

**E-Banking: Innovation Challenges and Opportunities****الخدمات المصرفية الإلكترونية: تحديات وفرص الابتكار****Pr. Ahmed Sebihi <sup>1</sup>, Dr Rahul Jain <sup>2</sup>, Dr. Fatima Zohra Aouati <sup>3</sup>**<sup>1</sup> American College of Dubai- Dubai (UAE), dr.sebihi2030@gmail.com<sup>2</sup> American College of Dubai- Dubai (UAE), rbmjain@gmail.com<sup>3</sup> University of Sharjah - Sharjah (UAE), faouati@sharjah.ac.ae**Received:** 20/11/2022**Accepted:** 10/03/2023**Published:** 29/03/2023**Abstract:**

According to (Ketkar, 1993), E-banking development and growth in India is still in their infancy. In the last ten years, the face of banking has altered due to competition, developments in technology, and lifestyle changes. The recent developments have imposed strict competitiveness and compliance criteria on banks. The problem here is with the E-Banking system. E-Banking is projected to offer plenty of benefits as well as unprecedented hazards to India's banking fundamentals. The notion of E Banking's Scope is still expanding, but various steps implemented by the Indian government and the country's central bank, the Reserve Bank of India, have aided the growth of E-Banking in India. The purpose of this article is to outline India's E-Banking difficulties and potential.

**Keywords:** Banking, E-banking, ATM, Technology, ETF, Online**JEL Classification Codes:** E59 ,F24,G2 , G21**ملخص:**

وفقاً لـ (Ketkar,1993). لا يزال تطوير ونمو الخدمات المصرفية الإلكترونية في الهند في مهدها، في السنوات العشر الماضية، تغير وجه العمل المصرفي بسبب المنافسة والتطورات التكنولوجية وتغيير نمط الحياة. فرضت التطورات الأخيرة معايير صارمة على المنافسة والامتثال على البنوك. تكمن المشكلة هنا في النظام المصرفي الإلكتروني. من المتوقع أن تقدم الخدمات المصرفية الإلكترونية الكثير من الفوائد بالإضافة إلى المخاطر غير المسبوقة لأساسيات البنوك في الهند، لا تزال فكرة نطاق الخدمات المصرفية الإلكترونية تتوسع ، لكن الخطوات المختلفة التي نفذتها الحكومة الهندية والبنك المركزي في البلاد ، بنك الاحتياطي الهندي ، ساعدت في نمو الخدمات المصرفية الإلكترونية في الهند. الغرض من هذه المقالة هو تحديد الصعوبات والإمكانيات المصرفية الإلكترونية في الهند.

**الكلمات المفتاحية:** البنوك، الخدمات المصرفية الإلكترونية، ATM ، التكنولوجيا، ETF، عبر الإنترنت.**تصنيفات JEL :** G21 ، G2 ، F24 ، E59

### **1. Literature**

The financial sector is critical to an economy's growth. The thriving banking industry is frequently considered the lifeblood of a country's economy. As a result, it is not wrong to assert that a country's economy's present and future are entirely dependent on the performance and development of its banking sector. The development of automated teller machines (ATMs), direct bill payments, and computerized financial transactions initiated the transition away from traditional banking (EFT). Because of increasing information and education, customers are more receptive to innovative online banking. Receiving financial services and commodities via electronic methods such as telephones, the internet, and cell phones is known as e-banking. Many people are resorting to e-banking these days since it allows them to manage their accounts from anywhere and at any time for a very cheap cost. E-banking has assisted the banking business in a multitude of ways, but the most major advantage to this sector in developing countries, notably India, has been enhanced client relations.

When compared to non-customers of technology that permitted self-service banking, the amount of time spent on online activities, the volume of internet use, and the amount of time spent web surfing were all significantly higher among customers of technology that provided self-service banking. It was determined that banks should provide preference to customers who use computers, the internet, and other advanced technological devices.

The majority of clients are aware of their bank's e-banking capabilities, according to the findings. There is a substantial difference between the multiple challenges noted while using e-banking services, according to the poll. This study also revealed that some challenges have a higher impact than others while utilizing financial services.

