

THE OUTGROWTH OF DIGITAL PAYMENTS IN INDIA

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Abstract

The growth of Digital Payments in India is feasible with the various convenient and easy solutions have motivated the citizens of India to do online transactions and get awareness financial inclusion programs this leads to growth in the business and economy of the country. The usage of digital payments increased a lot during the Corona Pandemic, the availability of contactless digital payment solutions facilitated social distancing and continuity of businesses, including small merchants. This paper aims at describing the growth of digital payments in India and to analyze the usage of innovative modes of digital payments in detail for the period of 2012- 2022. They are Real Time Gross Settlements (RTGS), Credit Transfers, Debit Transfers like Aadhar Enabled Payment System (AePS), Aadhar Payment Bridge System (APBS), Electronic Clearing System Credit (ECS CR), Immediate Payment Service (IMPS), National Automated Clearing House (NACH), Electronic Fund Transfer (EFT), National Electronic Fund Transfer (NEFT) and Unified Payment Interface (UPI), and Direct Debits, Cards, and Prepaid Payment Instruments (PPIs).

Key words: RTGS, AePS, APBS, ECS, NACH, EFT, IMPS, NACH and UPI.

Introduction:

India is the fastest growing fintech country in the world, primarily in the advancement in digital payments segment. The report of 'Digital Payments in India A US \$10 Trillion Opportunity' by PhonePe and Boston Consulting Group described the digital payment markets in India is at an inflection point and it is anticipated that by 2026, it will grow more than threefold from the present US\$3 trillion to US\$10 trillion. The Government of India in 2015 introduced Digital India Programme, with the aim of achieving 'Faceless, Paperless and Cashless' financial transaction at the grass-root level. In order to achieve this government

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included technological advancements in many innovative reforms. In order to avail the benefits of the government schemes the citizens must open the bank account gets awareness of using the account to do the digital mode of payments and receipts at affordable, safe and secure transactions.

One of the important advancements of Indian digital transactions is UPI (Unified Payments Interface). UPI is the ambassador of FinTech revolution in India in 2016 by National Payments Corporation of India. The real time payment system UPI enables the peer to peer and person to person instant customer transactions through mobile devices. India once a cash-based economy with in the short period accounting 40 percent of world real time digital transactions. Due to the pandemic era COVID-19 not only the urban India but also the rural India widely adopted the digital mode of innovative advancements. The Pradhan Mantri Jan-Dhan Yojana scheme main purpose is to provide bank accounts to the unbanked linking with Aadhaar for the unique identity. The Jan-Dhan Yojana opened more than 460 million bank accounts and maximum 99 per cent of the Indian population now has an Aadhaar number more than 1.3 billion IDs issued in all.

The awareness of new innovations in technology and explaining the benefits and the ease of adoption to the customers gets development in internet banking.

Kartikeya Bolar (2014) stated that investors of digital technology seek information about the customers for the evaluations in technological interface based on the dimensions of quality to take strategic decisions.

Literature Review

Sanghita Roy, Dr. Indrajit Sinha (2014) identified tremendous growth in the Indian E-payment system. Innovations in payment methods, incentives to the customers, factors of customer convenience and legal framework are strengthening the E- payments in India. The technology advancements and convenient and secured transactions helps to advancement of countries economy as well as the world economy (Slozko&Pello, 2015).

Rakesh H M & Ramya T J (2014) examined the important factors that influence the adoption of internet banking. It is identified that internet banking is depends on reliability, ease of use. Nitsure (2014) observed in his research that the problems faced by developing countries in the adoption of E-banking initiatives and identified due to low spread of uses of Information Technology, rigid rules and regulations and security concerns. Especially in India there is a digital split as the poor people are unaware of risks and benefits of internet banking.

Prem Chand (2015) recommended that it is an opportunity to the companies to improve architecture to adopt technology solutions and components of payment systems. The growth in the electronic payments is the only way to improve the economic activities of country and financial inclusion.

