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Digital Financial Services (DFS): An invigorating fuel for Financial Inclusion in India

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ABSTRACT: All sections of society, especially the unprivileged and less fortunate, have an equal right to get access to easy and affordable financial services. The goal of financial inclusion can be achieved by reducing income inequality. Technological advancement in the modern economy has revolutionised the financial system through technology. Intensification of technology-driven ‘Digital Financial Services’ (DFS) has empowered financial inclusion in the country. Technology advancement, new generation involvement, improved financial literacy, and responsible government initiatives have contributed to the growth of digital financial services. The present paper attempts to throw light on the recent growth in DFS and its impact on financial inclusion. It also discusses the key issues and scope of DFS in achieving the goal of financial inclusion.

KEYWORDS: Digital Financial Services, Financial Inclusion, FinTech, Sustainable Development Goals.

I. INTRODUCTION

The development of banking and finance is a prerequisite for the progression of any economy in the world; a country's financial health is typically diagnosed by the state of its banking and finance industry, which can be achieved by financial inclusion. Reducing income inequality and increasing financial literacy ensure that the less fortunate can access easy and affordable financial services. Considering the priority of financial inclusion across countries, it has been identified as ‘an enabler for seven of the 17 of the United Nations’. The Indian government is also apprehensive and attentive towards this serious issue and have taken comprehensive steps in this direction. The RBI have also amended the service regulations to give banks more leeway for providing an effective distribution of a bunch of productive banking and financial solutions and resources to all groups of society, particularly to the financially weaker segment. Most of the regulatory lines have concentrated on expansion of the network area and opening more physical branches of banking outlets and other formal financial institutions. However, it is not feasible, rather not advisable to establish a physical network of financial services in geographically odd areas with minimal density of people. The advancement of the internet and digital technology has provided the solution to this issue and the emergence of technology-driven ‘Digital Financial Services’ (DFS) has fuelled the growth of financial inclusion in India. It has downsized the barriers of financial inclusion. Digital financial services not only lower the operational cost by bridging the gap between banks, fintech firms, and digital wallets, but also enhance the financial capabilities of users. It facilitates a comfortable and easy experience for the financial customers despite any geographical conditions. The unfortunate pandemic has also augmented the use of contactless digital payments. Improved financial infrastructure, advancement of IT, government customer-centric initiatives for a more conducive environment, and a responsive regulatory framework from RBI have also boosted the country's digital ecosystem. *“The expansion of digital payments, facilitated by the stack, is an important driver of economic development in India and has helped stabilize incomes in rural areas and boost sales for firms in the informal sector.”* (Patnam and Yao 2020). Since the Indian economy is based upon heavy cash-based retail transactions, concerted efforts at innovation for various digital financial services (DFS) in order to transform cash-based retail transactions into a systematic, secure and user-centric financial system is essential. *“These advances build on the India Stack—a comprehensive digital identity, payment, and data-management system”*. Carrière-Swallow, Haksar, and Patnam 2021).

II. REVIEW OF LITERATURE

Numerous attempts to examine the impact of digital technology on financial growth have been made, focusing on certain regions or countries. Varisha Parvez (2022), summaries the different challenges that should be addressed to achieve a digitally inclusive society in India. It also underlines the key drivers of contemporary technology to develop an inclusive society by adopting digitalisation. Sharma, G and Mathur, M (2022), investigated the major trends in Mobile Banking in India from 2010 to 2022. They tried to find out the significant factors that determine digital financial inclusion and GDP growth in India. Akshat Pathak and Graham A. N. Wright (2021) discuss the role of DFS during COVID-19 and post-pandemic digital trends in India. The paper also discusses the key outstanding issues



regarding regulations and financial inclusion policy. Chiemeke and Imafidor (2021) attempted to review the dominating role of digitalisation in economic growth and labor productivity in Nigeria. Irtyshcheva et al. (2021) studied the consequences of DFS on economic growth in Ukraine and the outcomes of the study confirms that implementation of DFS has affected the GDP of Ukraine. Solomon and Klyton (2020) conducted their study with the objective of exploring the impact of digital technology on economic development in African countries. They found that the proper execution of digital technology serves the goals of empowering individuals by employment. Kandpal, V and Mehrotra, R (2019) throw light on the role of Fintech in India. The paper highlighted the policy and regulations of the RBI and government to encourage the digitisation of financial services. Adaba et al. (2019), who studied the impact of mobile money on the overall improvement on the financial and social conditions of people of Ghana, concluded that DFS advocated a tremendous role of DFS in socio-economic progress. Forenbacher et al. (2019) studied the role of mobile ownership in socio-economic alignment in society; the consequences of the study show a favourable association between the two variables. Mobile ownership affects education and employment in society. Cohen et al. (2018) examined the impact of digital technology on the lifestyle of South African citizens. They observed a significant impact of digital technology on the quality of life. Qu et al. (2017) conducted their study in Australia and also found a significant relationship between digital technology and economic growth. They recommended considering digital technologies in making policies related to economic growth and development. Chakpitak et al. (2018) conducted the same study based on empirical data in Thailand and also found that digital technologies had a positive impact on business activities and quality of life of people.

