

Digital Financial Services as a Route to Better Financial Inclusion and Economic Development in India - Pre and Post COVID Analysis

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Abstract- Today, the use of internet has been growing and therefore browsing on the internet has also been on an increase. The research focuses on understanding the importance and impact of digital financial services as a route to better financial inclusion and economic development in India, especially pre and post COVID periods. Financial inclusion has been one of the major concerns linked to the development of the economy and a country's financial development. Banks, Financial Institutions, FinTechs and technology-enabled financial channels facilitated additional economic relief to households and firms in more efficient and inclusive ways, essential during COVID-19. The research displayed a highly positive impact of digital financial services in financial inclusion. The spike in digital platforms and increased volume and value in both financial and non-financial transactions have been observed. By leveraging the technology smartly and effectively by following stringent regulatory control, innovative digital financial services are a great financial inclusion tool.

Keywords---Financial Inclusion, Digital Financial Services, Digital Payments, FinTech, UPI, Cards

I. INTRODUCTION

With about 190 million unbanked populations, India is second after China among developing countries in the number of residents who don't have bank accounts or participate in the formal financial sector, according to the World Bank 2017 report. Financial inclusion has been one of the major concerns linked to the development of the economy and the financial development of a country. Bank and financing institutions are one of the key parts of financial inclusion. Over the years, several initiatives have been taken towards financial inclusion, and one such step is digital finance. The digital revolution has offered consumers technology that one can access at any point of the day. Offering the opportunity to generate new market growth opportunities, jobs and

become the biggest business opportunity for businesses, the digital revolution goes a step ahead. The digital financial service is now considered to be the backbone of the country. Especially in the wake of COVID-19, all saw a need to employ successful financial management to be one of the dire needs. This demanded the need for liquidity in the economy, better financial sustainability with individuals, and the launch of platforms that can offer payment solutions. The RBI Digital Payments Index (DPI) was constructed with March 2018 as the base period for 100 and stood at 153.47 and 207.84 for March 2019 and March 2020, respectively, indicating appreciable growth. FinTechs and technology-enabled financial channels facilitated additional economic relief to households and firms in more efficient and inclusive ways, essential during COVID-19. The research under consideration focuses on digital payments as the route to financial inclusion in India. The research further explores the various digital finance options and the expected trend of the future. The key concepts are that the authorities around the globe emphasized the use of digital payments in response to COVID-19. The time demanded the short-term changes that can be generalized as the long-term impacts. The positive outlook and changes reflected that Fin-Techs have continued to grow.

The main objective of this research is to identify the concept of digital financial services and their impact on financial inclusion. The work further explores the future scope of the implications and the growth of the digital financial services from the FY 2016-17 to the FY 2019-20, and the value expected by FY 2020-21, which is pre and post COVID period. The paper offers the details of the benefits and challenges that digital financial services face and the potential governmental interventions to assist in better management. The rest of the paper is organized as follows; section 2 discusses Financial Inclusion, section 3 discusses the Research methodology and in section 4 we have elaborated the recommendations and limitations followed by conclusion.

The paper is organised as follows: The first section contains the introduction. The second part of the paper discusses the many scholars' related research on this topic. The third section, which also includes details on the hardware utilised and an explanation of how it functions, describes the process. The results are presented in the fourth section, along with a brief explanation of how

they should be applied under the required circumstances. The conclusion, which comes last, presents a summary of our research.

II. FINANCIAL INCLUSION

Financial inclusion has been one of the major concerns for all developing countries. According to a United Nations Report 2016, financial inclusion is the sustainable provision of affordable financial services that bring the poor into the formal economy. According to Dr. C Rangarajan, Chairman, Committee on Financial Inclusion, Reserve Bank of India, Financial inclusion is "The process of ensuring access to financial services and timely and adequate credit for vulnerable groups such as weaker sections and low-income groups at an affordable cost."

