



THE ROLE OF FINTECH IN IMPROVING FINANCIAL INCLUSION IN RURAL AREAS

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ABSTRACT

Over the past few years, India's financial inclusion has greatly improved. The percentage of Indians with bank accounts has increased in recent years and is currently estimated to be near 80%. Fintech companies are increasingly becoming more prevalent in India as the Government of India (GoI) continues its efforts to provide financial services to the underbanked people. For fintech companies to operate in a stable climate and to serve the underbanked segments of the population, India must endeavour to increase financial inclusion. For inclusive economic growth and development, financial inclusion is essential. Access to formal financial services is still severely hampered in rural areas, especially in developing nations. This study investigates the ways in which financial technology, or FinTech, can improve financial inclusion in these underprivileged areas. This study illustrates how FinTech closes the financial gap between urban and rural areas by examining blockchain applications, mobile banking, digital payment systems, and microfinance platforms. Policy recommendations for expanding FinTech's influence and reach in rural economies are included in the study's conclusion.

Keywords – *Fintech, Financial Inclusion, Rural Areas*

INTRODUCTION

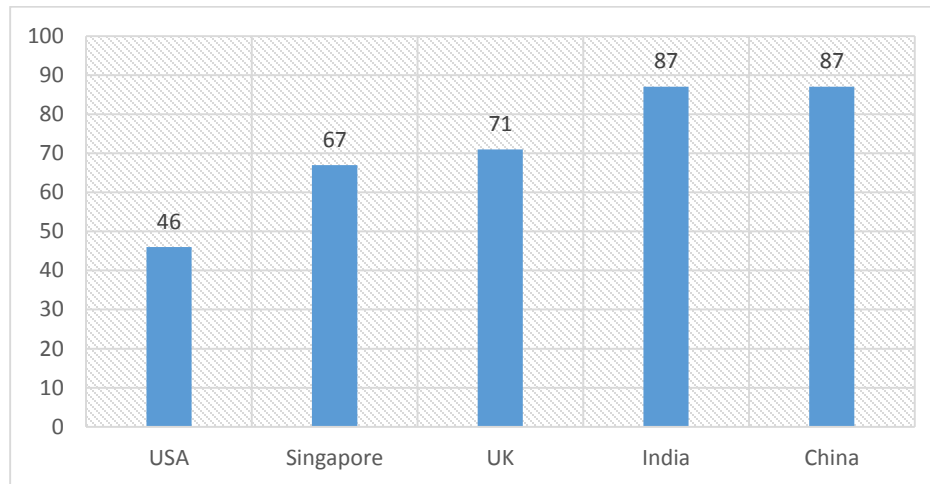
The practice of giving people and businesses access to appropriate and reasonably priced financial products and services is known as financial inclusion. Such access is hampered in rural areas by factors like socioeconomic inequality, lack of infrastructure, and geographic remoteness. The rise of FinTech, or technology-driven financial innovations, presents a revolutionary opportunity to overcome these obstacles. This study examines how FinTech can enhance financial inclusion in rural areas, emphasising affordability, accessibility, and trust-building.

India ranks among the fastest-growing and most populous nations globally. Yet, a large segment of rural and tribal areas is isolated from official financial services, which exacerbates the region's pervasive poverty and slow economic growth. Because their salaries are frequently unexpected,



those who are less fortunate have a harder time managing their finances. To satisfy a variety of financial needs, they need easy access to savings, microloans, insurance, and payment and transfer services. The need for a variety of affordable and easily accessible financial services is included in these criteria. But because they have less access to official financial services, they are forced to rely on unofficial networks, which are more expensive than established services but typically provide less security and dependability.

Figure 1 - FinTech adoption rate



Source – EY – The role of FinTect in building Viksit Bharat

Figure 1 illustrates the adoption rate of FinTech in five countries, with China and India leading at 87%. This suggests that FinTech services are widely accepted and used. Strong but relatively moderate adoption is seen in the UK (71%) and Singapore (67%). The lowest rate, 46%, is found in the USA, indicating a more cautious approach or reliance on traditional banking. FinTech's revolutionary role in expanding financial access, particularly in emerging economies, is highlighted by the high adoption rates in China and India. By encouraging a savings culture among a sizable section of the rural population, financial inclusion broadens the financial system's resource pool and promotes economic growth. Furthermore, financial inclusion protects low-income groups' financial resources and assets in times of crisis by integrating them into the official banking industry. By giving these groups easier access to formal credit, it also lessens their susceptibility to being taken advantage of by predatory moneylenders. India's Gini coefficient for rural areas was 0.266 in the fiscal year 2022–2023, down from 0.283 in the fiscal year 2011–2012, and for urban areas, it was 0.314, down from 0.363.