Digital Support during COVID-19 Pandemic: -

To support the poor and the vulnerable segment, the *Pradhan Mantri Garib Kalyan Yojana (PMGKY)* was started in 2020 during COVID. The welfare payments, i.e. government-to-person (G2P) payments were made through digital system. The government verified that most of the payments of '*PMJDY, Pradhan Mantri Ujjwala Yojana (PMUY), National Social Assistance Programme (NSAP) and Pradhan Mantri Kisan Samman Nidhi Yojana (PM-Kisan)*' were made through digital mode and maximum beneficiaries received their payment successfully. Later on, when these payments were withdrawn by beneficiaries, it increased transactions at bank branches and BCs. Since the role of CICO agents is significant in the financial services ecosystem of rural and low income groups, they had to face an adverse time during lockdown. As per the Centre for '*Global Development and MSC (Microsave Consulting) Report 2021*', a tremendous growth in digital payments was recorded during the pandemic. Contactless and Aadhaar-based payments increased by 10%, UPI had more than 150 million users transacting on the platform and grew by 50% y-o-y, cash spent on debit/credit cards witnessed an 11% y-o-y increase, Bharat QR code-based transactions reached 3.05 million, a 61% y-o-y increase, PoS terminals also increased by 20.5% y-o-y. The pandemic has been a deadly dream for all of us. However, the insurance sector has received huge awareness and significance during the pandemic. It led to a 115% y-o-y growth in collection of medical insurance premiums.

Digital Finance Services and Finance Inclusion: -

Financial inclusion refers to providing easy access to suitable and affordable basic financial services such as savings, payments, loans, and insurance parts of society. Digital Finance Services (DFS) has emerged as an invigorating fuel for the growth of financial inclusion in the country. Enormous improvements in this direction have revolutionised India's payments ecosystem. All the important payment channels, i.e. '*person-to-business (P2B), person-to-government (P2G), person-to-person (P2P) and business-to-person (B2P)*' have substantial potential and digitalisation has to exploit it at its best. Utmost attention through digital payment solutions across these channels has addressed the financial needs of the unprivileged and underserved segments of society. All kinds of business segments, the middle-class population have benefited in the form of digitalising domestic payments, utility bill payments, house rental payments, e-commerce CoD payments, offline merchant payments, banking and finance loan payment and several other transactions. The participation from all segments of society has made the digital financial system stronger. While the major focus of governments was on spreading the banking and financial service network, many innovations such as digital wallets and mobile money apps were launched by fintech firms. The primary focus of these innovations was to offer a cost-efficient, user-friendly and safe platform to make financial transfers from their mobiles, even for those without a bank account.

The government of India's ambitious '*Digital India Campaign*' with the vision of 'Digitally-Empowered India' has boosted this transformation of the financial system. Under this campaign, '*Pradhan Mantri Jan Dhan Yojana (PMJDY)*' scheme and the '*direct benefit transfer*' (DBT) mission, have cemented the solid foundation for financial inclusion by facilitating universal access to accounts and their subsequent usage. Linking Aadhaar and various financial welfare schemes with banks has enabled the service providers to have a smooth and affordable digital payment experience for their users. '*The JAM trinity*' (Figure 1) that unites 'Jan Dhan accounts for banking, Aadhaar for identification and authentication and mobile for easy and self-initiated banking' have improved the financial inclusion in India. As per the 'Ministry of Information and Broadcasting', there are over 1.2 billion mobile phone users and 600

million smart phone users in India.

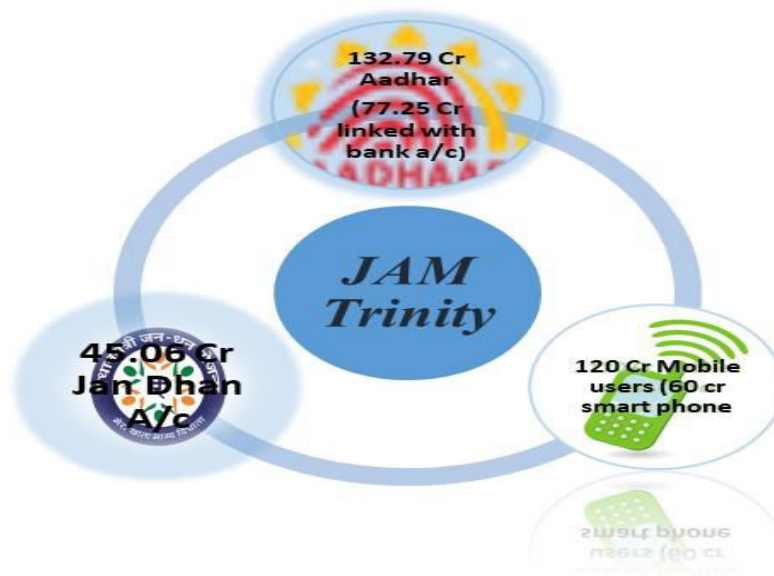


Figure 1: 'JAM Trinity in India'

