

Role of IT in banking sector in India

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Abstract: *Information technology has been the driver of various financial applications initiated by Government of India for the growth of the Indian Banking Sector. In the last fifteen years banks in India have invested heavily in information technology to provide services such as Net banking, Mobile banking, Automated Teller Machines, Credit cards, Debit cards and Point of Sale machines. Reserve Bank of India initiated in collaboration of major banks in India, to use information technology to automate the financial transactions with two major schemes. These two are “Real Time Gross Settlement” and “National Electronic Fund Transfer”. Innovations in Computer technology and Telecommunications System allowed banking sector to provide electronic payment system for financial transactions with mobiles, smart phones and tablets. This paper highlights the development of electronic payment services based on information technology in banking industry.*

Keywords: Information Technology, National Electronic Fund Transfer, Real Time Gross Settlement, Net banking, Mobile banking and Automated Teller Machines, Credit cards, Debit cards and Point of Sale machines.

Introduction

Information Technology (IT) comprises of computer hardware and software along with interface with networking devices. Paper based transactions process had been slowly replaced by usage IT with personal computers and mobiles with internet. Even funds transfer, C. Ranga Rajan (2011) remarked in his lecture that The Institute for Development and Research in Banking Technology, IDRBT Hyderabad has been a unique institution which has through its research and product development contributed immensely to the induction and propagation of IT in the banking industry. Far reaching changes in computers and communications technology have altered our way of life. It is this change which has also fundamentally altered the way in which banking is being performed. The basic functions of banking have remained the same but the way in which banking services are provided has been altering even in 2017 as mobiles penetrated more than 80 percent of the population.

After liberalization in 1991, computerization began with few key functions and departments in principal branches of many banks through adoption of ledger posting machines. The next progress was towards branch automation. This enabled setting up of “Single Window Service” facilities which were focused on the customers. After that there was the emergence of network based operations which were aimed at providing interbank connectivity. The important

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stage in the evolution of the user friendly technology arrived with the deployment of Credit cards, Automatic Teller Machines (ATM), Debit cards, and Net banking. The adoption of Core Banking Solution, a software package by Infosys, mandated by Reserve Bank of India radically transformed the way banking was done in India both by bankers and customers in early 2000s.

In the last 10 years IT impacted on banking services with computers, networking and mobiles to provide “Anywhere banking”, “Internet banking”, “ATM banking” and “Mobile banking”. It has also facilitated the use of secured debit and credit cards. For the banks, the major benefits are improve efficiency, centralization of customer information, centralized transaction process, and centralized accounting process, basic MIS reporting and real-time information availability. Among the several factors which have contributed to these changes, technology ranks high.

Literature Review

IT has a positive impact on the payment and settlement systems across all the banks in the country. Electronics transaction and payment processing has been far superior to paper based system in terms of accountability, traceability, efficiency, speed and safety. C. Ranga Rajan (2011) also remarked that the introduction of the “Real Time Gross Settlement” (RTGS) system has resulted in not only compliance with international standards but also paved the way for risk-free fund transfers settled on a real time basis within 24 hours from 2004. RTGS is an inter-bank electronic funds transfer facility available among 88,000 branches of banks spanning more than 5,000 centers of the country. National Electronic Fund Transfer (NEFT) is another electronic payment system introduced by RBI with transactions limited to single bank or customer with unlimited amount.

According to Rajesh Tiwari, CFA, Rakesh Kumar (2012) that Internet has significantly influenced delivery channels of the banks. Internet has emerged as an important medium for electronic payment system for banks. The customers can view the accounts; get account statements, transfer funds and purchase drafts by just punching on few keys. The research of Aditi Mittal and Sumit Gupta (2013) indicated that the branches are running on the concept of 24 x 7 working, made possible by the use of Tele banking, ATMs, Internet banking, Mobile banking and Electronic banking. These technologies allowed electronic payment systems to be used by maximum number of customers at lower cost and in most efficient manner. K. Ratna Manikyam (2014) said that banks may have to go for mobile banking services for a cluster of villages. Alternatively, technological institutions have to come out with low-cost, self-service solutions / ATMs. The government and the RBI should actively support such research efforts.

