



*Integrating Fintech to Microfinance: A Way to Digital Financial Inclusion
in India*

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Abstract

The financial sector of India is growing rapidly and Indian financial institutions is trying to serve all the people of society who need funds specially the poor people. Microfinance have the capacity to increase incomes and reduce poverty at some extent but MFIs still face many challenges in providing a number of various financial services to the underserved and poor people of the Indian society. Although, fintech innovations are rapidly transforming the world's financial system, therefore it can be a powerful tool for financial inclusion if microfinance will be fully integrated with fintech. The purpose of this paper is to analyse the technology advancement in microfinance sector to recommend for fintech adoption in MFIs in India. EShakti, a project of NABARD is

associated with the implementation of financial technology and digitalisation of SHGs working in rural areas of India. As, SHG is the vital source of microfinance and have linkages with MFIs and other development banks so, the paper uses the information of EShakti project to support that integration of technology with microfinance can be fruitful. Further, the paper uses seven years data of EShakti Project of NABARD for digitalisation of microfinance and analyse the results. The results shows a positive rate of the adoption of technology by the villages and people who are SHG members that shows that if the proper training and guidance will be provided then they will easily adopt the technology friendly financial services.

Keywords: *Fintech, Microfinance, financial inclusion, EShakti, Self Help Groups, India*

1. Introduction

Financial inclusion through microfinance by providing the financial services is the main goal of Indian banking sector (Bhandari & Kundu, 2014) and the efficient provision of microfinance can enable the poor to smooth their consumption, manage their risks better, gradually build their assets, develop their micro enterprises, enhance their income earning capacity and enjoy an improved quality of life (Ajit & Anu, 2012). MFIs are increasingly involve in the technological advancement of and combining their services with financial technology (Allen et al., 2016). However, a higher degree of fintech-based financial inclusion (FFI) intensifies banks' risk-taking and it controls bank's risk-taking behaviour (Banna et al., 2021) but information and communication infrastructure could stimulate financial inclusion by promoting digital finance and ICT dimensions when used as instruments for financial inclusion and it will accelerate economic growth and reduce poverty & inequality (Mushtaq & Bruneau, 2019). Innovations in financial business models driven by technology do not only involve changes in financial services delivering, but also changes in market, regulation, industrial networks, dominant players, and culture (Sánchez, 2022). In addition, One of its significant impacts is that it is reducing the boundaries among financial institutions, markets, and new service providers that are non-financial institutions and to improving the quality and range of financial services, FinTech is accelerating the financial inclusion agenda (Makina, 2019). While it is challenging and less profitable to establish branches in rural areas, FinTech services such as mobile money and e-wallets can be offered at low-cost financial services in the remote parts of India and it can be more fruitful when it will be combined with the microfinance services provided by MFIs.

2. Literature Review

(Pytkowska & Korynski, 2017) have analysed the result of survey on the use of fintech solutions and digitalization of the customer relations and lending processes among MFIs in Europe and concluded that there are many MFIs that have already introduced digital solutions, however the application of fintech in microfinance is slower than in other financial institution and there are no fully digitalized MFIs although there are many online consumer lenders, and fintech is making inroads into business lending as well. The study also focus about the barriers of MFIs regarding fintech and those barriers include lack of direct and

personal contact to the customers and the other challenge could be scale of operations for MFIs.

(**Banna et al., 2021**) have analysed the impact of fintech-based financial inclusion (FinFI) on the risk-taking behaviour of 512 MFIs in 29 Sub-Saharan African countries and developed a new index to measure FinFI and empirically assess its role in reducing the risk-taking attitude of MFIs. The result of the study shows that fintech solutions are more relevant to small-scale MFIs.

(**Ashta & Herrmann, 2021**) have studied the opportunities and risks for banking, investments, and microfinance due to implementation of artificial intelligence and fintech and concluded that artificial Intelligence is creating a rush of opportunities in the financial sector, but financial organizations need to be aware of the risks inherent in using this technology. Study revealed that AI's can reduce cost and look attractive across the board due to its differentiation but other than fraud detection, these benefits depend on the scale of an organization.

(**Hasan et al., 2022**) on their study on rural consumer's financial literacy and access to fintech services have observed that knowledge regarding financial services is considered as an important factor that influences access to financial technology services. The study has carried out a survey-oriented method with a structured questionnaire and used three well-known econometric models: logistic regression, probit regression, and complementary log–log regression, have been experimented and suggested the practical significance for the use of rural finance and financial technology in rural areas, which affects the entire economy. After analysing the result of this study, the study concluded that financial knowledge is one of the most powerful forces to promote fintech access and contributes to fostering financial communication between rural low-income groups. And it can significantly impact getting fintech access, particularly the expansion of other financial services. In addition, Rural consumers are only familiar with a limited number of fintech services, so consumers are limited to those specific services so, for those rural consumers, person-to-person transactions seem to be the easiest way and also, there is no training program arranged by financial institutions to inspire rural consumer access to fintech services.