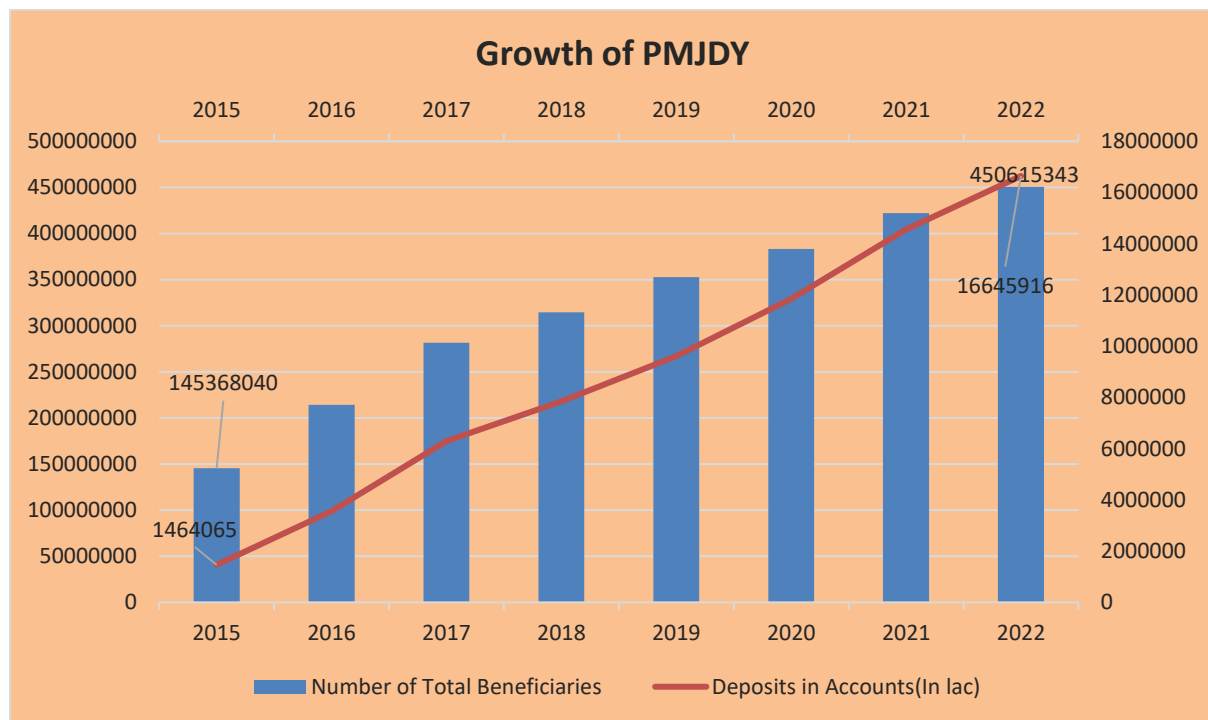
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As of September 28, 2022, the deposits of Rs. 173564 crore with issuance of more than 32 crore RuPay debit cards, more than 47 crore people have benefited from this program. Most of the total beneficiaries belong to the rural or semi-urban areas, and the participation of women beneficiaries from these rural and urban areas has been remarkable. Benefit funds from the welfare schemes run by the government are credited directly into these jan dhan accounts that can be accessed suitably through debit cards or smartphones. *"It represents an impressive fast-forward of traditional financial development. Only a decade earlier, just one in three adults in India had a bank account. Similar expansions in financial access elsewhere have taken almost half a century"* (D'Silva and others, 2019).

Table 1: Pradhan Mantri Jan Dhan Yojna

Pradhan Mantri Jan Dhan Yojna		
	Number of Total Beneficiaries	Deposits in Accounts (in lac)
2015	145368040	1464065
2016	214275474	3567201
2017	281678271	6297243
2018	314439129	7849399
2019	352662230	9610735
2020	383279961	11843441
2021	422005644	14555053
2022	450615343	16645916