BalazsVinnai, general manager, Digital Channels, Misys (April 25, 2016), says that “It is critical for banks to consider new digital channels as part of an integrated strategy and evolve from first to second generation digital banking: switching digital from a supporting role, to the primary sales and communication channel for banks”.

Prof Trilok Nath Shukla (2016), found that in future of Indian digital payments dominated by the shopping experience of the customers. To attract the customers and to grab the opportunity the organizations not only the concentrate on safety and security of the transactions but also announcing the incentives and cash backs which motivates them to do more transactions.

Karamjeet Kaur, Dr. Ashutosh Pathak (2015), identified that to become a successful company in a digital payment the factors like ease to use, preferences of the customer, affordable cost, app interface, viability, accessibility of services are very important.

Zlatko Bezhovski (2016), in the study found that the digital payments have positive future because the use of smart phones become the major tools of the people to do the digital transactions, they know the benefits of installing and using the various apps in their mobiles. stating that the digital payment industry has positive future ahead.

James Joseph, K.V. Shriram, Lawlyn L.R. Rodrigues, Ashish Oommen Mathew and K.C. Gana (2018), found payments thorough mobiles were popular in urban areas but creating awareness in rural India about the new technology is very difficult. Priyanka. S. Kotecha (2018) found that digital payments are the mode of transactions for most of the merchants because of convenience to use and understand this giving the relevant growth in future of Indian digital payments.

Research Objectives

1. To identify the various modes of digital payments in India.
2. To know the importance of various modes of digital payments in India.
3. To analyze the various modes of digital payments.

Data Analysis and Interpretations:

The modes of digital payments in India include RTGs, Credit Transfers, Debit Transfers and Direct Debits, Cards, and Prepaid Payment Instruments (PPIs). For the analysis of data all the modes digital payments data collected for the period of ten years collected and represented in a detailed individual tables and growth rates and compound annual growth rates are calculated.

Table No. 1

Total Digital Payments in India												
Particulars	2017-18		2018-19		2019-20		2020-21		2021-22		CAGR	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Real Time Gross Settlements (RTGs)	1244	116712478	1366	135688187	1507	131156475	1592	105599849	2078	128657516	10.8	1.97
Credit Transfers	58793	18814295	118481	26090471	206297	28556593	317868	33504226	577935	42728006	57.95	17.83
Debit Transfers and Direct Debits	3788	390869	4914	524556	6027	605939	10457	865520	12189	1034444	26.33	21.5
Cards	47486	919035	61769	1196888	72384	1434813	57787	1291799	61783	1701851	5.4	13.11
Prepaid Payment Instruments (PPIs)	34590.46	141634	46072	213323	53941	214860	49366	197095	65783	279416	13.72	14.55
Total Digital Payments	145901.46	136978311	232602	163713425	340156	161968680	437070	141458489	719768	174401233		

Source: Handbook of RBI Statistics

The above Table No. 1 shows that the Digital Payments of India during the period 2017-18 to 2021-22. The Credit transfers showing a higher CAGR is 57.95 for the volume transactions followed by Debit transfer and Direct debits with 26.33. The Debit transfer and Direct debits representing the highest

CAGR 21.5 for the value of transactions followed by Credit transfers. In order to know the important component in the growth of digital payments in India the proportion analysis is useful.

Table No. 2

Proportions of Total Digital Payments										
Particulars	2017-18		2018-19		2019-20		2020-21		2021-22	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
RTGs	0.85	85.21	0.59	82.88	0.44	80.98	0.36	74.65	0.29	73.77
Credit Transfers	40.30	13.74	50.94	15.94	60.65	17.63	72.73	23.68	80.29	24.50
Debit Transfers and Direct Debits	2.60	0.29	2.11	0.32	1.77	0.37	2.39	0.61	1.69	0.59
Cards	32.55	0.67	26.56	0.73	21.28	0.89	13.22	0.91	8.58	0.98
Prepaid Payment Instruments (PPIs)	23.71	0.10	19.81	0.13	15.86	0.13	11.29	0.14	9.14	0.16