The Global Findex data offered by the World Bank suggest that the number of Indians with bank accounts has increased in recent times, and it is estimated that nearly 80% Indians. Additionally, the G20 Financial Inclusion Action Plan 2020 suggests interdependencies between financial inclusion, financial stability, the integrity of the financial system, and consumers' financial protection. The G20 FIAP offered the financial inclusion plan that focused on the three major components:

- GPFI overarching objectives
- Action areas under the agreed prioritized topics and topics
- A set of cross-cutting issues

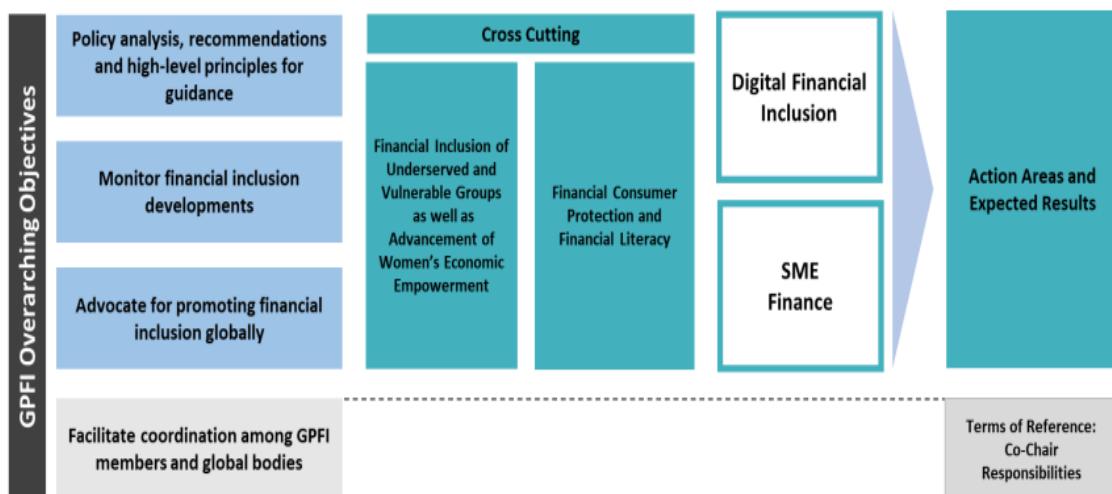


Figure 1: 2020 G20 Financial Inclusion Action Plan Frameworks

(Source: G20 2020 Financial Inclusion Action Plan)

Financial inclusion is not only limited to the individuals having access to the bank account, but it extends to having full access to affordable and useful financial services and products so that they can fulfill their needs in terms of payments, transactions, and wealth management. The accessibility of financial services leads to the development of FinTech, which offers digital financial services. Thus, financial inclusion can be viewed as both the business and social opportunity that offers individuals, self-help groups, businesses, and organizations the opportunity to participate in financial stability and economic development.

A. DIGITAL FINANCIAL SERVICES

Digital finance can be defined as financial services accessed over digital infrastructure, including mobile and internet, without traditional bank branches. The broad range of financial services accessed through digital channels includes payments, credit, savings, remittances, and insurance. These all are known as digital financial services that involve the three major components: a digital transactional platform, retail agents, and the use by customers and agents of a device to transact on the online digital platform, as suggested by CGAP 2015[9].

The most common users of the provided digital services include transaction accounts, payment services, savings accounts, investment services, loans, and insurance services. The types of digital financial services are:

- Cards (Debit and Credit cards)
- Immediate Payment Service (IMPS)
- Aadhaar Enabled Payment System (AePS)
- Unified Payments Interface (UPI)
- E-Wallet or Prepaid Payment Instruments (PPIs)
- National Electronic Toll Collection (NETC)
- National Financial Switch (NFS)

B. FINTECH

Fintech denotes financial technology and is defined as the delivery of financial and banking through modern technological innovation led by computer programs and algorithms. The technology company provides the base or platform to access the financial services and improves

the overall delivery system of the financial services. Fintech plays an important role in the digital finance economy.

FinTech involves a range of services that are offered by banks and various other financial institutions as well. While most FinTech companies are different from the banks, the services offered and the regulations that they follow are similar. The main benefits of the FinTech companies are:

- Quicker financial services with a seamless process
- Reducing cost by using financial technology
- Improvement in the quality of services
- Better customer satisfaction
- Superior ability to assist the customer anytime, anywhere
- The high degree of convenience

The FinTech market and FinTech business units have been growing steadily in India regarding numbers, transactions, and reach. In 2015, there were 174 Fintech units, and it reached more than 2000 units in India in the year 2018.