Source: Data retrieved & compiled from <https://pmjdy.gov.in/>



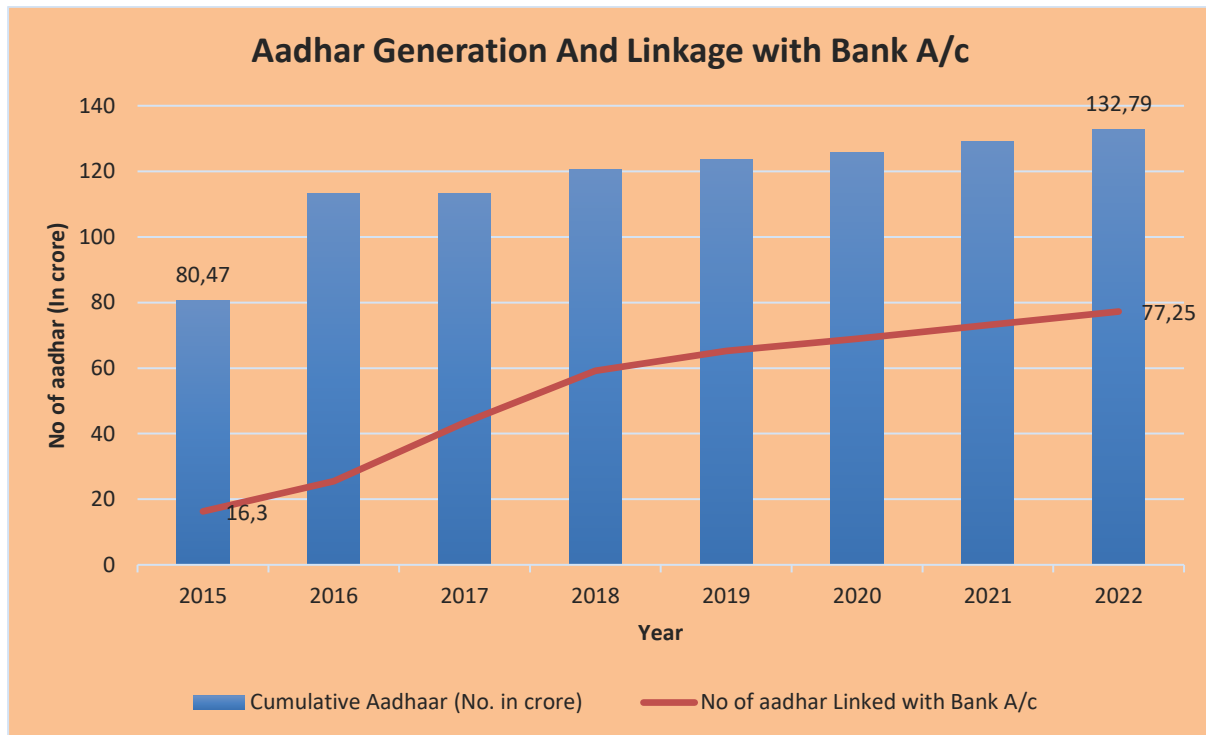
Source: Data retrieved & compiled from <https://pmjdy.gov.in/>

The campaign initiated by the government of India to make Aadhar cards one of the necessary documents of Indian citizens has fetched extraordinary results. More than 130 crore people, which is around 90 percent of the total population, have generated this important digital ID. The government's emphasise is to link Aadhar with bank accounts for social welfare, security and legal issues has also worked; more than 77 crore Aadhar have been linked with their bank accounts.

Table 2: Aadhar Generation and linkage with bank a/c

Aadhaar Generation and Linkage with Bank A/c		
	Cumulative Aadhaar (No. in crore)	No. of Aadhaar Linked with Bank A/c
2015	80.47	16.3
2016	113.29	25.5
2017	113.29	43.4
2018	120.71	59.2
2019	123.57	65.2
2020	125.79	68.9
2021	129.04	73.1
2022	132.79	77.2

Source: Data retrieved & compiled from <https://uidai.gov.in/>



Source: Data retrieved & compiled from <https://uidai.gov.in/>

In order to provide a seamless and cost effective digitalised financial solution, the Indian digital finance infrastructure, involving various financial service providers, offers a smooth inter-operable payment framework through specified protocols. This has resulted in a rapid growth in digital transactions and retail payments in the country. The growth is estimated to sustain in the future also and will surpass all levels. The 'Unified Payments Interface' (UPI) and 'Aadhaar-Enabled Payment System' (AePS) have contributed to the growth of these banking transactions. The current scenario of digital financial services can be illustrated by the help of the table 3, comprising the digital payment statistics of 2021-22.

Table 3: Current Digital Payment Statistics

Digital Payment Statistics (2021-22)		
	Volume (lakh)	Value (₹ crore)
Payment Systems		
1. Financial Market Infrastructures (FMIs)		
a. Credit Transfers – RTGS	2078.39	128657516.7
Retail		
2. Credit Transfers – Retail	577631.89	427222828.9
a. AePS (Fund Transfers)	9.76	575.27
b. APBS	12298.5	133051.9
c. IMPS	46625.25	4171037.95
d. NACH Cr	18729.79	1276800.6
e. NEFT	40407.29	28725463.22
f. UPI	459561.3	8415899.97



3. Debit Transfers and Direct Debits	12222.27	1038334.95
a. BHIM Aadhaar Pay	227.73	6113.65
b. NACH Dr	10787.53	1030531.56
c. NETC (linked to bank account)	1207.01	1689.74
4. Card Payments	61785.63	1701906.47
a. Credit Cards	22398.82	971632.13
b. Debit Cards	39386.81	730274.34
5. Prepaid Payment Instruments	65812.39	293658.17
a. Wallets	52683.01	226644.51
b. Cards	13129.38	67013.66
6. Other Payment Channels		
a. Mobile Payments (mobile app based)	507531.32	14970859.69
b. Internet Payments (Netbanking / internet browser based)	35786.53	4981085.47
7. ATMs		
a. Cash Withdrawal at ATMs	65083.45	3105600.77
b. Using Credit Cards	62.37	3130.26
c. Using Debit Cards	64694.97	3091414.92
d. Using Pre-paid Cards	326.11	11065.59
8. Cash Withdrawal at Micro ATMs (AePS)	11126.04	299775.78

