

## **DIGITAL SYSTEMS OF PAYMENT: A REVOLUTIONARY STEP IN THE BANKING SECTOR**

**Lucky Verma\***

**Vikas Kumar**

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### **Abstract:**

The world is moving rapidly towards the digitalization. Most of the work is performed with the help of technology. Financial system, being the lifeblood of any country, occupies a significant place. Advancements in the banking and financial system in the form of introduction of digital payment modes has resulted in increased competition, timely and quick service needs. Digital payment systems refer to the process of conducting the financial transactions whether buying goods and services, and making payments via electronic modes. The 21<sup>st</sup> century has gifted Indian economy with the latest methods and means to make payments such as NEFT, RTGS, ECS and payment banks like Paytm Bank, Airtel Payment Bank etc. There are numerous electronic payment systems introduced over the time. Dependence on these approaches of payments will definitely lead to increased consumption expenditure which will surge economic growth. But there are certain issues that hinder the way of extensive use of electronic payment methods. This paper emphasizes on the use of virtual payment methods and its advantages. Later on the issues concerning the growth of electronic payment systems have been discussed.

**Keywords:** Banks, Electronic Banking, Digital Banking, Reserve Bank of India.

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\* **Research Scholar, Deptt. of Commerce, Kurukshetra University, Kurukshetra**

**Introduction:**

Electronic payment system in India is the highly prompted campaign. Electronic payments refer to electronic transactions, which involve payments for goods and services or purchases that are performed over the internet, mobile payments at point-of-sale (POS) via Smartphone applications (Apps), and peer-to-peer payments between private users. Increased use of digital mode has multi-dimensional advantages like reduction of tree cutting, cost of currency printing, more awareness of financial products or induced financial knowledge, etc. There has been introduced the cashless India campaign by the government of India as one of its most important steps towards achieving high growth and development along with the mitigating environmental hazards. India is one of the countries growing at high pace and moving towards stability. It has one of the strongest financial systems of the world especially the banking sector which is based on the structure of UK and USA. In India, electronic payments or transactions are regulated by Reserve Bank of India under Payment and Settlement Systems Act, 2007 (PSS Act). Being a developing country, there are different areas like poverty level, rich and poor fissure where it is lagging behind the other developing countries. Though the education level in India shows an appreciable image but in actual terms, but there are various loophole in it. A big portion of population is still deprived of education and other basic amenities. There is expectation of digital banking transactions to grow upto \$500 billion and fintech companies to worth about \$2.4 billion, as per a report on digital payments in India. Use of electronic methods of payments requires being literate and financially educated. Thus it becomes a little bit difficult for the government to ensure that the electronic methods of payment are used a large scale. Although there are various hurdles coming in the path of economic growth of India, it is expected that the efforts being put by the various participants will surely lead to achievement of intended goal. The Indian payment system was previously dominated by paper-based transactions, but now the scenario is changing. A large population especially youth, is taking active participation in transacting through digital payment modes.

Electronic banking has manifold benefits. Technology-based applications such as internet banking, mobile banking, telephone banking, ATMs and POS network bring significant advantages to customers in the delivery of existing products. The most significant role played by such methods is its 24x7 availability at lower costs to every customer located at any place

(Akhisar et al. 2015). Many empirical studies have claimed that adoption of electronic banking improves performance of banks. It plays critical role in cost reduction, formulation of lesser risky products, increasing customer base and profitability. For the economy as a whole, it mobilizes funds which surges spending in the economy and thereby increasing the level of economic activities and economic growth. The India banking horizon has significantly changed. The data presented below in Table 1 presents the growth in volume as well as amount transacted through electronic modes of banking.