According to G. Tulasi Rao and T. Lokeswara Rao (2015) that banking environment has become highly competitive today. To be able to survive and grow in the changing market environment banks are going for the latest electronic payment systems. The key is which system allows cost reduction and effective communication with customers and institutions associated with the banking business. Prof. M.C. Sharma and Abhinav Sharma (2016) found that financial sector in general and banking industry in particular is the largest spender and beneficiary from IT.

Need of the study

Nationalized banks and the private banks offering various products and services to the customers based on IT with usage of computers, tablets and mobiles for branchless and paperless transactions. Only the educated people and selected customers are utilizing the innovative

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products implemented by the banks. Internet penetration has been slow and mobile growth has become the dominant area so banks can reach mobile users for various electronic payment systems. Providing the awareness and higher utilization of using ATM, Credit Card, Debit Card, Net Banking and Mobile Banking among various customers and businesses is the key any bank. Penetration of internet with computers and mobiles has reached only 450 million at the end of 2016, so less than 50% percent of Indians can process transactions electronically. According RBI electronic payment growth has been rapid with mobiles. This secondary study gives a view of growth of computers, internet and mobiles as part IT deployment along with growth and penetration of various electronic payment systems regulated by RBI and National Payment Corporation of India (NPCI).

Objectives of the study

Based on the secondary data available with RBI and from few articles, we discuss these objectives

1. To study how the information technology has penetrated in India
2. To study the growth of various electronic payment systems implemented by the banks using IT and regulated by RBI.
3. To study the advantages and disadvantages of electronic payment systems offered by banks in reaching customers.

Methodology of the Study

RBI gives monthly reports of electronic payment systems along with paper based transactions with volume of transactions and value of transactions. RBI provides monthly reports of various banks offering financial transactions through credit cards and debit cards at ATM and POS machines. National Payment Corporation of India (NPCI) along with RBI has initiated Unified Payment Initiative (UPI), Unstructured Supplementary Service Data (USSD) with only SIM card even in feature mobile phones and Bharat Interface for Money (BHIM) mandated by Government of India for banks. NPCI keeps track of monthly financial transactions in their web site, www.npci.org.in and RBI reports are available at www.rbi.org.in for 1) RTGS or NEFT or ECS or Mobile Banking, 2) Reports on ATM and POS transactions and value and 3) Payment Indicators. The present study is based on the secondary data collected from published data on these two web sites, Telecom Regulation Authority of India (TRAI), journals, and leading marketing researchers such as International Data Corporation (IDC), Forrester, KMPG, and eMarketer.

Technological Developments in Banking Sector

The infrastructure development IT strongly supports the growth of the banking sector by facilitating inclusive economic growth. IT provides faster transaction process without paper and settlements of accounts can be done in hours. IT helps in bringing down the transaction costs for the customers. Financial transactions can be done 24 hours a day, an example would Airline or Railway reservation. Customers need not to go for banks as often in a paper based system. Growth of IT in banking sector in India began with deployment of ATMs and Credit cards in early 1980s along with computerization of customer accounts. Debit card growth has been phenomenal in last five years as shown in next section.

Government of India began Electronic Fund Transfer (EFT) between banks of customers and businesses through 'Real Time Gross Settlement' or 'National Electronic Fund Transfer.

This facilitates huge volume transaction of electronic payment systems among customers and businesses from early 2004. Mobile banking was introduced by RBI in October 2009. National Payment Corporation of India (NPCI) launched ‘Immediate Payment Services’ (IMPS) to offer an instant, 24-hour with 7 days a week, interbank electronic fund transfer service through mobile phones on November 22, 2010 with RBI. Prepaid Payment Instruments (PPI) are driven by mobile wallets and prepaid cards which are regulated by RBI. Government has launched Bharat Interface for Money (BHIM) after demonetization in December with a link to Aadhar and results were great. Through feature mobile a USSD app has been launched for financial transactions.

IT driven Computers, Servers, Software, Website, Networking Devices and connectivity of internet are integral part of financial transactions and payments through banks to facilitate ATMs, Credit cards, Debit Cards, POS machines, Net Banking and Mobile Banking for Customers and businesses.