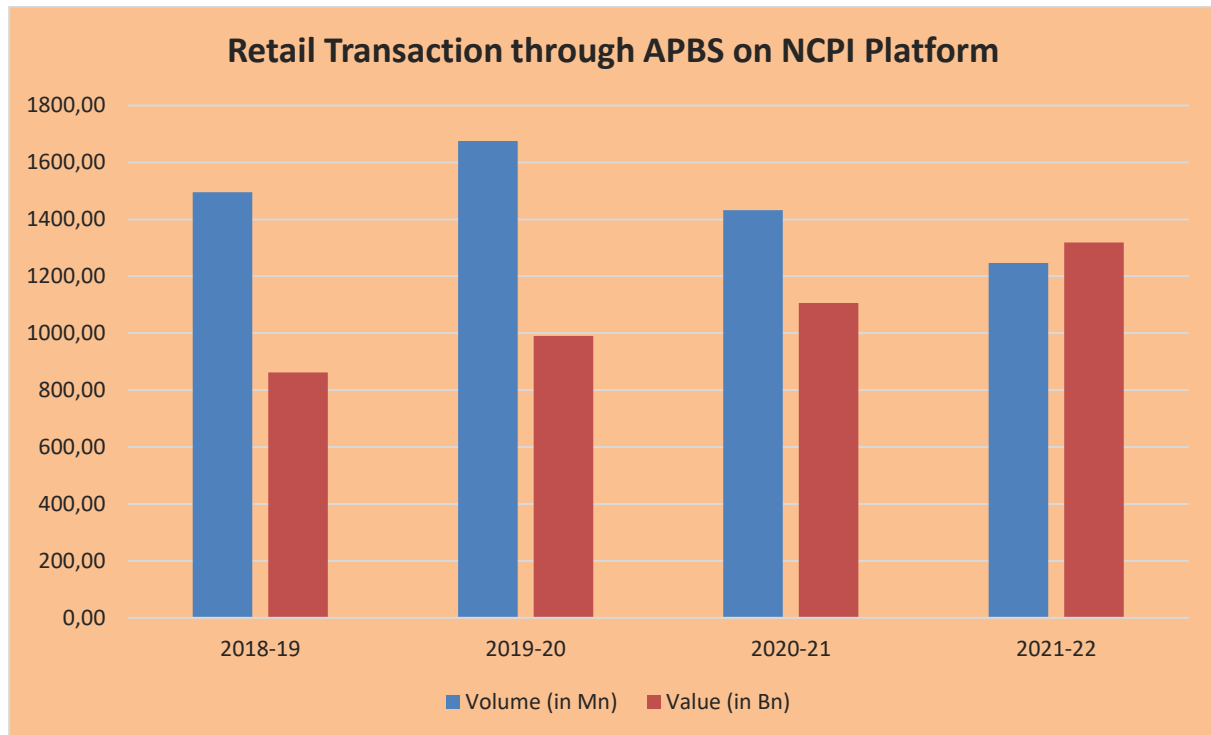
Source: Data retrieved & compiled from <https://www.rbi.org.in/Scripts/PSIUserView.aspx?Id=10>

DFS has served the goal of financial inclusion; one of the prime examples is the use of APBS. 'Aadhaar Payment Bridge System' (APBS) is an exclusive payment system employed by NPCI. It provides the facility to transfer the benefits and subsidies of a/c holders to their bank accounts directly, using Aadhaar number as a central key. For this electronic channelizing of funds, the beneficiaries' Aadhaar must be linked with the accounts which are called 'Aadhaar Enabled Bank Accounts' (AEBA). The APBS is playing a significant role in achieving the goal of Financial Inclusion by converting a huge number of retail payment transactions to digitalised form which were earlier made either in the form of cash or cheque. An amount of more than 1300 billion was transferred to the AEBA in 2021-22 against government welfare schemes and subsidies. Transactions through the APBS have increased by 53% in the last 4 years.

Table 4: Retail Transactions through APBS

Retail Transaction through APBS on NPCI Platform		
	Volume (in Mn)	Value (in Bn)
2018–19	1494.9	862.26
2019–20	1675.12	990.73
2020–21	1432.69	1105.64
2021–22	1246.93	1318.89