One survey indicated that just 28% of bank customers used internet banking after examining population factors. There was no statistically significant link between age and internet banking use, according to the study. It also revealed that there is no link between gender and internet banking usage. It was shown that respondents' educational and financial qualities played a role in their decision to use internet banking. According to the poll, increasing consumer financial literacy through different bank efforts aimed at increasing awareness of internet banking is critical.

### **2. Research Methodology**

This is a descriptive research project. For this research, secondary data was explored. It comes from the Reserve Bank of India's bulletin, annual reports, and Report on the Trend and Progress of Banking in India, as well as a variety of reputable periodicals, newspapers, and RBI websites.

### **3. Current Scenario of E-Banking**

E-banking has become a significant part of India's financial system. Before the 1990s, the traditional banking system, i.e., branch-based banking, was prevalent, but non-branch banking services were established after that.

ICICI Bank is responsible for India's first internet banking service. Following that, Citibank and HDFC Bank both started internet banking services in 1999. On October 17, 2000, the Indian government passed the Information Technology Act of 2000, which granted legal status to electronic transactions and other types of e-commerce.

The Reserve Bank is regularly reviewing and amending banking's legal and other conditions to guarantee that it grows smoothly and that e-banking-related problems do not undermine financial stability. India has 196079 ATMs and 1337310 point-of-sale machines, according to a report provided by the Reserve Bank of India in January 2016. Indian commercial banks have developed numerous measures to deal with the demands of rising competition, one of which is e-banking. Since the newly created private sector and foreign institutions have been pioneers in e-banking adoption, the competition has been particularly strong for public sector banks.

Indian banks provide their customers with e-banking products and services such as ATMs, Internet Banking, Mobile Banking, Phone Banking, Tele Banking, Electronic Clearing Services, Electronic Clearing Cards, Smart Cards, Doorstep Banking, and Electronic Fund Transfer (Yuvaraj, 2019).

The RBI reported in its Annual Report 2020-21 that payment systems had a solid growth of 26.2% in terms of volume, following a 44.2% increase the previous year. Here some of the major key facts are as follows:

- Private sector banks represent about 67% of the POS terminal market while public sector banks account for 27%.
- Payments banks accounted for 5% market share, and foreign banks represented 1%.
- The total number of cards in circulation stood at 960.25 million as of March 2021. Out of which, there were 898.20 million debit cards and 62.05 million credit cards, up by 8% and 7% YOY respectively.
- There were 2.20 billion prepaid payment instruments in the country. Out of which, 189.93 million comprised prepaid cards and over 2.01 billion comprised mobile wallets.
- The number of transactions through mobile wallets in Q1 2021 was 1.13 billion and the value was INR 411.75 billion. This includes the purchase of goods and services and fund transfers through wallets. Transactions through wallets are growing steadily.
- Consumers made 8.32 billion mobile-based payments whereas Net Banking / Internet browser-based transactions were over 937.60 million. In terms of value, INR 31.98 trillion was transacted through mobile while INR 131.34 trillion was transacted through the internet.

#### 4. Challenges in E-Banking

- *Security Risk:* Banks are grappling with one of their most critical issues: security. A large proportion of customers reject to utilize e-banking services due to uncertainty and security concerns. According to the IAMAI Report, 43% of internet users in India do not utilize online banking due to security concerns (2006). As a result, it's a major issue for marketers, and it alleviates customers' security concerns, resulting in more online banking usage.
- *Trust Factor:* The most significant hurdle to online banking for most customers is a lack of confidence. Due to a lack of trust in online security, many choose traditional banking over internet banking. They feel that internet transactions are risky and that as a result, fraud can occur. When using e-banking services, customers have several queries, such as: Did the transaction go through? Do you believe I pushed the transfer button once or twice? Customers' willingness to deal with web merchants is impacted by several factors, one of which is trust.
- *Handling Technology:* It is vital to create or acquire the relevant technology, implement it appropriately, and then use it to the maximum extent feasible to achieve and maintain high service and efficiency standards while being cost-effective and delivering sustainable returns to shareholders.