(**Jalil, 2021**) investigates the impact on microfinance on sustainable development of Malaysia's rural micro-enterprises and beside this, integrated digital finance into the conceptual model to further investigate their mediating impact. In this study data was

collected from 563 rural micro-enterprises using structured questionnaires, which were then statistically analysed using AMOS-21. The findings of the study reveal that microfinance has a positive substantial influence on rural micro-enterprises development. Moreover, digital finance partially mediates the relationship. Thus, the study concludes that microfinance institutions are needed to adopt digital finance to enhance micro enterprises' productivity through low transaction costs.

(Makina, 2019) in the paper titled “The potential of fintech in enabling financial inclusion” examines that how FinTech is breaking barriers to financial inclusion and concluded that mobile money facilitated by mobile technology stands out as the most successful innovation in extending financial inclusion in Africa. Secondly, the most promising innovation that has the potential of alleviate the SME funding constraints is crowdfunding but this potential can only be realized by increasing internet access in Africa.

(Dirk A. Zetsche, Ross P. Buckley, 2019) examine the importance of FinTech for sustainable development and suggest the various steps that should be followed by government and regulators regarding comprehensive strategy to support digital financial transformation, that include both financial inclusion and sustainable balanced growth. It examines the following questions: why focus on FinTech; how does it relate to financial inclusion, and how does FinTech for financial inclusion relate to sustainability, the key criterion of the United Nations' Sustainable Development Goals (UNSDGs) and Digital financial inclusion is one of the most important answers to the question of how regulators and government should achieve the UNSDGs.

(Morgan, 2022) investigates the developments of financial inclusion and Fintech in the Association of Southeast Asian Nations (ASEAN) member countries and India to identify the ways that Fintech is contributing and can potentially contribute to increased financial inclusion. It also examines potential risks arising from use of Fintech, highlights differences in the strategies and implementation of financial inclusion and Fintech between India and ASEAN.

(Khera et al., 2022) have developed a novel digital financial inclusion index covering 52 emerging markets and developing economies. The study finds that (i) the adoption of digital financial services has been a key driver of financial inclusion and (ii) there is wide variation across countries and regions, with the greatest progress recorded in Africa and Asia. Given the accelerated adoption of digital payments during the COVID-19 pandemic, policies are needed to close the digital divide to ensure continued progress in financial inclusion and safeguard trust in financial services.

(Ray et al., 2018) have concluded in their paper that the integration of technology can promote development through innovation, efficiency, and inclusion but the path ahead for the sector may not be smooth and might affect its fundamental characteristics and organisational process. Further, it can be said with certainty that technological advancement alone will not boost development but the nature of competition and challenges also have an effect.

3. Objective of the study

- 3.1 To analyse the growth trend of adoption of financial technology in microfinance.
- 3.2 To examine the various services provided to the SHGs by EShakti project.
- 3.3 To examine the trend of coverage rate of EShakti Project.
- 3.4 To identify the challenges and opportunities of fintech adoption in microfinance in India.

4. Research Methodology

The study is conducted on the basis of secondary data and seven-year data from EShakti NABARD report has been taken and analysed through charts and tables. Further, for the theoretical support of fintech integrating with microfinance banks reports, books, and publishes papers has been used and some data of KPMG and MFIN report on “Rejuvenating Microfinance in India: Embracing Digital” has also been used.

5. Integrating Fintech and Microfinance

The introduction of digital technologies in the microfinance sector in India take pace when the internet revolution took place and it has increased the mobile penetration in rural markets. This is the era of digitalisation and government of India is also focusing on make India digitally strong as mobile devices getting cheaper and it results in the growth of digitally literate communities and enable the traditional microfinance institutions customers to adopt more tech friendly, social media friendly and experience driven customers. The users of smart phones and internet users in India has been given by KPMG assurance and consulting services (fig.1). The data shows that only 39% of rural population in India use internet when compared to the total internet users in India.