Source: Handbook of RBI Statistics

Table no. 2 shows the proportion analysis for the important components of digital payments in India. The proportion of volume of transactions of RTGs was 0.85 in 2017-18 declined to 0.29 by 2021-22 and the value of transactions was 85.21 in 2017-18 the highest proportion which is come down to 73.77 by 2021-22. Credit transfers volume of transactions showed highest proportion 40.30 in 2017-18 increased to 80.29 the highest proportion in the year 2021-22 and the value of the transaction also increased from 13.74 to 24.5 in the period 2017-2022. According to volume of transactions the least proportion was shown by Debit transfers and direct debits and least proportion of value of transactions shown by cards. The PPIs showed a declining trend in the volume value of transactions from 23.71 to 9.14 and value of transactions stick around from 0.10 to 0.16 for the period 2017 to 2022. The detailed component analysis is important to see the major part of digital payments of India.

RTGS means Real Time Gross Settlement. This system helps to transfer the funds from one bank to another bank account on a real time gross settlement basis. Reserve Bank of India introduced RTGS for the safe and secure way of transferring the funds. There are no additional charges on the transactions made through RTGS. These services are accessed at 24*7 and throughout the year. The RTGs transactions can be initiated from anywhere by using the internet banking. There is a minimum risk of frauds because all the transactions are done legally.

Table No. 3

RTGs				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2012-13	685.2		102635005	
2013-14	811.1	18.37	90496804	-11.83
2014-15	927.8	14.39	92933309	2.69
2015-16	983.4	5.99	103555164	11.43
2016-17	1078.5	9.67	125365207	21.06
2017-18	1244	15.35	116712478	-6.90
2018-19	1366	9.81	135688187	16.26
2019-20	1507	10.32	131156475	-3.34
2020-21	1592	5.64	105599849	-19.49
2021-22	2078	30.53	128657516	21.83
CAGR	5.21		2.28	

Source: Handbook of RBI Statistics

The Table no. 3 explains the volume and value of transactions through RTGs and its Annual Growth rate (AGR) and Compound Annual Growth Rate (CAGR). The volume of transactions showed higher growth rate 30.53 in the year 2021-22 and a CAGR of 5.21. The value of transactions also showed the highest growth rate 21.83 in 2021-22 and a CAGR of 2.28. The volume of transactions was showing more growth than the value of transactions.

Table No. 4

Credit Transfers				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2012-13	6940		3188114	
2013-14	11083	59.7	4785629	50.11
2014-15	16874	52.3	6536551	36.59
2015-16	31415	86.2	9140814	39.84
2016-17	42285	34.6	13232431	44.76
2017-18	63824	50.9	19311233	45.94
2018-19	118481	85.6	26751513	38.53
2019-20	206297	74.1	28556593	6.75
2020-21	317868	54.1	33504226	17.33
2021-22	577935	81.8	42728006	27.53
CAGR	831.7594		133.0228	

Source: Handbook of RBI Statistics

Table no. 4 shows the Credit transfers in India. The volume of transactions showed a varying growth rate, the maximum growth 86.2 was shown in the year 2015-16 by the end

of 2021-22 it is 81.8 and the value of credit transfers showed a declining trend from 50.11 to 27.53 during the period 2017-22. The volume of transactions showing more growth rate than the value of transactions.

Table No. 5

Proportion of Credit Transfers										
(Volume in Lakhs, Value in Millions)										
Years / Items	2017-18		2018-19		2019-20		2020-21		2021-22	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
AePS	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
APBS	22.08	0.30	12.62	0.33	8.12	0.35	4.52	0.33	2.18	0.31
ECS CR (Includes NECS)	0.10	0.06	0.05	0.05	0.01	0.02	0.00	0.00	0.00	0.00
Immediate Payment Service (IMPS)	17.18	4.74	14.79	6.10	12.50	8.19	10.31	8.78	8.07	9.76
National Automated Clearing House (NACH)	11.96	2.77	7.46	2.80	5.38	3.63	5.18	3.63	3.25	3.00
EFT/NEFT	33.11	91.54	19.57	87.36	13.30	80.35	9.73	671.95	6.99	67.23
Unified Payment Interface (UPI)	15.57	0.58	45.51	3.36	60.68	7.46	70.25	12.25	79.52	19.70