Computer Penetration in India

According International Data Corporation, IDC (2016), the shipment of desktop PCs, Laptops and Tablets have been growing steadily as IT has begun to reach even the rural areas of globe. Basic unit for electronic payment system is a PC or a laptop. As shown in table 1, 358 million computers with two flavours, a PC or a laptop were sold globally in 2010-11. Tablet was introduced by Apple in the name of ‘iPad’ in April 2010 and 19 million tablets were sold. More than 300 million computers were bought by consumers every year since 2012 but sales were decreased as tablet growth was higher. In 2012, tablet sales were almost half of computes as shown in table 1. By 2015, computer shipments were 276 million but tablet shipments were 208. The forecast was reduction of tablet shipments but more or less same shipments for computers. The reason for this is the growth of smart phone. It has an impact on customer acceptance over bulky computes and laptop.

Table 1: Global shipment of Desktop PCs, Laptops and Tablets,
in million

Year	Desktop-PCs	Laptops	Tablets
2010	157	201	19
2011	155	209	76
2012	148	201	145
2013	134	180	219
2014	133	174	230
2015	113	163	208
2016**	103	154	182
2019**	102	170	180

Source: International Data Corporation

According International Data Corporation, IDC (2016), the shipment of Computers was just over 9 million units as shown in table 2. This was less than 4% of global computer shipment of 307 million units from table 1. The shipments were almost same for 2015 and 2016 and the forecast was the same. 7.3 million Tablets were sold in 2014 which was around 3 percent of global tablet shipment. So penetration of computers and tablets is 17 for 1000 people in India from 18 million units for over billion people in 2016. This is a key factor that electronic payment has not allowed bigger growth because PC penetration is low. For individuals the cost of

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computers in no less than Rs. 15,000 and there is a period of training needed. Branded laptops sell for around Rs. 30,000.

Table 2: Computers, Tablet shipments from 2014 – 17 in India, in millions

Year	Computers	Tablets
2014	9.02	7.31
2015	9.21	6.60
2016	9.49	6.95
2017*	9.59	7.38

Source: International Data Corporation (2016)

Internet penetration in India

Growth of Internet Users has been steady in India in last five years. As mobile penetration began to grow as shown in table 4, India has more internet users from 92 million in 2010 to 125 million in 2011 to 159 million 2012 to 193 million 2013 to 233 million 2014 to 354 million in 2015. Growth rate has been over 40% in 2014 and above 30% in 2015. According TRAI, at end of 2016 there a total internet user are 462,124,989, second largest in the world behind China, a growth rate of 25%.

The penetration of internet user among the 1.326 billion Indian is 34.8% in 2015 which was just 7.5% in 2010. There is a 6 points increase in penetration level in 2014 and 9 points increase in 2015 and a 7 point increase in 2016. This is phenomenal but is a great concern for banking sector for overall services. 63.2% Indian can't use electronic payment systems through banks.

Total internet users across the world crossed 3.425 billion by end of 2016 which is a penetration level of 50%. India has only 13.5% of world internet users but a population of around 20% of world. Yet, there is lot scope for foreign investment and infrastructure development many multinational firms to IT infrastructure needed to make internet penetration levels over 70 or 80% which found in many developed nations. Many nations have less than 10% paper transactions through banks but we see in the next section India has still over 42% paper based transactions in banks according RBI.

Table 3: Growth of Internet users in million and Penetration Level in India

Year	Internet users	Total Population	Penetration in %
2006	32.60	1162	2.80
2007	46.61	1179	3.60
2008	52.43	1197	4.40
2009	62.16	1214	5.10
2010	92.32	1231	7.50
2011	125.61	1247	10.10
2012	158.96	1263	12.60
2013	193.20	1263	12.60
2014	233.15	1295	18.10
2015	354.11	1311	27.10
2016	462.12	1326	34.80

Source: <http://www.internetlivestats.com/internet-users/india/>

Growth of Mobiles in India

India has steadily launched satellites for defense, communication, education and television sector through a pioneer government branch, Indian Space Research Organization, ISRO. This enabled India telephone system to offer mobile technology from 2G to 3G to 4G. In 1991, India has around 6 million telephones for a population of close to a billion people. In March, 2016 India has around 1033 million mobile users. According to the research of Bhupender Kamra, Dr. Jai Prakash Hooda and Ms. Sushma Hooda (2016) that Government of India and Reserve bank of India both are working in the direction of providing banking services to masses with implementation of latest technology of communication, and electronic transaction processing with mobile devices.