Source: Data retrieved & compiled from <https://www.npci.org.in/statistics>

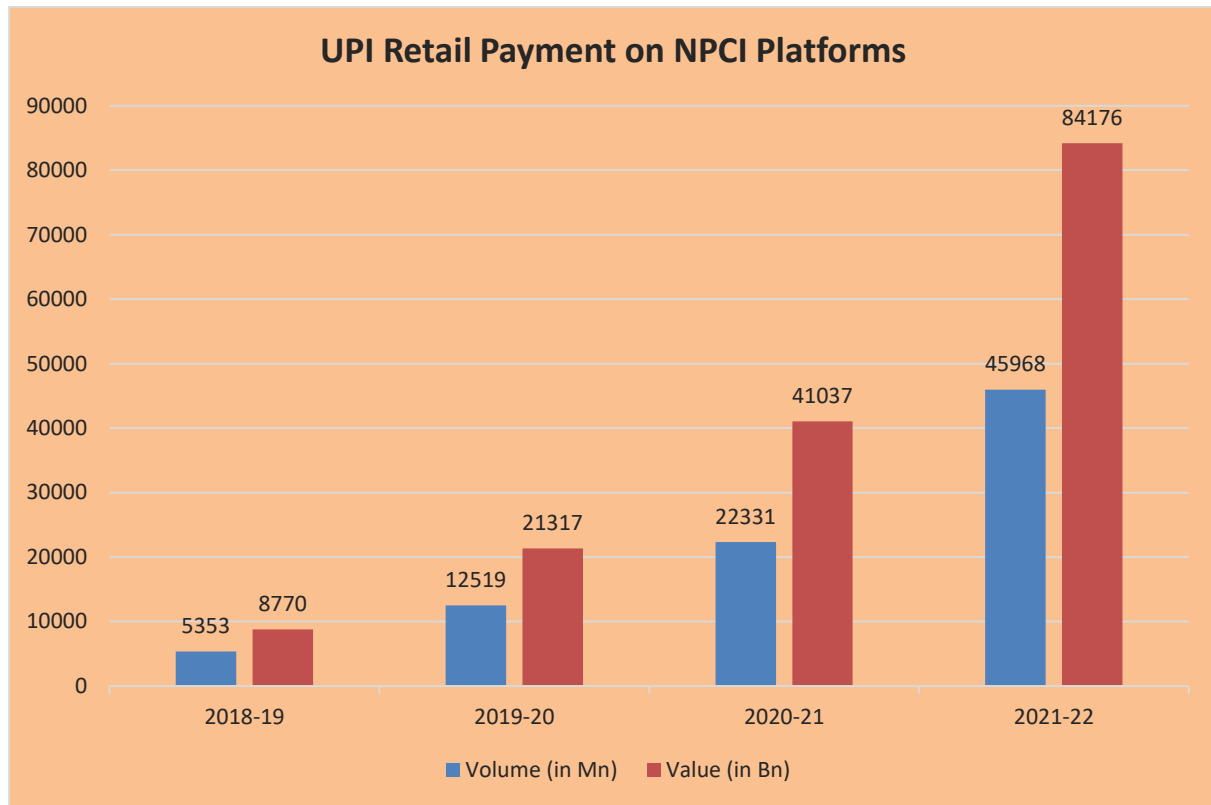


The ‘Unified Payments Interface’ (UPI) is one of those successful innovations that enabled banks to exchange payment orders with nonbank firms. This system flooded the small financial transactions of street vendors and small traders without a bank account. The digital wallets increased the instant fund transfer among students, small business traders and, in general, people in urban and rural areas. Even though a 30% market cap on the UPI total UPI transactions volume has been imposed for all the apps (provided by third-party) in November 2020, growth in UPI transactions has been intact. The total volume and value of both UPI retail payments have doubled in 2022 in comparison to 2021 and more than 10 times in the 4-year duration from 2018-202. PhonePe and Google Pay are the dominating players in the UPI market. The market cap policy was executed for a user-friendly UPI experience for customers. The policy also imposes controls over the monopoly of a few big players in the digital payments market. The following table and subsequent graph shows the trend of the UPI retail payment on the NCPI platform.

Table 5: Retail Transactions through UPI

UPI Retail Payment on NPCI Platforms		
	Volume (in Mn)	Value (in Bn)
2018–19	5353.4	8769.7
2019–20	12518.62	21317.3
2020–21	22330.65	41036.54
2021–22	45967.52	84175.72

