

# Digitization and Digital Governance in India : With Special Reference to Electronic Payment in Financial Sector

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## Abstract

*The introduction of technology in Payment and Settlement System has made a noticeable impact on banking services. It brought efficiency in banking services by making it speedier, cost effective, secure and accessible to its users. Use of electronic/digital payment products have increased electronic transactions and thereby promoted digitization. A period of twelve years, from year 2006 to year 2018 has been studied in this research paper to analyse the shift from paper to electronic/digital payment modes.*

**Keywords :** Digital Payment System, Digital Governance, Electronic Transaction.

**Classification-JEL :** O 23, O 33.

## 1. INTRODUCTION : DIGITIZATION AND DIGITAL GOVERNANCE

“Digital India” Programme was started by Prime Minister, Mr. Narendra Modi with a vision to make India – a digitally enabled country. The Digital India programme is a special programme of Indian government which aims at making India - a digitally enabled society and knowledge economy. This programme of digitization is helpful in creating a cashless/ paperless economy.

Several Guidelines have been issued for promoting digitization by Ministry of Electronics and Information Technology (MeitY), Government of India. It envisages Paperless/ Cashless and electronic services throughout India, especially in rural and remote places of

the country. Meit plans to have an e-Governance infrastructure across the nation. It will offer end-to-end transactional experience to all citizens, businesses as well as domestic/ local government affairs, which includes accessing diverse services and making payments and receipts through electronic methods/ modes.

Digital Governance/ Electronic Governance refers to application of ICT (Information and communication Technology) for providing Government services, information exchange, communication transactions to all citizens, to businesses and to groups having interest. E-governance/Digital governance mainly aims at making the process of digitization customer friendly, providing cyber security of data as well as of all digital transactions. It

provides government services to all citizens in an easy, efficient and transparent manner.

Information Technology (IT) has revolutionised every sector of industry. Its impact on banking sector has been experienced and felt by people from all walks of life. IT has helped in increasing the speed and efficiency of banking operations by facilitating the emergence of innovative products and new delivery channels. This upswing in technology has helped The Reserve Bank of India (RBI) to introduce various technology based changes to the banking sector in India. In an economic environment of fast changing trends and ever increasing demands of users, IT adoption brings several challenges like-its wide applications, security issues, network coverage, vendor management and data management.

Due to importance and relevance of information in banking sector, banks were among the first to accept the electronic information processing technology. They rely on collecting, processing, analysing and giving information so as to meet the requirements of

customers. Noticeable benefits of IT in everyday banking in India are quite well known. IT has also facilitated systematized, appropriate and well-timed management of the larger transaction (in volume) along with a large numbers of customers. Technology has also eased/ facilitated in shifting typical class banking (formerly used) to mass banking (recent).

## 2. PAYMENT AND SETTLEMENT SYSTEM

Payment and settlement systems being backbone of any economy provides a fast, efficient and secure basis for monetary transactions. Substantial development was noticed during last decade in this area due to introduction of technology in banking sector. Some of the beneficial outcomes of introducing Information Technology (IT) in banking sector includes ushering introduction of advanced and innovative methods/ techniques, distinctive shift from paper to electronic/ digital payment modes, sizable growth in turnover from electronic transactions, customer focused initiatives, acceptance at international level, etc.