Table 4: Growth of Mobiles in India in Millions

Year	Mobile/Wireless
2006	166.1
2007	233.6
2008	346.9
2009	525.1
2010	752.2
2011	893.9
2012	864.7
2013	886.3
2014	944.1
3/2015	969.9
3/2016	1033.6

Source: International Data Corporation (2016)

Connecting internet is only the half issue. How fast one gets the data or uploads the data is another issue. Wide area networks, Gateways, Fiber optic cable structure and others would give a faster data rates. India does not rank in the top markets to provide faster data rates measured in megabits per second. One to two Mega bit per second is available in Tier III cities in 2016 as 3G penetration began. Table 5 shows the top Internet Service Providers, ISPs in India by total subscriber base as on 31 March 2016. Broadband is defined as "an always-on Internet connection with download speed of 512 kilo bit per second or above." Narrow band is a "data communications, a channel with bandwidth less than or equal to one voice and a slow data transfer rate, a low-capacity communications circuit or path".

Airtel provides broadband to 42% of the total subscribers as seen in table 5. Vodafone provides a just over 41% and Idea Cellular provides 52%. Reliance Jio had offer free data and voice until March 2017 and got over 10 crore mobile subscribers according TRAI. Government run BSNL is also providing faster broadband services with 45%, though it has been losing market share. Part of this broadband growth has been coming from smart phone penetration. Indian market saw the more 150 million smart phones shipped in 2016. India has become the top two smart phone markets in the world according eMarketer.

Table 5: Top Internet Service Providers, ISPs in India by total subscriber base, 3-2016

Rank	ISP	Narrowband	Broadband	Total
1	Airtel	52,064,601	38,473,189	90,537,790
2	Vodafone	39,792,668	27,760,081	67,552,749
3	Idea Cellular	21,110,847	22,924,981	44,035,828
4	Reliance Communications	23,449,233	15,567,769	39,017,002
5	BSNL	13,740,051	20,351,570	34,091,621
6	Aircel	14,906,282	7,541,005	22,447,287
7	Tata Teleservices	11,812,117	9,229,125	21,041,242
8	Telenor India	13,671,479	0	13,671,479
9	MTNL	456,096	1,511,496	1,967,592

Source: Telecom Regulation Authority of India (TRAI), Government of India (2016)

Growth of Electronic Payment Systems by banks

To advance online transactions, RBI introduced “National Electronics Funds Transfer”, NEFT and “Real Time Gross Settlement”, RTGS across all banks in India in early 2005 besides Debit Card, Credit Card and Net Banking. Mobile banking initiatives were taken in 2014. POS penetration has been slow but steady. These are technology products banks use to improve services with customers over a period of time with IT.

Growth in Electronic Fund Transfers among banks with IT, 2011-16

Bank transactions made through the NEFT system raised from 132 million in 2010-11 to 1252 million in 2015-16, a growth of nine times or 900%. The value raised from 9,391 billion in 2010-11 to 83,273 billion in 2015-16, a growth of 786% or 7.8 times in value. Multiple banks transfers can be clubbed together in NEFT transfer but realization takes more 6 to 8 hours. From RTGS system, transactions raised from 49.3 million in 2010-11 to 98.3 million in 2015-16, a growth of 100%. This is not as high as growth in NEFT transactions.

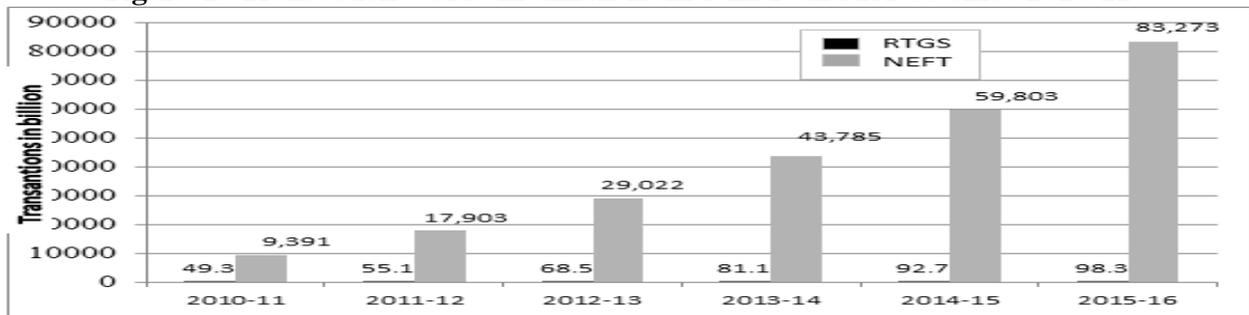
Table 6: NEFT and RTGS Transactions in Millions and Value in Billions