Source: Handbook of RBI Statistics

Table no. 5 shows the proportion analysis of credit transfers and its components. Credit transfers include Aadhar Enabled Payment System (AePS), APBS, Electronic Clearing System Credit (ECS CR), Immediate Payment Service (IMPS), National Automated Clearing House (NACH), Electronic Fund Transfer (EFT), National Electronic Fund Transfer (NEFT) and Unified Payment Interface (UPI).

Aadhar Enabled Payment System (AePS) is service for payment which allows the customer to use the Aadhar identity for accessing the bank account like cash withdrawal, remittances and balance enquiry through by a business correspondent. To avail AePS the customer should have a Aadhar enabled banking account and complete transaction using biometric authentication.

Aadhar Payment Bridge System (APBS) is a unique payment system which uses the customer Aadhar number for channelizing government benefits and subsidies under Direct Benefit Transfer (DBT) scheme to the customer Aadhar linked bank account. APBs helps the government to reengineer its subsidy management and to take a part in financial inclusion.

RBI introduced the Electronic Clearing System (ECS) for the faster collection (ECS Debit) and payments (ECS Credit). ECS credit used for payments like dividend and interest and ECS Debit for the collection of utility bills like telephone, electricity and equated monthly instalments of loans.

IMPS transfer the money instantly to the beneficiary account. The beneficiary requires half an hour to transfer and credit the money to the payee. National Electronic Fund Transfer works on net and batch basis that is it makes payment in batches.

NACH started by National Payments Corporation of India (NPCI) this is similar to ECS which is started by RBI. NACH Credit is used to afford credits for large number of customers for the payment of interest, salary, dividend and pension etc. an electronic through raising a single debit to the banks account of user institution means the corporate registered for NACH services.

NACH (Debit) useful for the Corporate for the collection of electricity, telephone, tax collections, water bills loan instalment repayments, insurance premium etc., that are periodic in nature and payable to the User Institution means the Corporate registered for NACH Services.

EFT introduced by RBI, is useful for funds transfer from one bank to other bank accounts but is limited to specific centers in India. Similar to EFT, NEFT is also an electronic fund transfer system for the settlement of transactions nationwide. UPI developed by NPCI for the instant real time payment system. The governor of RBI Dr. Raghuram G. Rajan launched the UPI pilot program in Mumbai on 11 April 2016. Banks have started depositing their UPI-enabled apps on the Google Play store from August 25, 2016. It facilitates peer to peer (P2P) and peer to merchant (P2M) interbank transactions. It can be used on mobiles the mobile number should be registered with bank for the instant transfer funds between the bank accounts. The mobile number on the device is required to be registered with the bank. The UPI ID is used to transfer the money. The maximum proportion of credit transfer are from EFT/ NEFT in the year 2017-18 but after the introduction of UPI the maximum credit transfers are done by UPI. The volume of transactions more through UPI but the value of transactions is more through EFT/NEFT.

Table No. 6

UPI				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2016-17	179		6900	
2017-18	9152	5012.85	109832	1491.77
2018-19	53915	489.11	876971	698.47
2019-20	125186	132.19	2131730	143.08
2020-21	223307	78.38	4103658	92.50
2021-22	459561	105.80	8415900	105.08
CAGR	270.04		226.87	

Source: Handbook of RBI Statistics

Table no.6 shows the UPI payments trend form the year 2016-17 to 2021-22. The UPI payments showed a tremendous growth rate for the period of the study. The maximum proportion of credit transfers were done through UPI in the year 2017-18 by the end of the year 2021-22 the AGR is 105.8 with a CAGR of 270.04. the value of UPI growth rate was 1491.77 in 2017-18 reached to 105.08. Even though the volume and value of transactions showed a declining tend comparing to other components of credit transfers growth rate the growth rate of UPI is more with the highest proportion in overall credit transfers.