**Table 1**  
**Share of Paper-based versus Electronic Transactions – Volume**

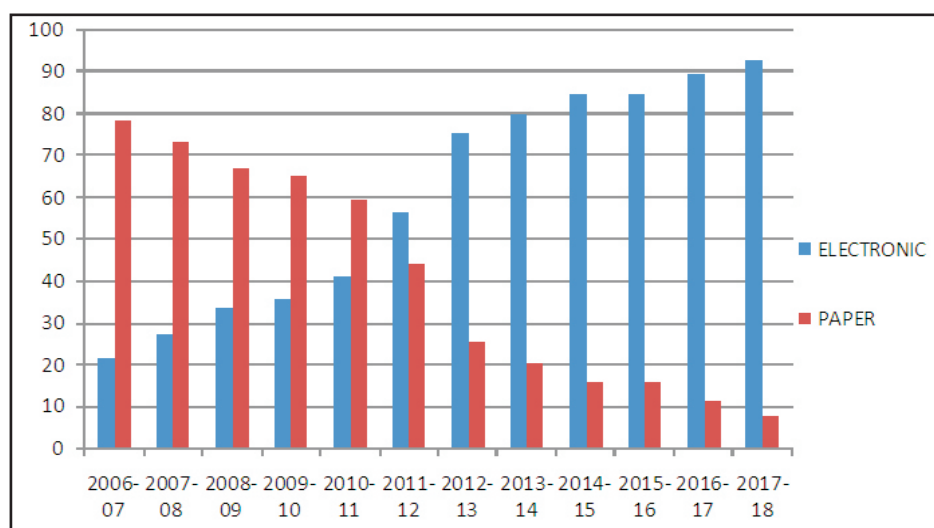
YEAR	PAPER - BASED RANSACTIONS		ELECTRONIC TRANSACTIONS		TOTAL TRANSACTIONS	TOTAL (%)
	VOLUME (IN MILLIONS)	VOLUME (%)	VOLUME (IN MILLIONS)	VOLUME (%)		
2006- 07	1348550	<b>78.07 %</b>	378710	<b>21.93 %</b>	1727258	<b>100 %</b>
2007- 08	1438645	<b>72.88 %</b>	535309	<b>27.12 %</b>	1973954	<b>100 %</b>
2008- 09	1374058	<b>66.86 %</b>	681191	<b>33.14 %</b>	2055249	<b>100 %</b>
2009- 10	1380.3	<b>64.75 %</b>	751.3	<b>35.25 %</b>	2131.6	<b>100 %</b>
2010- 11	1387.4	<b>59.16 %</b>	957.8	<b>40.84 %</b>	2345.2	<b>100 %</b>
2011- 12	1341.5	<b>44 %</b>	1709.8	<b>56 %</b>	3051.3	<b>100 %</b>
2012- 13	1313.7	<b>25 %</b>	3941.4	<b>75 %</b>	5255.1	<b>100 %</b>
2013- 14	1257.3	<b>20.19 %</b>	4970.3	<b>79.8 %</b>	6227.6	<b>100 %</b>
2014- 15	1195.8	<b>15.64 %</b>	6451.4	<b>84.36 %</b>	7647.2	<b>100 %</b>
2015- 16	1096.4	<b>15.56 %</b>	5947.1	<b>84.43 %</b>	7043.5	<b>100 %</b>
2016- 17	1206.7	<b>11 %</b>	9780.8	<b>89 %</b>	10987.5	<b>100 %</b>
2017- 18	1170.6	<b>7.40 %</b>	14714.4	<b>92.60 %</b>	15885	<b>100 %</b>

**Source :** RBI (Annual Reports-Various)

**NOTE:** (a) Volume of Paper-Based Transactions = CTS+MICR+NON MICR (b) Volume of Electronic Transactions = All REC (such as RTGS, NEFT, ECS Dr. & ECS Cr). + All Cards + Electronic Clearing (such as PPI, IMPS, UPI)

Chart 1

Share of Paper-based versus Electronic Transactions – Volume (In Percentage)



Source : Table 1

Paper-based versus Electronic Transactions

The quantum/volume of the paper transactions despite recording decrease continued to dominate the payment system of accounting till 2009-10. The RBI took several

steps in both reducing the settlement time involved in clearing of paper. It also encouraged the shift from paper to electronic/ digital payment modes. Growth and dominance in volume of electronic/ digital ways of payments is visible in years 2011-12 to 2017-18.

