an incredible talent pool. Innovation in digital banking will open up new vistas for customer inclusion if there is an attitude of flexibility, parallel effort on the part of the government, and close monitoring by the RBI. The future of digital banking appears bright and hopeful with the introduction of the Digital Banking Unit (DBU), a minimal hub of digital infrastructure providing banking services, and the planned incorporation of the metaverse with its enormous possibilities.

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