Early adopters of technologies got significant competitive benefits. As a result, technology management is a top priority for the Indian banking business.

- *Privacy Risk:* Consumers are discouraged from utilising internet banking services because of the risk of disclosing personal information and the fear of identity theft. Most users believe that using online banking services puts them at risk of identity theft. According to the survey, consumers are concerned about their privacy and fear that banks may violate their privacy by utilising their information for marketing and other secondary purposes without their consent.
- *Implementation of Global Technology:* Developing countries must first build sufficient infrastructure and human capabilities before they can employ global technologies to satisfy their local demands. Many clients in developing countries do not trust e-payments or do not have access to the necessary infrastructure.
- *Legal Risk:* Electronic banking exposes banks to more legal concerns. Electronic banking can increase the geographic area of a bank's services more quickly than traditional banking. However, they may not be completely familiar with a jurisdiction's local rules and regulations before beginning to provide services there, whether with or without a license if one is not necessary. When a license isn't necessary, a virtual bank that doesn't have communication with its host country's supervisor may find it much more difficult to keep up with regulatory developments. (2022).

### 5. Financial Innovations in E-Banking Indian Banking Sector

The introduction of innovation in the banking industry has resulted in new product designs, multiple methods of completing online financial operations, and various electronic systems. As a result of all of this, the phrase "innovative banking" has become a popular appellation for today's financial sector. Consumer convenience and satisfaction are at the forefront of innovative banking.

The necessity for financial sector innovations was identified due to several difficulties in the traditional banking system; however, these issues were overcome with the introduction of novel banking products and services, which fundamentally transformed the banking attitude.

#### A. Automated Teller Machines (ATMs)

ATMs (Automated Teller Machines) are a significant technological breakthrough that has changed the banking industry's distribution method (ATMs). HSBC was the first bank in India to establish an ATM in 1987. Later, new private-sector banks led the way in widely deploying ATMs, and public-sector banks followed following, placing ATMs around the country.

There was a period of delay before the Indian populace accepted ATMs. In 1998, India had just 500 ATMs; nevertheless, according to Ministry of Finance estimates, Public Sector Banks alone opened 1,13,525 ATMs in India between 1998 and 2022.

The number of ATMs operated by Scheduled Commercial Banks in India is shown in Table 1. Number of ATMs of Scheduled Commercial Banks in India at the End of March 2022

Bank Group	On-Site ATMs	Off-Site ATMs	Total ATMs
Public Sector Banks	78,007	59,106	1,37,113
Private Sector Banks	34,828	37,566	72,394
Foreign Banks	690	1,135	1,825
Total of all Banks	1,13,525	97,807	2,11,332

Source:- <https://rbi.org.in/scripts/ATMView.aspx?atmid=134>

#### B. Debit Cards

Debit cards are frequently referred to as check cards or bank cards. Debit cards resemble credit cards or ATM (automated teller machine) cards, and they are a type of plastic payment card that may be used in place of cash for transactions, but they function similarly to cash or a personal check. Nonetheless, Debit cards vary from credit cards in that a credit card allows you to "pay later," but a debit card allows you to "pay now." When a consumer uses a debit card, money is withdrawn from their account promptly. Simply put, when a transaction is made using a debit card, money is taken immediately from the user's bank account.

#### C. Credit Cards

With 16-digit card numbers, expiry dates, magnetic strips, and EMV chips, credit and debit cards are nearly similar. With one important distinction, both can make shopping in shops or online simple and convenient. Debit cards allow you to spend money by withdrawing funds from your bank account. Credit cards allow you to borrow money from the card issuer up to a specified limit to buy things or withdraw cash that is immediately deducted from the user's bank account during a transaction.