Debit Transfers and Direct Debits include BHIM Aadhar pay, ECS Dr.NACH Dr. NETC. National Electronic Toll Collection (NETC) is the program which is based on RFID technology. This is introduced by electronic toll payments at all National Toll Plazas. NETC-Fastag is a device that employs Radio Frequency Identification (RFID) technology for making toll payments directly while the vehicle is in motion.

Table No. 7

Debit Transfers and Direct Debits				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2017-18	3788		390869	
2018-19	4914	29.73	524556	34.20
2019-20	6027	22.65	605939	15.51
2020-21	10457	73.50	865520	42.84
2021-22	12189	16.56	1034444	19.52
CAGR	26.33		21.5	

Source: Handbook of RBI Statistics

Table no. 7 shows the debit transfers and direct debits and its growth rates. The highest growth rate 73.5 of volume of transactions was found in 2020-21 and reached to 16.56 in 2021-22 with a CAGR of 26.33. the growth rate of value of the transactions was highest with 42.4 in 2020-21 and reached to 19.52 in 2021-22 with a CAGR of 21.5. the volume of transactions showed more growth rate than the value of transactions.

Table No. 8

Credit Cards				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2012-13	3992		124427	
2013-14	5120	28.26	155672	25.11
2014-15	6194	20.98	192263	23.51
2015-16	7916	27.80	243702	26.75
2016-17	10935	38.14	331221	35.91
2017-18	14052	28.50	458965	38.57
2018-19	17626	25.43	603413	31.47
2019-20	21773	23.53	730894	21.13
2020-21	17641	-18.98	630414	-13.75
2021-22	22399	26.97	971638	54.13
CAGR	55.11		77.09	

Source: Handbook of RBI Statistics

Table no. 8 explains the credit cards volume and value of transactions and its AGR, CAGR. Credit card growth rate was 28.26 in 2013-14 from then it reached to maximum 38.14 in 2016-17 after that it started decreasing and become negative in 2020-21 by the end of 2021-22 stood at 26.97 with a CAGR of 55.11. the same trend shown in the value of transactions also the highest growth rate 38.57 in the year 2017-18 and then it became negative in 2020-21 but at the end of the year it I 54.13 with a CAGR of 77.09. the value of transactions is more than the volume of transactions.

Table No. 9

Debit Cards				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2012-13	57752		174263	
2013-14	67071	16.14	206028	18.23
2014-15	78045	16.36	234926	14.03
2015-16	92470	18.48	269606	14.76
2016-17	109623	18.55	269018	-0.22
2017-18	33434	-69.50	460070	71.02
2018-19	44143	32.03	593475	29.00
2019-20	50611	14.65	703920	18.61
2020-21	40146	-20.68	661385	-6.04
2021-22	39384	-1.90	730213	10.41
CAGR	5.82		40.90	

Source: Handbook of RBI Statistics

Table no. 9 explains the debit cards volume and value of transactions and its AGR, CAGR. Debit card growth rate was 16.14 in 2013-14 become negative in 2017-18, in 2018-19 it showed highest growth rate 32.03 and immediately it start 18.23 in 2013-14 then it became

negative in the year 2016-17 but immediately in 2017-18 it showed highest growth rate 71.02 and finally by showing a variation trend it reached to 10.41 by the end 2021-22 with a CAGR 40.90. the value of transactions is more than the value of transactions completely opposite trend it showed in between value and volume of transactions of debit cards.

Prepaid Payment Instruments (PPIs) are useful to get access to the already prepaid amount. It includes online accounts, smart cards, online wallets, paper vouchers and stripe cards etc. The primary objective of these instruments is to get access to the amount already prepaid so that one can make the payment for their purchases without any physical usage of card and cash.