The Khan Commission was formed by the RBI in 2004 to look into the topic of financial inclusion. In order to support the objective of financial inclusion, banks were prompted to reevaluate their current banking practices after the commission's recommendations were incorporated into the



national financial inclusion strategy in 2005–2006. In 2014, the Indian government launched the Pradhan Mantri Jan Dhan Yojana (PMJDY) plan to improve financial inclusion by guaranteeing access to banking services for all citizens.

Financial technology, commonly referred to as fintech, emerged during the financial crisis of 2007-2008 and has since transformed the financial services industry by bringing innovative technologies into the market. Technology-driven banking has acted as the foundation upon which contemporary banking has been constructed. In India, the rapid expansion of mobile networks in previously underserved regions over the past ten years has significantly fueled this growth. Payment banks have surfaced as an additional option alongside online and mobile banking, enhancing operational efficiency and lowering the costs of providing services to customers in rural and semi-urban areas. India's fintech market is one of the fastest-growing in Asia. The Fintech market in India was valued at US\$50 billion in 2021 and is expected to grow to US\$100 billion by 2025. Paytm, MobiKwik, ItzCash, and InCred are some of the major Fintech companies that operate in India. Even though the Fintech industry is expanding, there is surprisingly little scholarly research being done in India in this area. According to the few studies that are available, there is broad consensus that Fintech can reduce payment costs and improve the efficiency of payment processes in India. Furthermore, according to these studies, Fintech has the potential to improve the quality and breadth of financial services as well as develop novel risk assessment models in India. However, a number of issues have been identified as affecting Fintech in India, including a lack of trust, cybersecurity risks, fierce competition, inadequate infrastructure, and unfavourable economic swings.

REVIEW OF LITERATURE

Chouhan, V., Sharma, R.B., and Goswami, S. (2022) evaluate the critical success factors influencing the adoption of disruptive financial technology for financial inclusion in rural India. In order to facilitate cross-border transactions, the study provided financial institutions with guidance on how to provide mobile banking services to low-income customers in remote areas. Hasan and colleagues (2022): The impact of financial literacy in rural areas and the availability of financial technology services are the main topics of this study. This study also looks at how different factors are impacted by having access to financial knowledge and offers useful advice for how rural finance and technology operate in these regions. Raj, B., and V. Upadhyay (2020): In addition to encouraging competition and accelerating the nation's financial inclusion, this study looks at how FinTech companies might expand access to financial services for low-income individuals, rural communities, disadvantaged groups, and other underserved sectors of the Indian economy. Along with the actions that need to be taken to fully realise the sector's potential for inclusivity and growth, the Regulatory Sandbox framework and other regulatory measures put in place in India to help the FinTech movement are also discussed. Ediagbonya and Tioluwani (2023) explored the effectiveness of Fintech technologies in enhancing financial inclusion in developing and emerging countries. Through the use of doctrinal, sociological, and comparative research



methods, the study identifies challenges such as low literacy rates, insufficient infrastructure, power supply issues, and concerns regarding data privacy, revealing that despite the efforts of financial institutions and the government, the financial inclusion gap continues to widen. The significant implications underscore the potential of fintech to combat poverty if utilised appropriately. Moreover, the findings offer valuable insights for practitioners, policymakers, and academics focused on financial technology regulation, aiming to enhance financial inclusion policies and strategies in challenging institutional environments. The study also suggests possible future research avenues, including examining women's perceptions of fintech services in specific industries. Asif et al. (2023) examine whether digital financial services and fintech have changed the course of financial inclusion in India, especially in rural areas. The study reveals that factors such as usability, social impact, service trust, and behavioural intention play crucial roles in the adoption of fintech, as analysed through structural equation modelling. The most significant factor identified was service trust, indicating that users possess a strong level of confidence in fintech platforms. Additionally, social influence has a positive effect on adoption, underscoring the importance of community dynamics in rural settings. With a robust sample of 400 participants, the researchers employed stratified judgmental sampling to collect data from underrepresented rural fintech users in Haryana, India. Goswami et al. (2022) investigate the crucial elements influencing the adoption of financial technology, or FinTech, in order to advance financial inclusion in rural India. Using a quantitative methodology, the researchers use Exploratory Factor Analysis (EFA) to pinpoint important factors influencing FinTech adoption and Structural Equation Modelling (SEM) to evaluate the effect of FinTech on financial inclusion.