Year	2011-12	2012-13	2013-14	2014-15	2015-16
NEFT: No. of Transactions	226.12	394.12	661.01	927.54	1252.89
NEFT: Total Amount	17,903	29,022	43,781	59,803	83,273
RTGS: No. of Transactions	55.12	68.50	81.09	92.73	98.32
RTGS: Total Amount	545,127	676,841	734,252	753,913	824,581

Source: www.rbi.org.in

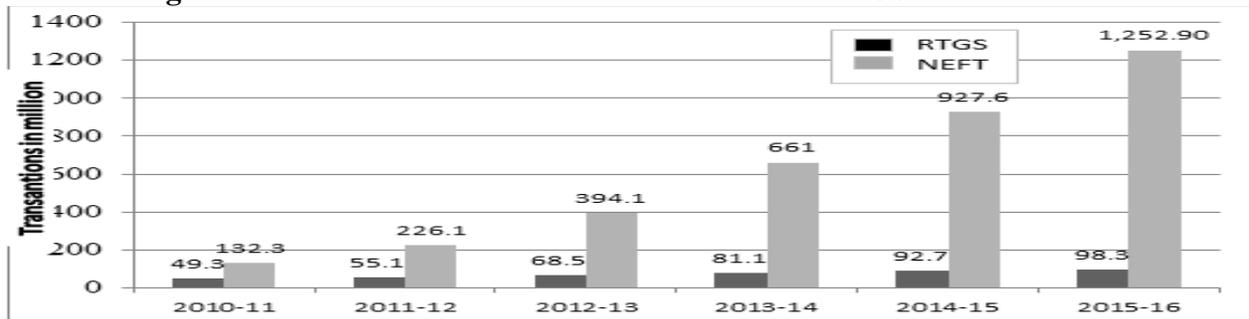
From RTGS system, the total value raised from 484,872 billion in 2010-11 to 824,581 billion in 2015-16, a growth of 70%. But the total value of transaction continued be in 10 times higher in NEFT system even 2015-16, according RBI data, shown in Figure 1 and data in table 6. This is because realization in RTGS systems takes less than 30 minutes, no multiple banks and value has to be less 10 lakhs.

Figure 1: Transaction Value in billion from NEFT and RTGS since 2010-11



Transactions continued to much higher in NEFT system when compared with RTGS system as shown in Figure 2 because multiple banks transfers can be included while using NEFT system and limit on transaction value. There has been a greater transparency and better accountability of financial transactions among businesses and banks. As show in table 6 and figure 2, electronic payment system through NEFT and RTGS continue grow from 2011-12, especially NEFT system.

Figure 2: Transactions in million from NEFT and RTGS since 2010-11



Growth of ATMs and Point-of-sales (POS) machines enabled faster Electronic Transaction Process

One Lakh ATM machine mark was crossed in year 2012 as shown in table 7, according to data of RBI. Two Lakh One million ATM machine mark was crossed in year 2016. Total ATM machines from 2011 were doubled by 2016 to 2,02,801, as shown in table 7. From an ATM for every 12,000 Indians in 2012, there is now one for every 6,500. The State Bank of India, SBI has opened more than 26,000 ATMs over the last four years, according to RBI. As per the RBI report in April 2017, the total ATMs had grown to 2,06,119 by end of March 2017, a growth of bare 1.6% because the higher cost of ATM and maintenance fee per annum.

A Million POS Machine was crossed in 2013. There were 1.4 million POS machines used to swipe debit and credit cards by 2015-16, according to RBI. But there was a steady growth form 2010 to 2016. Growth of POS machine was 31% in 2011-12, 26% in 2012-13, 3% in 2013-14, 17% in 2014-15, and 17% in 2015-16.

But demonetization of Rs. 500 and Rs. 1000 notes has changed the landscape of POS machines by December 2016 to March 2017.

As business growth dominated by digital payments POS machines grown to 1,767,733 by end of December 2016. In January 2017 more two lakh POS machines were added by various banks and POS machines stood at 2,015,847. In February 2017, growth of POS machines

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continued and POS machines reached to 2,224,977. As government of India pushed manufactures of POS machines and customers to use POS machines, the number of POS machine installed base rose to 2,528,758, an addition of 3,04,761 POS machines in month of March 2017, according to RBI data.