Table No. 10

Prepaid Payment Instruments				
(Volume in Lakhs, Value in Millions)				
Years	Volume	AGR	Value	AGR
2012-13	669.4		792.3	
2013-14	1336.3	99.63	810.5	2.30
2014-15	3144.6	135.32	2134.3	163.33
2015-16	7480.1	137.87	4875.8	128.45
2016-17	19636.6	162.52	8380.1	71.87
2017-18	34590.46	76.15	14163.4	69.01
2018-19	46043.38	33.11	21287.6	50.30
2019-20	53941	17.15	21486	0.93
2020-21	49366	-8.48	19709.5	-8.27
2021-22	65783	33.26	27941.6	41.77
CAGR	981.72		351.66	

Source: Handbook of RBI Statistics

Table no. 10 explains the prepaid instruments, its growth rate and CAGR. The growth rate of prepaid instruments was highest 162.52 in 2016-17 and it reached to 33.26 by the year 2021-22 with a CAGR of 981.72. the value of prepaid instruments showed a growth rate of 2.3 in 2012-13 and reached its maximum 163.33 in 2014-15 by the end of the year 2021-22 the growth rate is 41.77 with a CAGR of 351.66. The growth rate volume of transactions is more than the growth of value of transactions.

Conclusion: Digital payments in India accelerating Indian government undertaking several measures to promote and encourage the digital payments in the country. The volume of transactions of RTGs, Credit transfers, Credit cards, PPIs showing more growth than the value of transactions. The maximum proportion of credit transfer are from EFT/ NEFT in the year 2017-18 but after the introduction of UPI the maximum credit transfers are done by UPI.

The volume of transactions more through UPI but the value of transactions is more through EFT/NEFT. Even though the volume and value of transactions showed a declining trend comparing to other components of credit transfers growth rate the growth rate of UPI is more with the highest proportion in overall credit transfers. The come-out Fin-Techs are playing a primary role in the widening digital transactions by empowering cost effective, transparent, prompt and secure mechanisms assisting the entire digital payments ecosystem.

References:

1. Roy S., Sinha I., (2014). Determinants of Customers' Acceptance of Electronic Payment System in Indian Banking Sector-A Study, International Journal of Scientific & Engineering Research 5(1) (2014), 177-187.
2. Rakesh, H. M., & Ramya, T. J. (2014). A Study on Factors Influencing Consumer Adoption of Internet Banking in India. International Journal of Business and General Management, 3, 49-54.
3. Kartikeya Bolar, (2014). End-user Acceptance of Technology Interface in Transaction Based Environment, JIBC April 2014, Vol. 19, No. 1.
4. Nitsure (2014). E-Banking: Challenges and Opportunities, Economic and Political weekly, 38(51):5377-538
5. Premchand A., Choudhry A., Future of Payments-ePayments, International Journal of Emerging Technology and Advanced Engineering 5 (2015), 110-115.
6. Wearables-press-release-10dec15.pdf
7. Trilok Nath Shukla, "Mobile Wallet: Present And The Future", International Journal in multidisciplinary and Academic Research, SIJMAR, Vol. 5, No. 3, June 2016.
8. Karamjeet Kaur, Dr. Ashutosh Pathak, (2015). E-Payment System on E-Commerce in India, International Journal of Engineering, Research and Applications, ISSN-2248- 9622, Vol.5, Issue 2 (Part-1) pp.79-87.
9. Rahul Gochhwal, (2017). Unified Payment Interface-An Advancement in Payment Systemsll, American Journal of Industrial and Business, Vol.7, NO.10. 4.
10. James Joseph, K.V. Shriram, Lawlyn L.R. Rodrigues, Ashish Oommen Mathew and K.C. Gana, 2018, "An Empirical Study on Consumer Adoption of Mobile Application in India", International Journal Enterprise Network Management, Vol.9, NO. 3/4.
11. A Report on Trends and Progress of Banking In India from the year 2012 to 2022.
12. Reserve Bank of India Hand Book of Statistics on The Indian Economy from the period 2012-2022.