### **A Journey from Barter System to Electronic System Of Payments:**

From a long period of time, the Indian system of payments was completely based on the barter system of exchange where goods and services were exchanged against each other as consideration. Due to its numerous difficulties, it was replaced by monetary system. Metal coins made of precious metals came into being. These coins were made of gold, silver and copper. Value of these coins was evaluated according to the value of metal. Later in the 18th century, silver and gold coins gave birth to *hundis*, bonds, and shares, and paper currency was introduced in India for the first time. The presidency banks had sole power to issue currency notes. Due to the outbreak of world economy, British government faced acute shortage of silver, hence led to issue paper currency of small denomination. First notes printing press was established in Nasik in 1928 which later started to supply currency notes across the nation. The economic crises of 1991 pressured the government to alter the economic structure of the country which a caused increase in competition for Indian banks. Increased competition, new environmental regulation, international pressure gave birth to introduction of new methods of payment such as RTGS(Real Time Gross Settlement), NEFT(National Electronics Funds Transfer), ECS(Electronic Clearing System) cheque truncation system. But the revolutionary phase in banking came into prevalence with the introduction of ATMs by HSBC bank. Later on the payments banks came into existence. The first payment bank in India was Airtel Payment Bank. There was noticed drastic change in the electronic banking system with demonetization in 2016. It gave birth to numerous payment gateways such out of which various entities got permission from RBI to act as payments bank i.e. Paytm. At present there are 365 electronic applications operating in India for promoting electronic payments.

**Research objectives:**

- To get full acquaintance of various electronic payment methods prevalent in India and its benefits.
- To measure growth of digital banking platforms.
- The key barriers to growth of electronic banking India.

**Research methodology:**

The paper is descriptive in nature. The data has been collected from secondary sources, specifically from official website of Reserve Bank of India. The growth of electronic banking has been presented graphically so as to make it easy to understand.

**Review of literature:**

Malhotra and Singh (2007) advocated for the pivot of innovation in technology adopted by the banks in India. He examined the determinants of adoption of internet banks by the banks. According to the results, internet banking helped in expansion of market share by attracting more customers towards the institution. The study conducted on 88 banks revealed that the banks of younger age, large banks, private banks, banks with higher deposits had more probability of adoption of electronic banking. This urged the other banks to adopt technology due to increase in competition.

Brush *et al.* (2012) explained the utility of digital banking for the customers. They develop skill in using these services. The cost and revenue structure is also significantly affected by adhering to e-banking by the banks. It does not explicitly increase the profitability of the banks when the same electronic based services are provided by them. The analysis resulted in reduction in operational costs of banks when they innovated their services delivery mechanism to e-banking.

Akhisar *et al.* (2015) advocated the significant impact caused by electronic banking structure development on performance of banks. Electronic banking resulted in contraction in operational costs of banks and increase in their profitability. It was primarily affected by the ratio of the number of branches to the number of ATMs. Bank profitability was positively influenced by the ratio of ATM to the number of branches and number of issued bank cards (credit cards, debit cards, etc.).

Nitsure (2004) said that electronic banking helps to modulate the strategic behavior of banks to explore new business opportunities. He further expounded the various challenges and prospects in electronic banking. The rich-poor divide, lack of knowledge, the difference in the operational environment of private and public enterprises, were among the principle causes of slow growth of electronic banking in developing nations. Security concerns, management and regulation of the innovative processes etc. were also found hindering the growth of electronic banking.

Gutu (2014) studied the role of electronic banking in selected banks of Romania. The analysis showed that operational costs and increasing profitability performance of banks significantly went down due to introduction of electronic banking applications. It took relatively short time to cope with and exceed initial setup cost of internet banking and other electronic-based activities. Such benefits of electronic banking encouraged e-banking activities in developing nations.

### **Electronic Payment Methods in India:**

There are different payment methods in India being promoted under cashless India project. A light is thrown on them as follows:

- **Banking Cards (Debit / Credit / Cash / Travel / Others):** Banking cards give consumers high security, convenience than any other payment mode. There are various forms of cards available to a customer – credit, debit and prepaid – offering flexibility, as well. These cards endow with 2 aspects of authentication for secure transactions e.g secure pin and OTP. RuPay, Visa, MasterCard and Payment cards provide the customers the power to purchase items anywhere whether in stores, on the internet, and over the telephone. They save buyers' and sellers' time and money, and thus enable them for ease in transacting.
- **Unstructured Supplementary Service Data (USSD):** The innovative payment service \*99# works on Unstructured Supplementary Service data (USSD) channel. As being a unique mode of fostering electronic payments, Unstructured Supplementary Service Data (USSD) facilitates the customer to use basic feature of mobile phone, without need of having mobile internet data facility to use USSD based mobile banking transactions. It has objective to provide financial deepening and include the under-banked society in the mainstream banking services.