In just one year from 2015-16 to 2016-17, POS machines had grown by 1,066,784, a phenomenal growth of 72.96% almost doubled. There has been a concentrated effort from government of India install more two million newer POS machines by end of 2017. These are used to swipe debit and credit cards at more 14 million businesses across India. This is a key factor that will drive electronic transaction processing as mobiles or smart phones are used more and more with internet from current 463 internet users.

Table 7: Comparisons of ATMs and POS Machines

RBI Data

Year	No. of ATMs	No. of POS Machines
2010-11	087355	618,756
2011-12	105784	812,672
2012-13	141516	1,025,732
2013-14	176410	1,058,642
2014-15	193768	1,245,447
2015-16	202801	1,461,974

Source: www.rbi.org.in

Growth of Debit cards and Credit for faster Electronic Processing

Credit cards increased from 17.7 million in 2011 to 26.4 million in 2016, as per RBI data. This was a growth rate of 49% over period of five years. Debit cards rose from 263 million to 712 million over the same period as shown in table 8. Growth of debit cards was 170% and most banks offer debit card for new users. Customer payment was deducted from his or her bank account immediately after the electronic transaction. Transaction amount can not exceed the amount in the account of any debit card holder. In a credit card system, customer can make electronic payment through any accepted business but need to pay within 30% or else the company of credit card would allow monthly installments that must be met. There are defaulters and so growth credit card total was not as high the growth of debit cards.

Table 8: Growth of Debit Cards and Credit Card, RBI Data

Year	Debit Cards	Credit Cards
2011	263,796,762	17,672,337
2012	314,436,803	18,851,381
2013	372,506,779	18,686,136
2014	500,080,855	20,362,859
2015	643,191,224	22,748,760
2016	712,465,787	26,378,940

Source: www.rbi.org.in

As shown in table 9, transactions with debit cards grown faster than credit cards but value is still higher with credit cards. By 2015-16 there were 785.73 million transactions with credit cards with a total value of Rs. 2,407.1 billion with an average credit card transaction resulted in Rs. 3,064. A total of 1,173.5 million transactions with done using debit cards for a total value of

Rs. 1,589.2 billion with an average transaction resulted in Rs. 1,354. So the average credit card transaction value is still higher by two and half times.

Table 9: Credit Cards and Debit Card Transactions and Value in Rs. billion

Bank	Credit Transactions in millions	Credit Transaction Value, in billion	Debit Transactions in millions	Debit Transaction Value in billion
2011-12	322.15	978.7	360.9	534.3
2012-13	396.61	1,229.5	469.1	743.4
2013-14	509.14	1,539.9	619.1	954.5
2014-15	615.15	1,899.2	808.1	1,213.4
2015-16	785.73	2,407.1	1,173.5	1,589.2

Source: <http://www.rbi.org.in>

Growth of Mobile banking in electronic transactions system

Mobile phones across the world have grown from Rs 4,185 billion in 2012 to Rs 5,243 billion in 2016. Subscribers of mobile phones in India have increased to 1033.6 by March 2016 from 752.2 million 2010. Internet user increased by more than 100 million in 2016 from 2015. This led to a massive electronic transaction processing in last two years in mobile banking system, according RBI as shown in table 10. Mobile banking transactions rose from 23.5 million in 2011-12 to 389.6 million, 16.52 times between 2011 and 2016, as shown in table 10. The value of transaction with mobile banking had grown to 4001.6 billion by March 2016 from a 16.74 billion. This was great but from 2014-15 to 2015-16, the value of transactions with mobile banking rose 4 times and this is phenomenal as electronic payment will be geared towards the usage of mobiles and smart phones.

Table 10: Mobile Banking Transactions and Value in India from 2011-2016

Year	Transactions (in Millions)	Value (Rs. in billions)	Growth of Transactions	Growth of Value
2011-12	23.5	16.74	273%	193%
2012-13	53.3	485.1	126%	2797%
2013-14	94.7	1035.3	77%	113%
2014-15	171.9	1018.5	85%	-1.6%
2015-16	389.6	4001.6	127%	293%

Source: www.rbi.org.in

IT has increased the level of competition and forced them to integrate the new technologies in order to satisfy their customers with smart phones. Interbank Mobile Payment Service (IMPS) was implemented by NPCI in 2013. Using mobile one can process transaction all day long but banks have restrictions on amount and not all banks have this service. In 2015-16, there were 227.76 million transactions and grown 531.54 million by 2016-17, a growth over 100%. The value had grown to 4217.90 billion from 1601.50 billion in the same period with a growth 250%.