Table 2:-Volume of card payments in India from the financial year 2014 to 2022(in billions)

Year	Credit Card	Debit Card
FY 2015	0.51	6.71
FY 2016	0.62	7.81
FY 2017	0.79	9.25
FY 2018	1.09	10.96
FY 2019	1.41	11.95
FY 2020	1.77	14.27
FY 2021	2.18	5.06
FY 2022	1.76	4.01

\*Source: Statista Research Department

The volume of debit card payments in India for the fiscal year 2021 was approximately four billion, while the volume of credit card payments was estimated at over 1.7 billion during the same period.

The government initiatives made the accessibility and use of digital payments widespread, aspiring to make India a cashless economy. The Indian digital payments market was estimated to reach the one trillion U.S. dollar mark by the year 2023.

#### D. Real Time Gross Settlement (RTGS)

The Real Time Gross Settlement System (RTGS) is a system for transferring payments from one bank to another in real time and in full. The minimum fund transfer amount using RTGS is Rupees Two Lakhs, with no limit on the maximum amount. Inter-bank and customer-to-customer RTGS transactions are also possible.

#### E. National Electronic Fund Transfer (NEFT)

The Real Time Gross Settlement System (RTGS) is a system for transferring payments from one bank to another in real time and in full. NEFT (National Electronic Fund Transfer) is a nationwide electronic payment system that employs a safe means of sending monies from one bank branch to another. It was first deployed in October 2005. There are no minimum or maximum limits on the amount of money that may be sent using NEFT. The funds are transferred in hourly batches; on weekdays, there are eleven settlements from 9 a.m. to 7 p.m. and on Saturdays, there are five settlements from 9 a.m. to 1 p.m.

Table 3:- Volume of RTGS payments – 2021 (month wise)

Month	Inward	Outward
January	15668058	15668058
February	15769554	15769554
March	20234900	20234900
April	15152060	15152060
May	9003796	9003796
June	15413551	15382921
July	10741314	10741314
August	10160092	10160093
September	17456940	17456940
October	18411308	18411308
November	15635290	15635290

Table 4:- Volume of NEFT payments – 2021 (month wise)

Month	Total Outward Debit	Received Inward Credits
January	2874.9	2874.9
February	2821.1	2821.1
March	3481.4	3481.4
April	2862.7	2862.7
May	1929.4	1929.4
June	2923.3	2923.3
July	3170.0	3170.0
August	3218.7	3218.7
September	3359.5	3359.5
October	3574.5	3574.5
November	3394.0	3394.0

Among the electronic modes of payment, the number of transactions using RTGS increased by 5.7% during the year, with a total value of 1,056 lakh crore, a decrease of 19.5% from the previous year, owing to a reduction in large value corporate transactions in line with the slowdown in economic activity. The RTGS facility was offered across 1,75,947 branches of 227 banks by the end of March 2021. During the year, transactions through the National Electronic Funds Transfer (NEFT) system increased by 12.7%. The NEFT facility was offered through 1,75,283 branches of 225 banks by the end of March 2021.

## E-Banking: Innovation Challenges and Opportunities

### F. Mobile Banking

Table 5 Number of mobile banking transactions (monthly)

Month	Volume (in lakh)
January	25943
February	24274
March	32971
April	32495
May	14622
June	32127
July	37459
August	39029
September	39989
October	45584
November	45046

Mobile banking, often known as M-Banking, is a branch of Internet Banking. "Type of execution of financial services in which the consumer employs mobile communication techniques in conjunction with mobile devices" is how mobile banking is defined (Pousttchi and Schurig, 2004). To put it another way, it refers to the use of mobile telecommunications devices for banking and financial activities. Mobile phones are a great delivery channel to reach banking consumers in India since their penetration rate is significantly higher than that of the internet.

Mobile banking is becoming a prominent e-banking method in India, as seen in Table 5. In India, mobile banking transactions have grown over months and several years. This demonstrates Indian clients' increased interest in mobile banking.