Table 2

Share of Paper-based versus Electronic Transactions – Value

YEAR	PAPER - BASED TRANSACTIONS		ELECTRONIC TRANSACTIONS		TOTAL TRANSACTIONS	TOTAL (%)
	VALUE (IN MILLIONS)	VALUE (%)	VALUE (IN MILLIONS)	VALUE (%)		
2006-07	7008419	27.24 %	18716848	72.76 %	25725267	100 %
2007-08	7896040	21.78 %	28360322	78.22 %	36256362	100 %
2008-09	7918468	19.46 %	32780208	80.54 %	40698671	100 %
2009-10	85.47	17.56 %	40138245	82.44 %	486.85	100 %
2010-11	101.33	16.90 %	49795688	83.09 %	599.29	100 %
2011-12	99012.1	14.99 %	561445.3	85.01 %	660457.4	100 %
2012-13	100181.8	12.35 %	710774.2	87.65 %	810956	100 %
2013-14	93316	10.63 %	784684.1	89.37 %	878000.1	100 %
2014-15	85439.3	9.41 %	822722.4	90.59 %	908161.7	100 %
2015-16	81861	8.17 %	920469	91.83 %	10023303	100 %
2016-17	80958	6.73 %	1121649	93.27 %	1202607	100 %
2017-18	81893	5.64 %	1370844	94.36 %	1452737	100 %

Source : RBI (Annual Reports-Various)

NOTE: (a) Volume of Paper-Based Transactions = CTS+MICR+NON MICR (b) Volume of Electronic Transactions = All REC (such as RTGS, NEFT, ECS Dr. & ECS Cr.) + All Cards + Electronic Clearing (such as PPI, IMPS, UPI)

**Chart 2**  
**Share of Paper-based versus Electronic Transactions – Value (In Percentage)**



Source : Table 2

From the above table we clearly understand that the trends in the volume/ size and value of paper clearing versus electronic clearing over the recent years show that while in value terms the share of electronic/ digital transactions has increased significantly, in volume terms paper based transactions dominated till 2010-11 and declined thereafter.

### 3. TECHNOLOGY IN PAYMENT AND SETTLEMENT SYSTEM

The introduction of technology in Payment and Settlement System has made the system more efficient and banking services have become more affordable and accessible.

The Payment Systems envisaged creating of 'best-in-class' Payment and Settlement Systems for a 'cashless' India with the help of the four strategic pillars of - (a) responsive regulation, (b) strong infrastructure, (c) effective supervision, (d) customer centred. Introducing IT in Payment and Settlement System has facilitated (a) decline in paper-based clearing instruments/ methods; (b) consistent growth in

individual portions of retail electronic/ digital payment systems like - in the National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS) and card transactions; (c) increase in customers using mobile banking; (d) new product launch like - Unified Payments Interface (UPI) and Bharat QR (BQR); (e) remarkable growth in its acceptance everywhere; and (f) increase in use of Aadhaar in payment systems/ modes.

#### a) Electronic Payment Systems

Latest electronic/ digital payment instruments provide faster, cheaper, hassle-free and secure payment options to customers as compared to traditional/ conventional paper based instruments of banking. The RBI has been actively engaged in promoting electronic methods of payments. The Indian payment system and its elements will get more popular and respond well when processes are affordable/ cheaper, simple to access and widespread. RBI will continue its efforts towards

making these instruments of payment system - efficient and price-attractive.

Products used in making digital/ electronic payment in the country are :

1. Real Time Gross Settlement (RTGS)
2. Retail Electronic Fund Transfer (REFT) or Retail Electronic Clearing (REC)
  - a. National Electronic Funds Transfer (NEFT)
  - b. Electronic Clearing Service (ECS)-Debit
  - c. Electronic Clearing Service (ECS)-Credit

**b) Real Time Gross Settlement (RTGS)**

RTGS system, one of the digital payment methods, came in operation since March 2004 and primarily used for higher value transactions

with the minimum threshold limit at Rs.2 lakh. Use of RTGS system has shown quick growth in terms of volume (size) of transactions, value of transactions and also in terms of its availability at all the branches. A total of 11,172 bank branches were included in the RTGS system (in the year 2009-10). This increased the number of RTGS enabled branches of banks to 66,178. There were only 4,800 branches offering RTGS in year 2004.

124 million transactions of RTGS were handled in 2017-18, having value of 1,167 trillion, raised from 108 million transactions having value of 982 trillion during the previous year. Till March 2018, the RTGS facility was offered by 194 banks through their 1, 37,924 bank branches. RTGS guarantees quick and safe money transfer from any part of the country to another.