C. KEY DEVELOPMENTS IN THE DIGITAL FINANCIAL SERVICE

The major developments that took place in the digital financial services in India are listed in Table 1.

Table 1: Key Developments in the digital financial services (Source: RBI and NPCI data)

| Year | Development |
|------|--------------------------------------------------------------------------------------------|
| 2004 | Launch of the National Financial Switch |
| 2007 | Passage of the Payments and Settlement Act |
| 2008 | Formation of NPCI to manage retail payments in India |
| 2009 | Nationwide roll-out of Aadhar |
| 2010 | * Launch of IMPS and PPIs * Launch of RuPay in March * Formation of OPGSP guidelines |
| 2011 | Launch of Aadhar-based direct benefit transfer (DBT) through AePS and NACH |
| 2012 | Introduction of the merchant discount rate (MDR) policy |
| 2013 | Formation of Padmanabhan committee to study the GIRO-based payment systems |
| 2014 | Formation of payments bank guidelines in July |

| | |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2015 | Formation of contactless payment guidelines in May |
| 2016 | <ul style="list-style-type: none">* Launch of UPI and NETC* Launch of Aadhar-based authentication for card-present (CP) transactions |
| 2017 | <ul style="list-style-type: none">* Rationalisation of MDR for debit card transactions* Launch of Bharat QR code* Launch of BBPS for bill payments* Launch of FASTag for toll payments |
| 2018 | Formation of interoperability guidelines for PPIs/wallets |
| 2019 | <ul style="list-style-type: none">* Formation of tokenization guidelines* Launch of NCMC* Formation of reimbursement guidelines for MDR* Launch of the Digital India campaign* FASTag made mandatory for all vehicles* Launch of Ombudsman Scheme for Digital Transactions |

III. RESEARCH METHODOLOGY

The study is based on the secondary data collected from different journals and handbooks published by RBI and NPCI, research articles, and websites.

A. LITERATURE REVIEW

The hurdle in the management of finances offline gave a boost to the digital platform. While the digital platform's financial services are still progressing, the acceptability of the same by the millennials and business houses is increasing at a great pace. Various researches have been conducted to identify various aspects of financial inclusion, digital financial services, and the interdependency of both. The research conducted by Midika (2016) [10] offered insights that were not in line with the rest of the researches conducted. The study resulted in agency banking, mobile banking, and internet banking, negatively influencing Kenya's banking industry's financial inclusion. The study concludes that digital finance does not significantly affect financial inclusion in the banking sector in Kenya, which offered further scope to perform an in-depth study as the sample was limited. A critical analysis of the issues and challenges associated with the impact of digital finance for financial inclusion and financial system stability was studied by Ozili (2017) [11]. The article suggested digital financial services have positive effects

for financial inclusion in emerging and advanced economies, and the convenience that digital finance provides to individuals with low and variable income is often more valuable.

Begin (2018), in the paper, depicted that digital financial services are driving financial inclusion and improving financial health with digital technology [4]. Also, the study further claimed an urgent need to create awareness among the citizens, especially in rural and semi-urban areas, regarding the basics of digital finance services.

Financial inclusion is a multidimensional approach [1] suggested by Agrawal and Jain (2019). The research suggested that mobile banking services are yet to reach their potential globally. The bank's and financial institutions' involvement is seen as important to reach the expected level to create greater financial inclusion for the un(der)banked consumers. Fintechs, digital finance, and their role in digital financial inclusion in India using the existing sources of the World Bank and Reserve Bank of India, Thangaraj Ravikumar (2019) [13] in his research drew some great insights. The study suggested that to accelerate financial inclusion, the emergence of new technologies plays a crucial role based on their speed, convenience, and non-discriminative approach. Digital finance can provide affordable, convenient, and secure banking service with greater control of customer personal finance, quick financial decision making, and the ability to make and receive payments. Financial inclusion is a win-win situation achieved through digital finance[6], as suggests Durai and Stella (2019). Digital finance (Internet banking, mobile banking, mobile wallets (apps), credit card, and debit card has a significant impact on financial inclusion, suggested Prema (2020) [12]. Financial inclusion is one of the key aspects of developing the economy, but there is still a need to improve digital transactions across the country[5], suggested by Draboo (2020).