Source: Data retrieved & compiled from <https://www.npci.org.in/statistics>

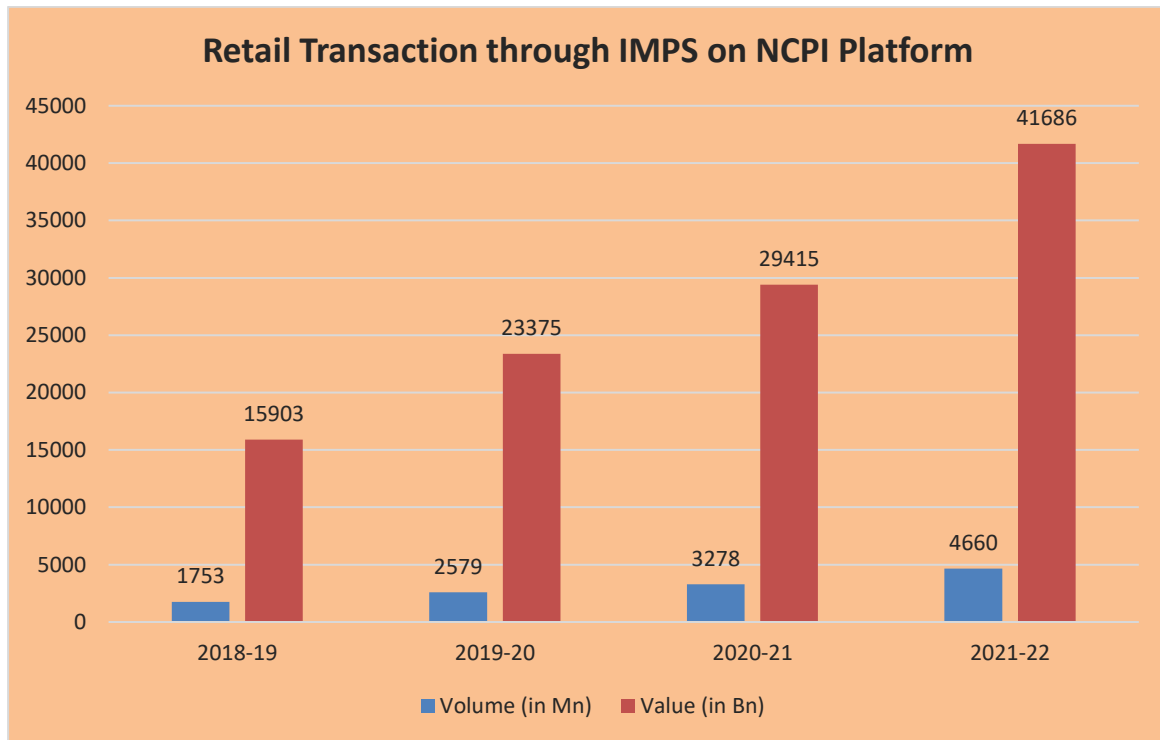


In order to provide an instant & 24X7 real time fund transfer, accessible on all the channels, i.e. Mobile, Internet, ATM, SMS etc., a safe and cost-efficient digital finance service, IMPS, is provided by NPCI. IMPS offers instant fund transfer within banks. Presently, 674 associates (banks & PPIs) are participating in IMPS services. Retail transactions through IMPS have also grown at a fast pace; a total of 4660 million transactions of 41686 billion value have been recorded in 2021-22, which is more than 40% of 2020-21. The growth trend is shown in the table below.

Table 6: Retail Transactions through IMPS

Retail Transaction through IMPS on NPCI Platform		
	Volume (in Mn)	Value (in Bn)
2018–19	1752.91	15902.57
2019–20	2579.17	23375.41
2020–21	3278.34	29414.96
2021–22	4659.7	41686.46

Source: Data retrieved & compiled from <https://www.npci.org.in/statistics>

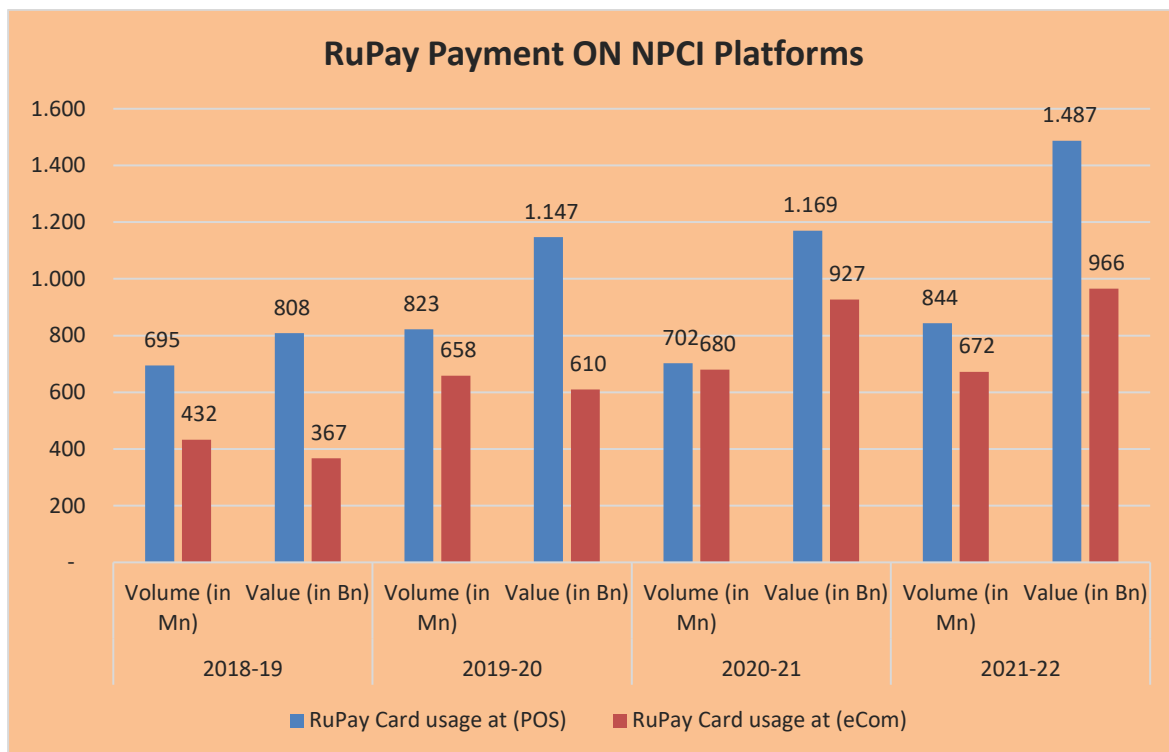


In order to help achieve the target of a 'less cash' economy and providing easy access to basic financial services, RuPay, one of the highly secure global card payment networks, was launched by NCPI. Presently, 1100 SCBs, including Regional Rural and Co-Operative Banks are providing RuPay card. There has been a significant growth in RuPay payments. The volume of RuPay card payment has been increasing payments on POS (21%) and e-Com platforms (56%) in the last 4 years.