**Table 3**  
**Trend of Real Time Gross Settlement (RTGS)**

YEAR	VOLUME (IN MILLIONS)	VOLUME-GROWTH %	VALUE (RUPEES IN CRORES)	VALUE-GROWTH %
2006- 07	3.8	----	18481155	----
2007- 08	5.8	52.63%	27318330	47.82 %
2008- 09	13.4	131.03%	32279811	18.16 %
2009- 10	33.2	147.76%	39453359	22.22 %
2010- 11	49.3	48.49%	48487234	22.90 %
2011- 12	55.0	11.56%	53930750	11.23 %
2012- 13	68.5	24.54%	67684100	25.50 %
2013- 14	81.1	18.39%	73425240	8.48 %
2014- 15	92.8	14.43%	75403240	2.69 %
2015- 16	98.3	5.93%	82457800	9.36 %
2016- 17	107.8	9.66%	98190400	19.07 %
2017- 18	124.4	15.40%	116712500	18.86 %

**Source :** RBI (Annual reports)

The above table clearly shows that the trend in RTGS is positive and the initiatives made by RBI to promote this payment mode are paying off. The continuous growth of both volume (size) and value of RTGS depicts its

acceptance by the customers which is also evident from the double digit growth rate recorded throughout the period of study of twelve years (2006-2018).

#### 4. RETAIL ELECTRONIC FUNDS TRANSFER (REFT)

##### a) National Electronic Fund Transfer (NEFT)

It was introduced in year 2005 and one of the distinctive features of the system is the confirmation to the originator about successful credit of fund to the beneficiary's account. Since its initiation, a growth in the volume (size) and value of NEFT transactions were seen.

In year 2017-18, volume of 1.9 billion transactions was handled by NEFT system which valued around 172 trillion. Previous year had 1.6 billion transactions which valued at 120 trillion, recording a growth of 19.99 % in volume and 43.48 % in value. Till March 2018, NEFT facility was available at 192 banks at their 1, 40,339 branches. In addition it was also offered at a large number of business correspondent (BC) outlets.

**Table 4**  
**Trend of National Electronic Fund Transfer (NEFT)**

YEAR	VOLUME (IN MILLIONS)	VOLUME- GROWTH %	VALUE (RUPEES IN CRORES)	VALUE- GROWTH %
2006- 07	4.7	---	77446	---
2007- 08	13.3	182.98 %	140326	81.19 %
2008- 09	32.2	142.11 %	251956	79.55 %
2009- 10	66.4	106.21 %	409507	63.16 %
2010- 11	132.3	99.24 %	939149	129.34 %
2011- 12	226.1	70.90 %	1790350	-80.94 %
2012- 13	394.1	74.30 %	290224	62.10 %
2013- 14	661.0	79.88 %	437860	50.87 %
2014- 15	927.6	40.33 %	598040	36.58 %
2015- 16	1252.9	35.06 %	832730	39.24 %
2016- 17	1622.1	29.47 %	1200400	44.15 %
2017- 18	1946.4	19.99 %	1722290	43.48 %

**Source :** RBI (Annual reports)

The volume (size) and value of NEFT is growing positively and the impressive rates recorded during the period of study. Although growth percentage has decreased but growth in volume and value figures are the evidence for the system's success.

##### c) Electronic Clearing Service (ECS)

ECS is an electronic clearing method of fund transfer, which transfers funds from a bank account to another and used by institutions for transferring funds in bulk. Example: dividend, interest, salary, pension, utility bills etc. can be paid by using ECS. It can be used for both ECS credit as well as for ECS debit.