Fig.1

Smart Phone users in India (2019)	500 million
Projected smart phone users in India (2022)	820 million
Active internet users across rural India	302 million
Number of internet users in India	776 million
Rural internet users (as a per cent of total internet users)	39%

Source: KPMG and MFIN report 2021(KPMG, 2021)

Introducing technology to the poorest and marginalised society of India, government introduced many initiatives but direct integration of fintech to microfinance is not possible and will take time because of resource constraints in the rural area therefore National Bank for Agriculture and Rural Development (NABARD) has introduced EShakti, a pilot project for digitisation of SHGs was launched in the year 2015 in two districts and later expanded to 100 districts across the country during 2016 and 2017. It aims at digitisation of data of all SHGs for enhancing the ease of doing business with SHGs and in line with Government of India's "Digital India" mission (NABARD - National Bank For Agriculture And Rural Development, n.d.).

EShakti or Digitisation of SHGs is an initiative of Micro Credit and Innovations Department of NABARD and is moving towards the dream of electronic digital India. The project will include: (*EShakti*, n.d.)

- *Online book-keeping or e-book keeping for the SHGs*
- *Regular updates of transactional data*
- *Reports generated in the formats as required by stakeholders like bankers*
- *Inbuilt automatic grading of SHGs based on NABARD norms.*
- *Auto generation of loan application for the bankers on input of resolution to borrow by SHG*
- *Transfer of Direct Benefit Transfer through the convergence with other government benefits and Aadhaar Linked accounts.*
- *SHG member can access social and financial information using EShakti software.*
- *SMS alerts on any transaction.*
- *Improvements in terms of quality of the interface between the members of SHGs and the Banks for efficient and hassle-free delivery of banking services by taking advantage of the available technology.*

The project includes all SHGs of selected two districts Ramgarh (Jharkhand) and Dhule (Maharashtra) on the basis of bank, bank branch and development block. Later, the project was expanded to 23 more districts of the country in the year 2016 and further expanded to 75 more districts in the financial year 2017-18 and at present total 100 districts across the country are under the coverage of EShakti project. Now there are three phases of the project which covers 100 districts of 22 States and 1 Union Territory of the country. There is also a plan of include another 150 districts under phase IV (*EShakti*, n.d.). A list of 100 districts (State wise) under EShakti project is shown in the table 1.

Table 1. State wise list of districts under EShakti Project

S. No.	State/UTs	District
1.	ASSAM	Nalbari
2.	BIHAR	Gaya, Muzaffarpur, Nalanda, Saharsa, Samastipur, Saran
3.	CHHATTISGARH	Bilaspur, Durg, Mahasamund, Rajnandangaon
4.	GOA	North Goa, South Goa

5.	GUJRAT	Amreli, Anand, Dahod, Mehsana, Navsari, Sabar kantha
6.	HARYANA	Ambala, Karnal, Sirsa, Sonipat
7.	HIMACHAL PRADESH	Kangra, Mandi, Sirmaur, Solan
8.	JAMMU& KASHMIR	Udhampur, Budgam, Samba
9.	JHARKHAND	Ramgarh, Bokaro, Chatra, Giridih, Hazaribagh, Ranchi, Saraikela Kharsawan
10.	KARNATAKA	Bagalkote, Bidar, Chitradurga, Dharwar, Mysore, Uttar Kannada
11.	KERALA	Idukki, Kannur, Kasargode, Kottayam, Malappuram,
12.	MADHYA PRADESH	Chhindwara, Dewas, Gwalior, Indore, Mandla, Jabalpur, Mandsaur, Ujjain, Vidisha
13.	MAHARASTRA	Aurangabad, Chandrapur, Kolhapur, Nagpur, Raigad, Wardha, Dhule
14.	MANIPUR	Imphal East
15.	MEGHALAYA	West Garo Hills
16.	ODISHA	Bhadrak, Cuttack, Dhenkanal, Jagatsinghpur, Jajpur, Rayagada, Sambalpur
17.	PONDCHERRY	Karaikal, Puducherry
18.	PUNJAB	Patiala
19.	RAJASTHAN	Ajmer, Alwar, Banswara, Bikaner, Jhalawar, Jhunjhunu, Jodhpur, Kota, Udaipur
20.	TRIPURA	Gomati, West Tripura
21.	UTTAR PRADESH	Bahraich, Barabanki, Etawah, Hardoi, Jaunpur, lalitpur, Mirzapur, Varanasi
22.	UTTARAKHAND	Dehradun, Hardiwar, Pauri Garhwal, Udham Singh Nagar
23.	WEST BENGAL	Paschim Medinipur

Source: (EShakti, n.d.) NABARD Report

6. Data Analysis and Interpretation

Table 2. shows the trend of the progress of digitization in the 100 selected districts which are included under the EShakti project (table 1.). The data shows the trend of village covered under EShakti, total SHGs covered, total number of SHG members, number of women members, number of bank branches involved and number of the implementing agencies. Further, diagram.1 has been prepared on the basis of the numbers and it shows the trend of the digitisation adoption of EShakti Project. The seven-year data has been taken from the

official site of NABARD where EShakti project report is available from the year 2015 as it came into existence in the year 2014.