One of the latest studies conducted by Hasan, Yajuan, and Khan (2020) uses the systematic review method of qualitative sampling to identify the role of digital financial services (DFSs) [8] in promoting inclusive finance in China. The study offered a better understanding of the practical impact and implication of DFS tools in transforming the financial sector and suggested a positive relationship between digital financial services (DFSs) and financial inclusion in China. To address dynamic causality amid digital finance and financial inclusion, Bede et al. (2020) [3] used the secondary data of 27 sub-Saharan African countries from World Bank data. The results

displayed a positive long-run correlation between digital finance and financial inclusion. Further, a need to install more ATMs and discourage physical cash transactions is found to be essential. To examine the impact and mechanism of digital financial inclusion on the sustainable growth of small and micro enterprises in China [14], Yang and Zhang (2020) conducted research. The outcome showed that digital financial inclusion development helps promote small and micro-businesses' sustainable growth, particularly in private, high-tech industries, and competitive markets.

Ghosh and Chaudhury (2020) conducted research to identify the determinants of digital finance in India [7]. The research findings suggested that a man, richer, more educated, and older, favor digital technology to avail financial services. Although one saw the gender gap as one of the major outcomes that suggested that the number of men using technology is greater than women, the overall outlook displayed a positive relationship.

Based on the literature review and the secondary data collected, the results of the research are interpreted in the next section.

B. DATA AND FINDINGS

There has been an enormous increase in access to finance in India between 2014 and the current periods. India's government and the financial policies drafted for digital financial services played quite a crucial role in the development and promotion of financial inclusion.

Table 2: Digital Financial Retail Services Statistics on the NPCI Platform

(Source: NPCI and RBI)

| Particulars | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|-------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Volume (in Mn) |
| NFS | 2,374.30 | 2,837.01 | 3,170.18 | 3,503.44 | 4,017.41 | 4,311.59 | 3,308.59 |
| APBS | 168.43 | 717.46 | 949.28 | 1,298.18 | 1,494.90 | 1,675.12 | 1,320.39 |
| NACH | 72.04 | 142.8 | 199.63 | 162.84 | 62.02 | 0.74 | 0.11 |
| IMPS | 78.44 | 220.81 | 506.84 | 1,009.84 | 1,752.91 | 2,579.17 | 2,915.02 |
| RuPay Card | 6.09 | 35.64 | 282.78 | 667.66 | 1,127.08 | 1,480.73 | 1,248.90 |
| AEPS | | 0.36 | 16.29 | 106.27 | 254.47 | 437.19 | 885.46 |
| BBPS | | | 0.03 | 10.6 | 73.5 | 145.69 | 240.84 |