- **Aadhaar Enabled Payment System (AEPS):** AEPS is a bank led model allowing online interoperable financial transaction at pos (point of sale / micro ATM) via business correspondent (BC)/bank Mitra of any bank using the Aadhaar authentication.

- **Unified Payments Interface (UPI):** Unified Payments Interface (UPI) is a method that powers multiple bank accounts into a single mobile application (of any participating bank), integration of several banking features, flawless fund transfer, payments and remittances under one roof. In other words, it caters to the “peer to peer” collect request and get paid as per requirement and convenience of the customer. Each bank provides its own UPI app for android, windows and IOS mobile platform(s).

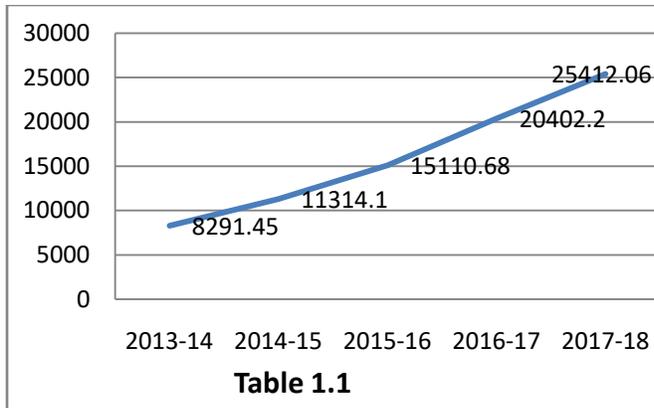
- **Mobile Wallets:** This is a new way to carry cash in electronic manner. A customer can link his credit card or debit card information to mobile wallet application and can transfer money online to mobile wallet. Instead of using physical plastic card for purchases, he can pay with via Smartphone. Mobile wallets require an individual's account to be linked to the electronic wallet to load money in it e.g. Paytm, Free charge, Mobikwik, Oxigen, m-rupee, airtel money, jio money, sbi buddy, itz cash, citrus pay, vodafone m-pesa, axis bank lime, icici pockets, speedpay etc.

- **Point Of Sale:** A point of sale refers to the place where sales are made. In business terms, it may be a mall, a market or a city. On a micro level, retailers consider a Point of sale (POS) to be the area where a customer makes or performs a transaction, such as a checkout counter leading to increased revenue of the seller. It is also known as a point of purchase.

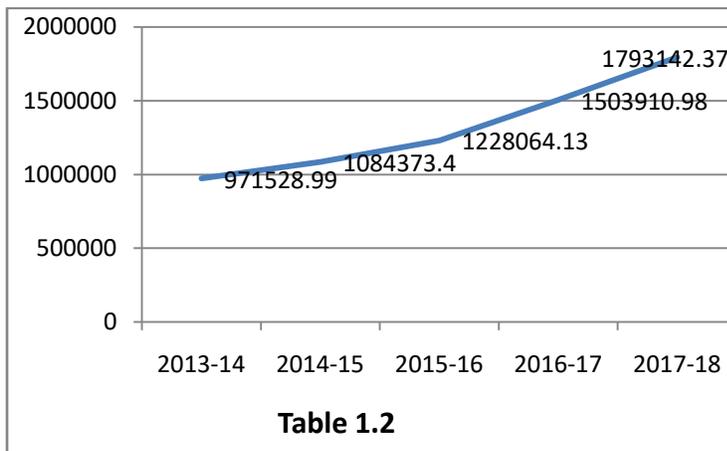
- **Internet Banking:** It is also known as e-banking or virtual banking. It is an electronic payment method which enables customers of a financial institution or a bank to conduct various transactions through the financial institution's website. It includes NEFT, RTGS, ECS and IMPS. In the following table, data related to various digital banking transaction modes has been presented as below:

| Item                                       | 2013-14        |                    | 2014-15        |                    | 2015-16        |                    | 2016-17        |                    | 2017-18        |                    |
|--|----------------|--------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|
|  | Vol. (million) | Amt. ( Rs billion) |
| 1 RTGS                                     | 81.11          | 904,968.04         | 92.78          | 929,332.89         | 98.34          | 1,035,551.64       | 107.86         | 1,253,652.08       | 124.46         | 1,467,431.99       |
| 2 EFT/NEFT                                 | 661.01         | 43,785.52          | 964.86         | 66,769.93          | 958.39         | 69,889.15          | 1,111.86       | 74,035.22          | 1,138.05       | 79,451.24          |
| 3 Immediate Payment Service (IMPS)         | 15.36          | 95.81              | 927.55         | 59,803.83          | 1,252.88       | 83,273.11          | 1,622.10       | 120,039.68         | 1,946.36       | 172,228.52         |
| 4 National Automated Clearing House (NACH) | 86.50          | 214.81             | 78.37          | 581.87             | 220.81         | 1,622.26           | 506.73         | 4,111.06           | 1,009.80       | 8,924.98           |
| 5 Cards                                    | 7,219.13       | 22,159.58          | 340.17         | 1,220.88           | 1,404.08       | 3,801.83           | 2,057.27       | 7,916.17           | 2,503.46       | 10,736.12          |
| 5.1 Credit Cards                           | 512.03         | 1,556.72           | 8,423.99       | 25,415.27          | 10,038.67      | 29,397.65          | 12,055.87      | 30,214.00          | 13,358.62      | 38,214.64          |
| 5.2 Debit Cards                            | 6,707.10       | 20,602.86          | 619.41         | 1,922.63           | 791.67         | 2,437.02           | 1,093.51       | 3,312.21           | 1,412.97       | 4,626.33           |
| 6 Prepaid Payment Instruments (PPIs)       | 133.63         | 81.05              | 7,804.57       | 23,492.65          | 9,247.00       | 26,960.63          | 10,962.36      | 26,901.79          | 11,945.65      | 33,588.31          |
| 7 Mobile banking                           | 94.71          | 224.18             | 171.92         | 1,035.30           | 389.49         | 4,040.91           | 976.85         | 13,104.76          | 1,872.26       | 14,738.54          |
| Grand total                                | 8291.45        | 971528.99          | 11314.10       | 1084373.4          | 15110.68       | 1228064.13         | 20402.2        | 1503910.98         | 25412.06       | 1793142.37         |

- Source: RBI Bulletin various issues.



The table 1.1 shows the growth of digital payments in terms of volume. There is continuous increase in the digital payments since 2013-14. It was 8291.45 (million) in 2013-14 which rose to 25412.06 (million) in 2017-18.



The table 1.2 shows the growth of digital payments in terms of amount. The quantum of digital payments has increased significantly over the period. The amount of transactions was Rs 971528.99 (billions) in 2013-14 which increased to Rs 1793142.37 (billions) in 2017-18

### Data Analysis:

The above data for the various periods shows steep growth over the time. The digital banking scenario is growing at a very high rate. The data is presented for 5 years ranging for 2013-14 to 2017-18. In FY `17 the value of digital banking transactions reached upto Rs 1793142.37(billion) against Rs 1503910.98(billion) in FY `16 which is 19.23% more than previous year. In terms of volume, the transactions amounted up to 25412.06(million) in FY `17 against 20402.2(million) in FY `16. It was 24.55% more than previous year. The CAGR

(Compound Annual Growth Rate) shows the average rate of growth of investments or returns on annual basis. Its formula has been given as:

$$CAGR = \left[ \frac{EV}{BV} \right]^{1/n} - 1$$

Where:

- EV: Ending Value
- BV: Beginning Value
- N: Number of Compounding Periods

The amount of digital banking transactions has reported 13.02% annual growth whereas the volume of transactions were identified growing at the very high rate 25.11%.

**Advantages of Electronic Banking Transactions:** Electronic methods of payments are multi-dimensionally advantageous for the people and the economy as a whole. It has following advantages:

- **Reduced Paper Consumption:** The increased use of electronic modes of payments leads to reduced paper consumption in the form of printing of notes, the Performa etc being used in the banks. Thus it promotes consciousness towards saving trees and saving environment.
- **Easy Tracking of Income and Consumption:** With increased use of electronic payment methods, it becomes easy to keep a track record of the income of people. There will be reduction in the black money which causes serious threat for the economic development of any country. A complete track record will refrain people to evade taxes.
- **Reduction In Expenses:** electronic payments methods do not require the customer to use paper. Even it reduces the need of use of paper. Thus if electronic payment system is put into use, it will reduce the cost of printing currency. The funds saved thereby, can be used for other purposes.
- **Convenience:** the ease in doing financial transactions is the biggest motivator to go for digital banking. The customer will no longer need to carry cash, plastic cards, or even queue up for ATM withdrawals. It's also a safe and easy transacting method when the customer is travelling in any part of the country. "the benefits are enormous if you leave out the low-income group, which will face a huge challenge," says Kartik Jhaveri, director, transcend consulting.
- **Low Risk:** Another advantage to go digital is reduced risk of loss. If cash is lost somewhere it cannot be obtained back but this is not the same in the case of electronic payment

mechanism. The transaction and the accounts of a customer is secured by the way of pin or the ways such as thumb impression so that no one except the user has access to the account of a particular person.

**Barriers in growth of digital/electronic banking:** As the economy is very quickly moving towards the electronic payment methods, the risks are arising too on the other side. The electronic transactions are not safe as much as they need to be. There are various issues in opting digital payment methods. These issues have been discussed as under:

- **High Risk of security and fraud:** Fraud is defined under section 421 of the Indian Penal Code and under section 17 of the Indian Contract Act. Thus essential elements of frauds include representation and assertion, related to a fact, and induce another to act upon the assertion in question or to do or not to do certain act.

Though virtual mode is safer than the cash mode of conducting the financial transactions, but is not safe as much as it needs to be. The numbers of cyber crimes are increasing a very high rate. People in India are not highly educated. Moreover, even highly educated ones also get bluffed by the hackers. As per the data provided by RBI to ministry of IT, online banking frauds mounted to more than rupees 150 crore and more than 25000 in number in FY 2017. People involved in such crimes are also called mules that illegally take away the personal details of the customer and access the account. Thus there is need of making the system more stringent so that illegal access can be minimized even removed

- **Illiteracy:** to use technology, it is imperative that the customer is educated. In India, still there are various parts where literacy level is very low. Due to this they get excluded from the financial system. Therefore to promote electronic payment environment, it is very important that people are given academic as well as financial education.

- **Reluctance to Use Technology:** in our country, there is a big number of population who put their money with the bank. Though they come under the perimeter of financial system but they are not techno-savvy. Either they do not know how to use the electronic payment modes or they are not willing to use them due to lack of trust.

- **Complexities in the Application Software:** Electronic payment system needs internet and a physical device and the application software. The users, mostly get confronted with the

complexities in the software that how to make payment or use the application. Such complexities reduce interest of the users to make use of virtual payment system.

- **Infrastructure Development:** in India there are many villages where the basic amenities are not available since independence. In such circumstance the success of cashless India cannot be even imagined. There needs to be developed the basic infrastructure facilities in the remote areas also like transportation, electricity, educational facilities etc. Only then, the success of electronic payments initiative can be ensured.
- **Charges on Availing Facilities:** there are a fixed numbers of transactions that can be done by a customer through his ATM Card. After such, for each transaction, some charges have to be paid by the customer. These charges discourage them to use the electronic payment methods.
- **High Cash Dependency:** India has a high cash penetration in almost all of its transactions that happen as b2c transactions. Total cash flow in the market accounts for 12.04% of the GDP, which is among the highest in developing countries. It shows our dependence on cash is acute and it requires time to tackle it.

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### **Conclusion:**

The payment scenery in India has witnessed robust structural changes during the last decades which is assumed to be a turning point period in the banking industry. In the early 1990s, the Reserve Bank of India worked in the direction of development of technological infrastructure to facilitate the creation of a Department Payment and Settlement System (DPSS). In 2007, the Indian Parliament came up with the Payment and Settlement Systems Act. Since the beginning, the department has been focusing on migrating to a cashless economy through a process of stakeholder consultation for development of a regulatory framework which is responsive to upcoming developments and innovations. Electronic payments can enable greater economic growth, growth in international e-commerce, and aid in social and financial inclusion. The population is eager to participate in the rapid evolving advancement in technology. Although there are different problems occurring the way of success, but the efforts of RBI and Government of India are expected to come up with the fruitful results where the whole economic system is based on the electronic payment modes and each and every person covered under the sphere of the financial system.

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