Bharat Interface for Money (BHIM) was introduced by Government of India and regulated by RBI and operated by NPCI in December 2016. 31 banks processed a total 42,716 transactions with a value of Rs. 18.54 million. By January 2017, total banks offered BHIM was 35, with 1.717 million transactions for a value 3,564 million. By February 2017, the valued

doubled to 6,231 millions. By March 2017, 44 banks processed 2.459 million transactions for a value of 8,231 millions, a growth over 30% in just one month. By April 2017, 3.186 million transactions were processed for a value of 10.021 billion. The value of transactions is grown by 20%. This application is operated through smart phone.

Advantages and disadvantages of electronic payment systems

In the Age of “High Technology” cashless systems strive to attract both the customer and businesses. Electronic payment systems are highly transparent and fast. As IT penetrated with the growth of mobiles with over 80% penetration in India mobile based electronic payment system would grow but has its own disadvantages. It is clear, electronic payment systems offer a range of benefits in comparison to traditional banking services:

1. Time savings: Money transfer between accounts of banks takes more than a day or week, just in case of transfer funds with check. Electronic Payment Systems usually takes just few minutes and very few stands in lines at a bank or in a post office.
2. Expenses control: Large part of financial system deals with how fast disbursements were done and recorded along with revenues. Recording transactions with payment details is the critical aspect of electronic payment system, not possible in a paper based system.
3. Reduced risk of loss and theft: Virtual wallets or e-currency has been lot safer as security has become the top priority with millions of transactions occurring in a day..
4. Low commissions. Higher fee are common on paper based transaction or even with net banking but mobile banking has become lowest cost system of electronic payment systems.
5. User-friendly. Electronic Payment Systems have intuitively understandable user interface and works 24/7. Help always available on internet if anyone needs.
6. Convenience. All the transfers can be performed at anytime and anywhere in electronic payment systems with access to the Internet.

Having specified the well-known advantages of electronic payment systems, it is necessary to mention its drawbacks:

1. Restrictions. Each payment system has its limits regarding the maximum amount in the account, the number of transactions per day and the time period to transact.
2. The risk of being hacked. Leaking of personal data has been a critical drawback of the electronic payment system besides hacking the accounts.
3. The problem of transferring money between different payment systems. Usually the majority of electronic payment systems do not cooperate with each other..
4. The necessity of Internet access and speed. If Internet connection fails, one has no way to process transactions with bank or business or customer. The speed of access is not constant and fluctuates as more users access the net.

Conclusion

Infrastructure development with IT has been pushed India’s banking sector to be the fifth largest banking industry in the world by 2020 and the third largest by 2025 by reducing unbanked people to less than 10% in last two years. As presented in section 6.2, Internet users has grown by 50% in 2014-15 and 30% in 2015-16 and penetration has been close 10 points. This has been fueled by the phenomenal growth of mobiles since 2005 as shown in section 6.3. In 2015 and 2016 smart phone growth has been unparallel in any country with below Rs. 10000 product. This

is the life line of mobile banking that has been driving electronic payment systems in 2015-16 and 2016-17. 13,452 billion mark of total transaction value has crossed in 2016-17 from 4000 billion value of mobile banking in 2015-16. Debits cards have reached almost 800 million and contributed a major share in electronic payment system. A critical variable has been the growth of POS machines and the machines have grown to 2.5 million by end of March 2017. Government of India has a target of adding another 2 million this year though there is only a production capacity of 50% in Indian electronic industry. Only importing POS machines is the option to support over 14 million small and medium scale businesses in India. So, 80% of businesses India need to build the capacity through POS machines for electronic processing.

The landscape of Indian payment system will also be driven by apps with mobile technology as initiatives of Government of India have gushed out from RBI and NPCI even with feature mobiles with usage SIM card. BHIM has greater penetration along with United Payment System. IT offers huge opportunities to improve efficiency and effectiveness of the functioning of banks with controlling risks and frauds.

Banks must provide the better guidance about their electronic payment systems to the uneducated and the people living rural areas or villages.

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