| | | | | | | | |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| UPI | | | 17.86 | 915.23 | 5,353.40 | 12,518.62 | 19,598.97 |
| BHIM | | | 6.19 | 87.91 | 186.78 | 201.03 | 185 |
| USSD | 0 | 0 | 24.29 | 128.73 | 255.54 | 583.6 | 1,135.02 |
| NETC | | | 23.52 | 126.52 | 254.03 | 582.59 | 1,134.07 |
| PPIs | - | 748 | 1,963.70 | 3,459.10 | 4,607.20 | 5,331.80 | 8,111.00 |
| Credit Cards | - | 785.7 | 1,087.10 | 1,405.20 | 1762.6 | 2177.3 | 1742 |
| Debit Cards | - | 1,173.60 | 2,399.30 | 3,343.40 | 4414.3 | 5123.9 | 4340 |
| Total Volume | 2,699.30 | 6,661.38 | 10,646.99 | 16,224.92 | 25,616.14 | 37,149.07 | 46,165.37 |
| Particulars | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| | Value (in Bn) |
| NFS | 8,311.67 | 9,993.22 | 10,818.39 | 13,357.49 | 15,125.62 | 16,150.98 | 13,526.26 |
| APBS | 61.43 | 185.98 | 286.63 | 559.65 | 862.26 | 990.73 | 995.49 |
| NACH | 1,025.41 | 2,146.17 | 1,597.13 | 1,193.80 | 430.03 | 5.6 | 5.76 |
| IMPS | 581.89 | 1,622.29 | 4,116.24 | 8,924.98 | 15,902.57 | 23,375.41 | 26,141.15 |
| RuPay Card | 11.27 | 50.51 | 349.29 | 654.32 | 1,175.13 | 1,757.21 | 1,857.66 |
| AEPS | | 0.86 | 22.82 | 269.17 | 678.31 | 1,188.58 | 2,059.31 |
| BBPS | | | 0.04 | 10.98 | 90.99 | 216.62 | 377.78 |
| UPI | | | 69.47 | 1,098.32 | 8,769.70 | 21,317.30 | 35,987.67 |
| BHIM | | | 18.04 | 300.18 | 796.34 | 752.85 | 668.71 |
| USSD | 0 | 0 | 7.69 | 36.98 | 60.06 | 114.73 | 198.33 |
| NETC | | | 6.61 | 33.39 | 57.38 | 112.94 | 196.75 |
| PPIs | - | 488 | 838 | 1,416.34 | 2,133.23 | 2,155.58 | 6,258.00 |
| Credit Cards | - | 2,407 | 3,284 | 4,590 | 6304.13 | 7308.95 | 6080 |
| Debit Cards | - | 1,589 | 3,299 | 4,601 | 5934.75 | 8048.7 | 8282 |
| Total Value | 9,991.67 | 18,483.03 | 24,713.35 | 37,046.60 | 58,320.50 | 83,496.18 | 102,634.87 |

The secondary data of the volume and the value of Retail Digital Payments in India from 31st March 2014 to 31st March 2021(E) have been taken into consideration to analyze the objectives.

Table 2 includes the financial transactions, and table 3 includes the non-financial transactions that are performed on the digital platform over the years.

Table 3: Digital Non-Financial Retail Services Statistics on the NPCI Platform
(Source: NPCI and RBI)

| Particulars (Details of Non-Financial Transactions) | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | Volum e (in Mn) |
| AEPS (Inter Bank) Txn over Micro ATM | - | 0.33 | 9.55 | 95.10 | 269.56 | 387.47 | 921.48 |
| AEPS (Intra Bank) UIDAI Authentication over Micro ATM | - | 94.30 | 318.88 | 781.17 | 1,170.08 | 1,505.43 | 1,800.19 |
| eKYC Verification (Successful Txn) | - | 12.63 | 47.55 | 155.95 | 152.74 | 89.56 | 135.49 |
| Demographic Queries(Authenticated UID) | - | 12.98 | 31.68 | 639.02 | 136.33 | 34.47 | 35.75 |
| AEPS Tokenization | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,253.15 | 238.16 |
| BBPS (Bill Fetch) | | | 0.03 | 15.00 | 264.00 | 778.09 | 1,379.43 |
| NFS Inter Bank Txn over ATM | 693.97 | 863.00 | 1,102.02 | 1,273.35 | 1,246.60 | 1,117.00 | 855.02 |
| Total Non-Financial Txn | 693.97 | 983.25 | 1,509.71 | 2,959.59 | 3,239.31 | 5,165.17 | 5,365.52 |

From the above tables, the findings that one can infer are:

- There is an increment in both the financial and non-financial digital services over the period in terms of volume and value.
- The UPI mode of the digital financial service is one of the fastest-growing modes that has attracted the maximum number of transactions.
- A shift in the bill payment and inquiry on the digital platform has been seen, but still, there is a scope for greater reach.

- The percentage increment in the total volume from 2014-15 to 2020-21 in financial transactions is 1610% and in value is 927%.
- The percentage increment in the non-financial transactions in terms of volume from 2014-15 to 2020-21 is 673%.
- A spike in the digital financial services has been during and posts COVID as compared to the pre COVID scenario. This trend is expected to continue in the long-term.