Table 6 Payment System Indicators – Annual Turnover (April-March)

Item	2017-18	2018-19	2019-2020
<b>A. Settlement Systems</b>			
CCIL Operated Systems	35	36	36
<b>B. Payment Systems</b>			
1. Large Value Credit Transfers – RTGS	1,244	1,366	1,507
Retail Segment			
2. Credit Transfers	58,793	1,18,750	2,06,661
2.1 AePS (Fund Transfers)	6	11	10
2.2 APBS	12,980	15,032	16,805
2.3 ECS Cr	61	54	18
2.4 IMPS	10,098	17,529	25,792
2.5 NACH Cr	7,031	9,021	11,406
2.6 NEFT	19,464	23,189	27,445
2.7 UPI	9,152	53,915	1,25,186
3. Debit Transfers and Direct Debits	3,788	6,382	8,957
3.1 BHIM Aadhaar Pay	20	68	91
3.2 ECS Dr	15	9	1
3.3 NACH Dr	3,738	6,299	8,768
3.4 NETC (Linked to Bank Account)	15	6	97
4. Card Payments	47,486	61,769	73,012
4.1 Credit Cards	14,052	17,626	21,773
4.2 Debit Cards	33,434	44,143	51,239
5. Prepaid Payment Instruments	34,591	46,072	53,318
6. Paper-based Instruments	11,713	11,238	10,414
Total – Retail Payments (2+3+4+5+6)	1,56,371	2,44,211	3,52,362
Total Payments (1+2+3+4+5+6)	1,57,615	2,45,577	3,53,869
Total Digital Payments (1+2+3+4+5)	1,45,902	2,34,339	3,43,455

### G. Payment and Settlement Systems (DPSS)

The payment and settlement systems had strong growth in 2019-20, increasing by 44.1% volume on top of a 55.8% increase the previous year. In terms of value, it expanded by 5.4% over the previous year's 14.2 percent, owing to slower development in the big value system, namely the Real Time Gross Settlement (RTGS) system. During 2019-20, the percentage of digital transactions in total non-cash retail payments climbed to 97.0%, up from 95.4% the previous year. However, owing to the prolonged lockdown imposed by the COVID-19 epidemic, economic activity was restrained, and discretionary payments were reduced, resulting in a drop in digital transactions.

## **6. Top 5 Banks that Provide Best Internet Banking Facilities in India**

### **❖ ICICI Bank**

ICICI Bank is one of the top banks in terms of Net Banking, which allows you to transfer cash at any time, pay bills, buy insurance, and access a variety of other services. The ICICI Net Banking app is available on the Play Store and has a rating of 4.4 stars. A user may also transfer money through the bank's UPI services, and the bank's app is updated regularly to correct faults and provide new capabilities. The Bank has also released the iWear application, which allows users to access all their bank data, as well as the past three transactions and account balance, on their smartwatch.

### **❖ HDFC Bank**

HDFC Bank is another well-known and significant bank that offers services like money transfers, bill payments, and credit card payments, among other things. The app may be downloaded from the Google Play Store, where it has over 10 million downloads and a 4.3-star rating. A user will see the My Menu option in the app, where they will find all their regularly used services. For the convenience of the user, the programme is now accessible in Hindi. Those with a slow Internet connection can utilize the Lite version, which does not have all the functions but does include the most significant and often used services.

### **❖ City Union Bank**

City Union Bank is another excellent bank that offers all the Internet Banking features that you want. You may apply for their services either online or in a City Union Bank location near you. You may obtain the whole account overview in whatever format you like.

You may transfer cash to any third-party account in the nation, and CUB Net Banking makes purchasing more convenient. You may use their services to pay any sort of bill, and it is one of the most secure platforms available, so customers can complete transactions without fear.

### **❖ Union Bank of India**

Union Bank of India is a well-known bank that offers excellent Net Banking services. The app is available for download on the Google Play Store, where it has a 4.1-star rating and over 5 million downloads. A user can not only read but also print their account summary because it is required by other financial services. In a matter of minutes, a user may transfer funds straight to any bank account, and they can even make direct or indirect payments from their UBI online accounts. You will never miss a bill or an insurance premium due to its automatic payment mechanism.