Year Particulars	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total	Average	SD
Village covered	990	1390	1900	58006	60590	70705	173856	367797	52542.43	57304.05
SHGs covered	8000	128000	349000	388925	644000	1233000	1274800	4025725	575103.6	468194.5
Number of SHG members	104704	128075	1494300	4391847	4753096	5373909	1467784	17713715	2530531	2082194
Number of women SHG members	-	-	1462600	2233906	4594195	5206517	14368153	27865371	3980767	4642386
Bank Branches involved	202	146	176	10642	11521	14177	30954	67818	9688.286	10338.39
Implementing Agencies	-	-	91	306	298	518	456	1669	238.4286	196.048

Table 2. Seven-year progress of digitalization in the 100 selected district of EShakti Project

Source: Compiled from (EShakti, n.d.) NABARD Report

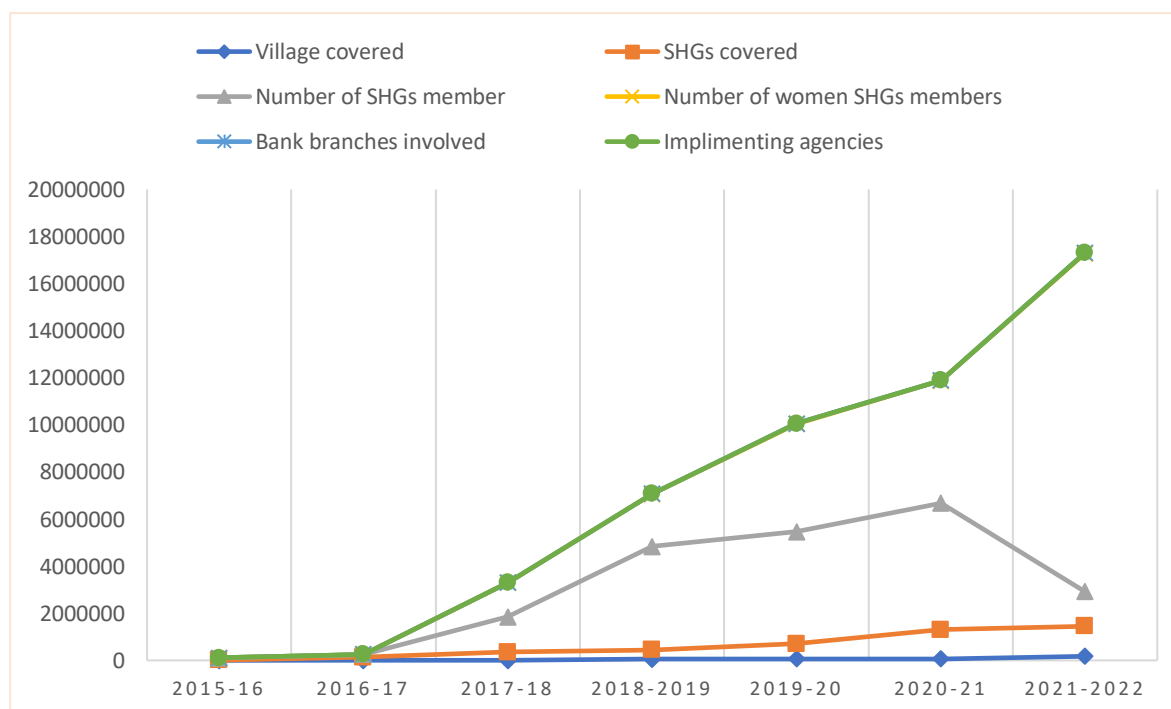
The data in the table shows that in the year 2015-16 the total village covered under the EShakti project is 990 only. In the next year 2016-17 it has increased to 1390, in 2017-2018 it has become 1900, in 2018-19 it covered 58006 villages, in 2019-20 again it has increased to 6059, in 2020-2021 it has reached to 70705 and in the current year EShakti has covered 173856 villages. This makes a sum total of 367797 villages that are covered under the project EShakti to provide digital financial and other services to the SHG members. The data shows that, every year the number of villages have been increased that shows that there is increasing adoption rate of technology by the rural people.

In the year 2015-16 only 8000 SHGs have been covered only as it was the Phase-I of the project but in the current year 2021-22 it has covered 1274800 SHGs and there are total 4025725 SGHs who adopted digital services of the project. In the other year, the numbers are increasing that shows a positive result.