Further to the study and analysis of the literature review, the key advantages of digital financial services in terms of better financial inclusion are:

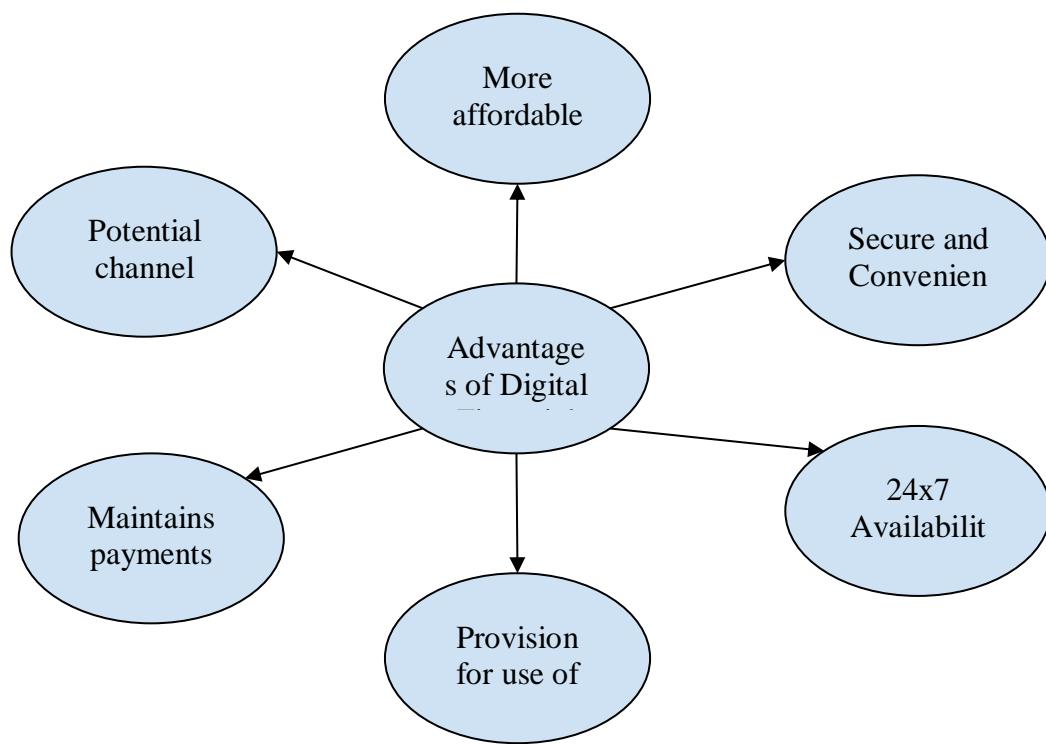


Figure 2: Key advantages of digital financial services in terms of better financial inclusion
(Source: Author)

IV. RECOMMENDATIONS AND LIMITATIONS

A. RECOMMENDATIONS

Some of the recommendations to smoothen the application of digital financial services for better financial inclusion and economic development are:

- Financial literacy is a crucial aspect for better use of digital financial services that can be en route by better financial inclusion and economic development.
- Formulating rules and regulations for digital financial services.
- Assuring check-points to avoid risks and faulty financial transactions.
- Increasing the banks and the banking officials' involvement in educating the customers about digital financial services.
- Application of the government programs like Pradhan Mantri Gramin Digital Saksharta Abhiyaan, Paygov India, PAHAL DBTL (Pratyaksh Hanstantrit Labh Direct Benefit Transfer of LPG), DigiDhan ABHIYAAAN, and Aadhar Enabled Payment System (AEPS) for empowerment.

B. LIMITATIONS

Further study scope involves analyzing the current facilities available, the technology's status, and the range of improvement. A detailed view about how one can enable digital financial services in remote areas is one of the critical areas to look for. The government policies and framework are one of the limitations that one can address once a stringent framework is designed and established for all the digital financial platforms.