### **❖ Kotak Mahindra Bank**

You may transfer funds to any bank account at any time using the Kotak Mahindra Bank Net Banking services. Checking your balance at any moment without having to leave your house is a time-saving activity that you can perform with Kotak Mahindra Bank.

The Kotak Mobile Banking app may be downloaded from the Google Play Store; it has 4.4-star reviews and over 10 million downloads. When it comes to digital money transfers, security is always a major concern, but with Kotak Bank, users don't have to worry about that. They have taken care of all the necessary security precautions.

So these are the best banks for Net Banking on which users can trust and make their work easy. With these banks, users can do anything with their bank account without going to the bank. Users don't have to worry about security, as they have made all the security concerns properly.

### **7. Opportunities Related to Internet Banking**

- *Untouched Rural Markets:* (Bakare, 2015), India's untapped banking market accounts for 70% of the country's total population, indicating a large potential market for e-banking in the country. Banking services are available in all metropolitan areas, although only a few large villages have banks. Because a big majority of Indians still live in rural regions, e-banking must broaden its geographical reach to include all communities.
- *Initiatives are taken by government agencies for financial literacy:* Internet banking and inclusive growth are both influenced by financial literacy. The degree to which customers utilise Internet Banking and traditional banking is dependent on their educational level (Servon L J and Kaestner R, 2008). The RBI, SEBI, IRDA, government agencies, and a slew of other financial institutions have made significant efforts to promote financial literacy and encourage the use of internet banking. Many topics about e-banking and related services have been included in school curricula in order to teach pupils how to use them. Housewives, managers, and retirees are also educated in order to increase their usage of electronic banking. (According to the Reserve Bank of India).
- *Opportunities for Customers:* In the Indian context, the Opportunity for e-banking is large in terms of its increased use by Customers. Widespread Banking Consumers are greatly affected by the progression of internet banking services. Customers can control their account from the office or home, and can also shell out bills using net banking. Usage of credit/debit cards has also increased. Thus, by exploring e-banking services, consumers can access banks 24X7.

### **8. Conclusion**

In India, e-banking is rapidly gaining popularity. Lowering internet and mobile rates, falling PC and mobile phone prices, broadband with access through cable and digital subscriber lines, and other factors would undoubtedly support the growth of E-banking in India. Based on the findings, it can be stated that RTGS, ECS for bulk payments, and NEFT for one-to-one money transfers are the developing payment systems in India for high-value transactions. Debit cards are more prevalent than credit cards among card-based payment systems. The number of ATMs in India is increasing, and customers of all demographics have begun to accept ATMs as a channel for banking transactions. While both internet and mobile banking are gaining popularity in India, the potential for delivering banking services via mobile phones is enormous when compared to the internet as a delivery channel. However, it has been plagued by negative difficulties such as identity theft and phishing assaults, which is why some customers are still hesitant to undertake financial transactions over electronic channels.

The Government of India, in collaboration with several public banks and financial institutions, is attempting to develop an E-banking system that is more secure, trustworthy, and protected. The potential for the growth of e-banking in India is also highlighted in this article. Untapped rural markets, competitive advantage held by banks, expanding internet users, the government of India initiatives, and so on are all examples of key potential. In contrast to international banks, domestic banks' internet offerings still have a long way to go. One thing that must be accepted is that Indian banks can reach the masses with the help of supportive and efficient infrastructure. This study examines and discusses the fundamentals of E-Banking in India.

### **References**

- [1] Rbi.org.in. 2022. Reserve Bank of India - Annual Report. [online] Available at: <https://www.rbi.org.in/scripts/AnnualReportPublications.aspx> [Accessed 6 May 2022].
- [2] Ketkar, K., 1993. Public sector banking, efficiency and economic growth in India. *World Development*, 21(10), pp. 1685-1697.
- [3] Yuvaraj, H., 2019. Indian Banking Scenario – Dynamism and Optimism. *The Management Accountant Journal*, 54(1), pp. 73.
- [4] Bakare, S., 2015. Varying Impacts of Electronic Banking on the Banking Industry. *The Journal of Internet Banking and Commerce*, 20(2).