Table 7: Retail Transactions through RuPay

RuPay Payment on NPCI Platforms				
	RuPay Card usage at (POS)		RuPay Card usage at (eCom)	
	Volume (in Mn)	Value (in Bn)	Volume (in Mn)	Value (in Bn)
2018-19	695.02	808.23	432.06	366.9
2019-20	822.59	1146.81	658.13	610.4
2020-21	701.99	1169.38	679.68	926.72
2021-22	843.9	1487.12	672.46	965.92

Source: Data retrieved & compiled from <https://www.npci.org.in/statistics>

**Key Issued to be addressed: -**

Digital Financial Services requires a process that includes multiple steps to be accomplished. Most of the financial solutions related to UPI involve a set of requisites from the user's side. The basic need is to own a smartphone, the internet, documents for KYC, and an active bank card. An appropriate infrastructure is also required from the merchant or service provider to offer a seamless digital financial service. There is still a huge scope for payment service providers for DFS that can be exploited by scaling up their services and offering innovative products. The issue of '*Merchant discount rate*' (MDR) should also be addressed by the government to aid banks to serve network providers and payment gateways. On the other hand, it should also encourage the BC agents to serve the financial needs of lakhs of LMI customers. The practical issues of the BC network regarding commission, profitability, liquidity management, high operational costs, product training, and internet connectivity must be resolved to achieve more productivity. As per figure 1, there are only 60 crore smart phones in use. People belonging to the low-middle class do not own smart phones to avail uninterrupted DFS. Inadequate internet availability is still a problem in suburb and rural areas. These are two major barricades of smooth digitalisation of financial services in India and the increase in digital transaction failure. The poor experience demotivates the consumer to use DFS and makes them ensure about the transactions. The low literacy rate among the weaker and rural customer groups makes them deprived of fair exposure to technology. The poor financial literacy rate is a challenge to achieve financial inclusion. It can be overcome by proper targeting of excluded groups, effective learning approaches, and mediums of learning and improved supporting infrastructure. A well-structured product-focused, activity-based practical training program with capable mentors will encourage the excluded groups to come forward to use DFS. Since DFS has the capacity to boost financial inclusion, if utilised properly, it can fetch extraordinary results. The limitations placed by socio-cultural norms, particularly for women in backward sections of society, can be overcome by improving easy access to financial services for women and presenting effective relevant financial products for women. A significant failure rate has been recorded in DBT due to mismatched bank details of beneficiaries, dormant bank accounts, and unlinked bank accounts with Aadhaar. A unified database is essential for such G2P programme. There must be a system that enables the database to perform real time automatic inclusion and exclusion of beneficiaries. The requirement of application and submission of documents is unnecessary and demoralises the beneficiaries. The unified database for all welfare schemes and subsidiaries will be error free from multiple or redundant data. It will reduce the payment failures and grievances. The '*beneficiary-centric recourse mechanism*' should be user-friendly to handle the beneficiaries' grievances in a quick and transparent manner; the '*grievance redress mechanism*' (GRM) should provide the DBT beneficiaries with access and control over their payments. The Government of India has started working on the new concept of e-RUPI, an electronic voucher redeemable for a specified purpose. This concept can be a more effective tool for financial inclusion schemes. Proper communication is one of the imperative issues which is often ignored or not given due importance in most of the social welfare programs run by the government. DFS should be promoted and communicated with the target audience with



the utmost care. There must be a well-deliberated communication strategy to disseminate the correct message, encompassing all aspects of financial inclusion. The ‘National Payments Corporation of India’ (NPCI) has been proved as a backbone of the retail payment and settlement systems so far. Role of NCPI has been phenomenon in delivering satisfactory digital payment solutions. It should be further strengthened in accordance to the country’s mounting financial needs.

III. CONCLUSION

The technology advancement in modern economy has revolutionised the financial system of the country. The emergence of technology-driven ‘Digital Financial Services’ (DFS) has answered all the perturbing questions regarding financial inclusion. It has fuelled the growth of financial inclusion. The growth of digital financial services has upsurged in the recent past for many reasons, such as technology advancement, new generation involvement, financial literacy, and government initiatives and overall participation from all segments of society. Despite tremendous growth, DFS are still in the preliminary stage in country. A comprehensive digital approach, integrating a wide range of infrastructure and policies can bring synergies across different parts of financial inclusion. ‘*Techno-innovation*’ is the key and going to play an important role.

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