V. CONCLUSION

With the emergence of new technologies and digital financial services, financial institutions' way of working has changed a lot. The era of digital financial services has offered greater leverage to the customers in availing services that are smooth and easy. FinTech has changed the faces of payments, credit, remittances, and insurance, which has increased the pace of development in digital financial inclusion. The overall application of technology can improve the payment facility more smoothly and transparently. Adopting digitization in financial services and encouraging people to use digital banking services will help in the country's growth and economic development. With several digital financial instruments in the market that offer a complete range of services anytime and anywhere, the consumer is now facilitated with enhanced choice and greater accessibility.

By leveraging the technology smartly and effectively by following stringent regulatory control, innovative digital financial services are a great financial inclusion tool.

REFERENCES

[1].Agrawal, G., & Jain, P. (2019). Digital Financial Inclusion in India. Behavioral Finance and Decision-Making Models, 195–203. <https://doi.org/10.4018/978-1-5225-7399-9.ch011>

[2].Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. Electronic Commerce Research and Applications, 7(2), 141–164. <https://doi.org/10.1016/j.elerap.2006.12.004>

[3].Bede Uzoma, A., Omankhanlen, A. E., Obindah, G., Arewa, A., & Okoye, L. U. (2020). Digital finance as a mechanism for extending the boundaries of financial inclusion in sub-Saharan Africa: A general methods of moments approach. Cogent Arts & Humanities, 7(1), 1788293. <https://doi.org/10.1080/23311983.2020.1788293>

[4].Begum, M. F. (2018). An Overview of Digital Financial Services in India: Concept, Initiatives and Advantages. Asian Journal of Management, 9(3), 1139. <https://doi.org/10.5958/2321-5763.2018.00183.x>

[5].Draboo, S. (2020). Financial Inclusion and Digital India: A Critical Assessment. Economic & Political Weekly, 55(17), .<https://www.epw.in/engage/article/financial-inclusion-and-digital-india-critical>

[6].Durai, T., & Stella, G. (2019). Digital Finance And Its Impact On Financial Inclusion. Journal of emerging technologies and innovative research. <https://www.semanticscholar.org/paper/DIGITAL-FINANCE-AND-ITS-IMPACT-ON-FINANCIAL-Durai-Stella/9879c848ea837571b7711b4922beb65ef9d72395>

[7].Ghosh, C., & Hom Chaudhury, R. (2020). Determinants of digital finance in India. Innovation and Development, 1–20. <https://doi.org/10.1080/2157930x.2020.1850012>

[8].Hasan, M. M., Yajuan, L., & Khan, S. (2020). Promoting China’s Inclusive Finance Through Digital Financial Services. Global Business Review, 097215091989534. <https://doi.org/10.1177/0972150919895348>

[9].Lyman, T., & Lauer, K. (2015, March 10). What is Digital Financial Inclusion and Why Does it Matter? CGAP. <https://www.cgap.org/blog/what-digital-financial-inclusion-and-why-does-it-matter>

[10]. Midika, A.M. (2016). The Effect Of Digital Finance On Financial Inclusion In The Banking Industry In Kenya. [https://www.semanticscholar.org/paper/The-Effect-Of-Digital-Finance-On-Financial-In-The-Midika/dc2a13a35a3b57331e56e4c883ab4ed663945357]

[11]. Ozili, P. K., Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, 18(4), 329–340, 2018. <https://doi.org/10.1016/j.bir.2017.12.003>

[12]. Prema, A., A Study On Digital Finance And Its Impact On Financial Inclusion, <https://www.semanticscholar.org/paper/A-STUDY-ON-DIGITAL-FINANCE-AND-ITS-IMPACT-ON-Prema/350efb58891e02d6565a0c8c7875dee53333c0fc>

[13]. Ravikumar, Thangaraj, Digital Financial Inclusion: A Payoff of Financial Technology and Digital Finance Uprising in India. *International Journal of Scientific & Technology Research*. 8. 3434-3438, 2019.

[14]. Yang L, Zhang Y., Digital financial inclusion and sustainable growth of small and micro enterprises—evidence based on China's new third board market listed companies. *Sustainability*, 12(9):3733, 2020 May 5.