**Table 5**  
**Trend of Electronic Clearing Service (ECS) – Debit**

YEAR	VOLUME (IN MILLIONS)	VOLUME-GROWTH %	VALUE (RUPEES IN CRORES)	VALUE- GROWTH %
2006- 07	75.2	---	25441	---
2007- 08	127.1	69.02 %	48937	92.35 %



2008- 09	160.1	25.96 %	66976	36.86 %
2009- 10	150.2	-6.18 %	69819	4.24 %
2010- 11	156.7	4.33 %	73650	5.48 %
2011- 12	164.7	5.11 %	83360	13.18 %
2012- 13	176.5	7.16 %	10831	-87.01 %
2013- 14	192.9	9.29 %	12680	17.07 %
2014- 15	226.0	17.16 %	17400	37.22 %
2015- 16	224.8	-0.05 %	16520	-5.06 %
2016- 17	8.8	-96.09 %	390	-97.64 %
2017- 18	1.5	-82.95 %	100	-74.36 %

Source : RBI (Annual reports)

From the above table we understand that the growth trends have been steady and not exponential unlike other forms of electronic payments. The negative rate recorded in the year 2009-10 is an abnormal/aberration as the

volume for the same year recorded a positive rate. But in general the rates have declined in the past three years of the period of study as customers prefer the other payments modes like NEFT.

**Table 6**  
**Trend of Electronic Clearing Service (ECS) – Credit**

YEAR	VOLUME (IN MILLIONS)	VOLUME- GROWTH %	VALUE (RUPEES IN CRORES)	VALUE- GROWTH %
2006- 07	69	---	83273	---
2007- 08	78.4	13.62 %	782222	839.35 %
2008- 09	88.4	12.75 %	97487	-87.54 %
2009- 10	98.6	11.54 %	117833	20.87 %
2010- 11	117.3	18.96 %	18169	84.58 %
2011- 12	121.5	3.58 %	18378	1.15 %
2012- 13	122.2	0.57 %	17713	-3.62 %
2013- 14	152.5	24.79 %	24922	40.69 %
2014- 15	115.3	-24.39 %	2019	-91.89 %
2015- 16	39.0	-66.17 %	1059	-47.55 %
2016- 17	10.1	-74.10 %	144	-86.40 %
2017- 18	6.1	-39.60 %	115	-20.14 %

Source : RBI (Annual reports)

Year 2007-08 recorded an abnormal growth rate in its volume because it included the refund of the over subscription amount of Initial Public Offers (IPO) floated by companies using electronic mode as mandated by the Stock

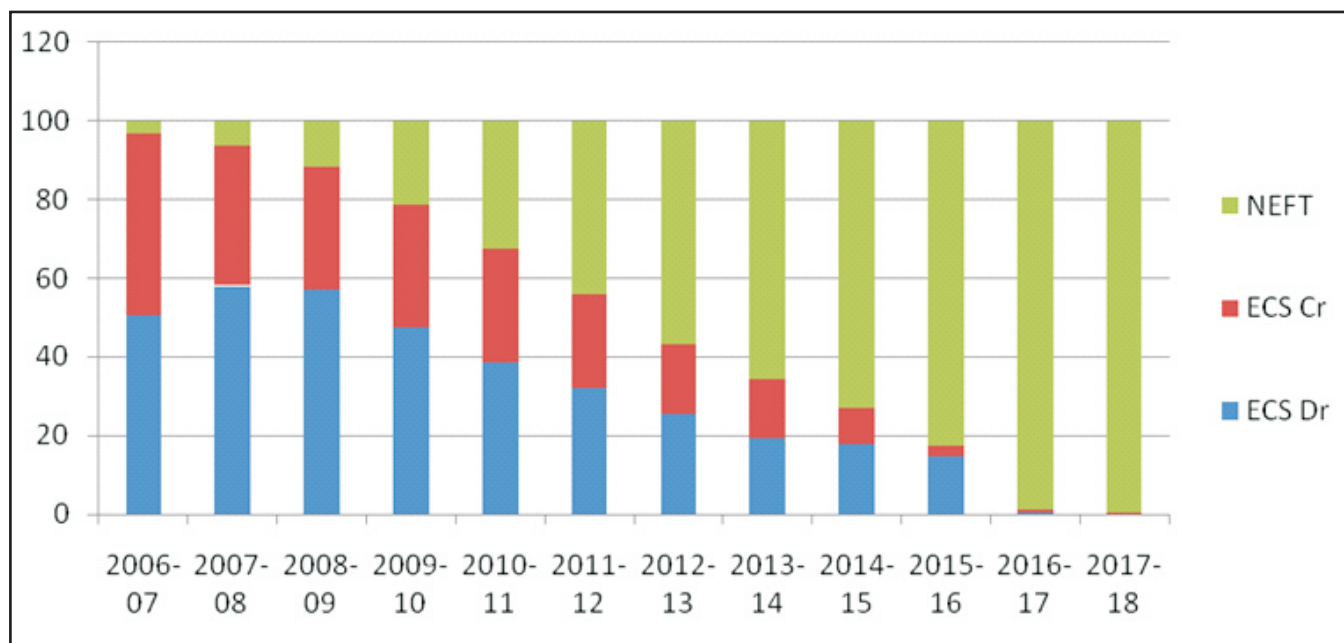
Exchange. The growth rate of ECS – Credit is satisfactory during the period 2006-2012 of study but it declined thereafter due to change in customer preferences.