The data also talks about the number of bank branches which are involved in promoting and providing digital services to the rural population. In 2015-2016 only there are 202 bank

branches involved but there are 67818 bank branches till 2022 has been involved in the project and providing digital services. The data and the line graph shows increasing trend of involvement of rural people in digital technologies and when it will be linked to the microfinance through self-help groups then it can work more efficiently in the area of digital inclusion.

Diagram 1: seven-year trend of progress of digitalization through EShakti Project



7. Summary and Results

7.1 Descriptive Statistics

The data shows that the average number of villages covered under the project is 52542.43 and the standard deviation is 57304.05 that shows a negative trend. Although, the numbers are increasing every year but the pace of increment is less it shows that the project's village coverage is increasing but at a very slow rate. The data of number of SHG covered under this project shows an average of 575103.6 and standard deviation of 468194.5 which shows a positive trend and it means that the project provide services to the SHGs at an increasing rate. The average number of SHG members who comes under the project is 2530531 and the standard deviation is 2082194 which can be considered as positive. Out of the number of SHG members, the average of women members is 3980767 and the

standard deviation is 4642386 which is somehow negative. Moving next, the average number of bank branches involved is 9688.286 and standard deviation is 10338.39 which again shows a negative result. At last, the average number of implementing agencies is 238.4286 and the standard deviation is 196.048 which can be somehow considerable.

8. Challenges and Opportunities of Fintech Integration to Microfinance

8.1 Challenges

Fintech firms are considered as a real competitors of the traditional banking system, as it is cost effective and also time effective because of the elimination of the middleman which lowers the transaction costs for consumers (KPMG, 2021). The main barriers that MFIs face regarding fintech is there is lack of direct and personal contact to the customers and the other challenge could be scale of operations for MFIs (Pytkowska & Korynski, 2017). As due to the regulatory environment of the banking sector of India, banks are usually less likely to adopt new technology easily (Hannan & McDowell, 1984). According to article 122 of Law on Credit institutions (2010), MFIs are not allowed to open payment accounts so this can limit the opportunities for microfinance sector to adopt fintech in order to improve its market outreach and achieve sustainable growth (DANG & VU, 2020). In terms of challenges of regulatory and legal framework, MFIs customers are facing challenges because MFIs customers are mainly poor and less educated, have low income, less aware about financial technologies. Therefore, the adoption of fintech into their day-to-day financial operation is tough and MFIs need to pay more attention to financial education of their rural customers.

8.2 Opportunities

MFIs are considered the financial institutions that target the poor, the low-income people and those living in rural areas. According to the KPMG and MFIN report on evolution of financial technology in the Indian Microfinance sector and its potential impact on the future of MFIs, results indicate that the microfinance sector

is evolving with fintech partnerships and will see increased investments in digital capabilities in the years to come. Nearly 75 per cent of the surveyed MFIs have alliances with fintech companies, while the remaining MFIs are planning to explore fintech alliances as a part of their IT roadmap. The report's result shows that integration with Account Aggregator (AA) platforms to facilitate effective risk management solutions, will provide MFIs with the opportunity to streamline costs and build more reliable credit profile. Increased awareness and adoption of digital platforms along with wider acceptance network for digital payments shall help reduce dependence on cash-based transactions, which in turn shall pave the path for MFI customers to adopt digital repayment channels.

9. Findings and Conclusion

On the basis of review of seven years data of EShakti project of NABARD it is concluded that the project is going well and the rate of enrolment is increasing per year although at a lower rate but increasing. This shows that rural population are adopting the technology friendly financial services as financial technology make it easy to access the services provided by the MFIs and other development banks who provide small funds to the rural people of India. In the other developed and developing country fintech has been already integrated to microfinance sector and literature shows positive results but in India fintech is lacking in the microfinance sector. This paper has used the information of EShakti project to support the fact that fintech integration to microfinance will be fruitful for digital inclusion of India as the results shows that villages, SHGs, banks and implementing agencies are increasingly involving in financial technology. The data of KPMG and MFIN report shows that there are 302 million rural people who are active internet users and they cover 39% rural population in compare with the total internet users in India. This shows that they are adopting the technology. As microfinance proved as the strongest tool for poverty alleviation and if it will be combined with the technology it will serve more people with less cost. Government and policy makers should make policies, schemes, and projects like EShakti to integrate the financial technology to microfinance sectors either through SHGs, NGOs, NBFCs or other institutions who provide microfinance services to the underserved people of the country.

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