**Table 7**  
**Share of Retail Electronic Funds Transfer (REFT) – Volume (In Percentage)**

YEAR	ECS Dr (%)	ECS Cr (%)	NEFT (%)	TOTAL (%)
2006- 07	50.47 %	46.32 %	3.21 %	100 %
2007- 08	58.1 %	35.82 %	6.1 %	100 %
2008- 09	57.04 %	31.5 %	11.46 %	100 %
2009- 10	47.59 %	31.27 %	21.13 %	100 %
2010- 11	38.56 %	28.87 %	32.56 %	100 %
2011- 12	32.14 %	23.71 %	44.13 %	100 %
2012- 13	25.47 %	17.63 %	56.89 %	100 %
2013- 14	19.17 %	15.15 %	65.67 %	100 %
2014- 15	17.81 %	9.08 %	73.1 %	100 %
2015- 16	14.82 %	2.57 %	82.6 %	100 %
2016- 17	0.54 %	0.62 %	98.84 %	100 %
2017- 18	0.08 %	0.31 %	99.61 %	100 %

Source : RBI (Annual Reports-Various)

**Chart - 3**  
**Share of Retail Electronic Funds Transfer (REFT) – Volume (In Percentage)**



Source : RBI (Annual reports)

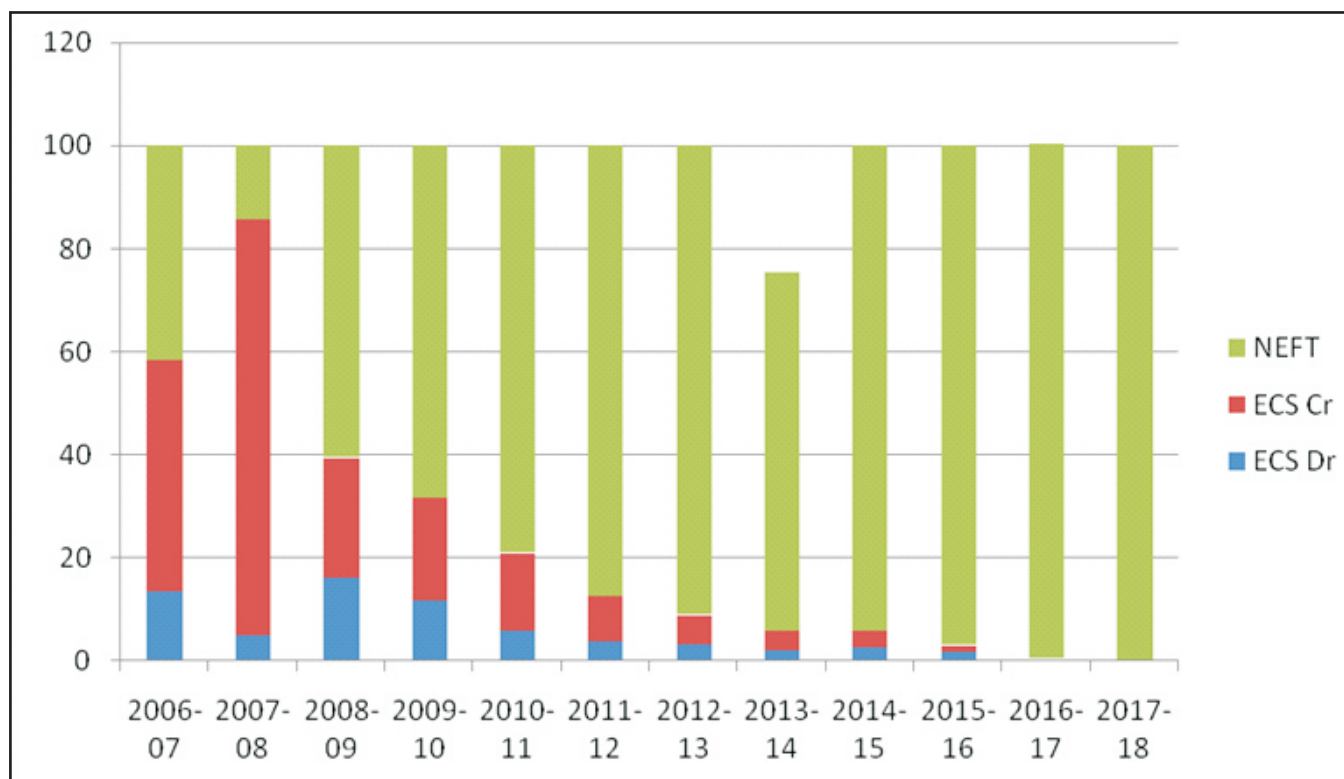


**Table 8**  
**Share of Retail Electronic Funds Transfer (REFT) – Value (In percentage)**

YEAR	ECS Dr (%)	ECS Cr (%)	NEFT (%)	TOTAL (%)
2006- 07	13.67 %	44.73 %	41.6 %	100 %
2007- 08	5.04 %	80.52 %	14.44 %	100 %
2008- 09	16.08 %	23.41 %	60.51 %	100 %
2009- 10	11.67 %	20 %	68.33 %	100 %
2010- 11	5.89 %	15.13 %	78.99 %	100 %
2011- 12	3.9 %	8.78 %	87.32 %	100 %
2012- 13	3.4 %	5.56 %	91.05 %	100 %
2013- 14	2 %	3.95 %	69.4 %	100 %
2014- 15	2.74 %	3.2 %	94.1 %	100 %
2015- 16	1.92 %	1.23 %	96.85 %	100 %
2016- 17	0.324 %	0.119 %	99.85 %	100 %
2017- 18	0.005 %	0.067 %	99.93 %	100 %

Source : RBI (Annual Reports)

**Chart - 4**  
**Share of Retail Electronic Funds Transfer (REFT) – Value (In Percentage)**



Source : Table 8

## 5. CONCLUSION

Development of Payment System in a country depends upon various factors: (a) adoption of technology, (b) introducing latest and innovative payment instruments, (c) convenience and ease of the public in using these payment instruments. In India, cash still continues to be the predominant payment mode but slowly diverted towards digital mode from year 2006 to 2012 and took speedily growth thereafter i.e. from 2012 to 2018.

Use of IT has made 'Payment and Settlement System' - easy, safe secure and transparent. Now chances of cheating and fraud are absent in banking and financial transactions.

IT has also assisted in going cashless which helped in eradicating corruption as well removing black money from the society by facilitating transparency in monetary transactions. All these benefits of going digital/electronic in Payment & Settlement System also aided India's GDP growth as now there are no chances of tax evasion and tax avoidance.

An efficient payment system is helpful in reducing the cost involved in exchange of goods and services and is important for the intra-bank and inter-bank functioning. It plays a vital role in money and capital markets as well. Numerous innovative options were seen in previous decade, particularly in retail payments. RBI shall perform an exercise for benchmarking India's payment systems and should compare India with other major countries regarding all payment systems and payment instruments. RBI should work towards improving performance and matching standards (of payment systems) at national & international level. The resulting outcomes should be compiled by RBI and can be used to improvise the existing system of payment.

Technology enables and provides us huge opportunities for making banking more efficient and more inclusive. At the same time, it is also faceless, and this absence of a 'human touch' can be quite intimidating. Thus technology must be utilized in the most appropriate way to get its full potential. ●

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