OBJECTIVES

- To assess the present condition of financial inclusion in rural regions
- To investigate the function of FinTech innovations
- To analyse the obstacles and constraints
- To provide recommendations

RESEARCH METHODOLOGY

This study examines how FinTech can improve financial inclusion in rural areas using a qualitative, descriptive methodology that is solely based on secondary data. Credible sources of information have been used, such as World Bank and Reserve Bank of India reports, industry white papers, government websites, and scholarly journals. These resources offer information on developments, issues, and trends in online financial services. The findings are supported by graphs and figures that highlight significant advancements in FinTech adoption and financial access.

Understanding Financial Inclusion and FinTech

Financial inclusion is the process of ensuring that individuals and businesses, particularly those in underserved and rural areas, have access to useful and affordable financial goods and services that meet their needs. These services go well beyond simply having a bank account and encompass a broad range of financial tools, such as digital payment systems, insurance coverage, investment

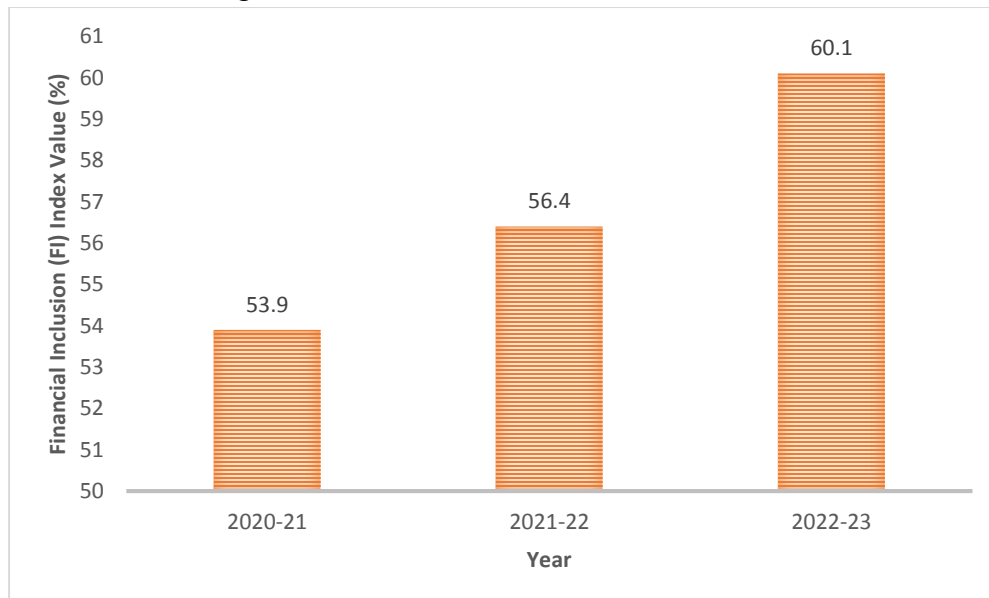


chances, savings techniques, and credit availability. These services' usability, affordability, and accessibility are also essential elements of true financial inclusion since they enable people to manage their money sensibly, safeguard themselves against financial risks, and plan for future requirements like retirement, healthcare, and education.

FinTech, also referred to as financial technology, plays a significant role in promoting this inclusion. It speaks of the way financial service firms incorporate technology into their products to enhance their use and consumer delivery. FinTech encompasses a wide range of innovations, including digital wallets that facilitate simple and safe cashless transactions, peer-to-peer (P2P) lending platforms that allow direct borrowing and lending without traditional banks, AI-driven credit scoring systems that determine an individual's creditworthiness using alternative data, and mobile banking apps that allow users to manage their finances remotely. These innovations, which typically only require a mobile device and an internet connection, are designed to be more user-friendly and accessible, significantly lowering the barriers to entry for rural populations that are typically shut out of the formal financial ecosystem.

FinTech uses these technologies to provide affordable, scalable, and efficient solutions to bridge the gap in financial services in rural areas. It reduces the need for physical banking infrastructure, lowers operating costs, and assists customers in becoming financially independent. FinTech also empowers people through improved transparency, customised financial services, and real-time transaction features, encouraging economic participation and social empowerment in regions that have historically been underdeveloped financially.

Figure 2 - State of Financial Inclusion in India



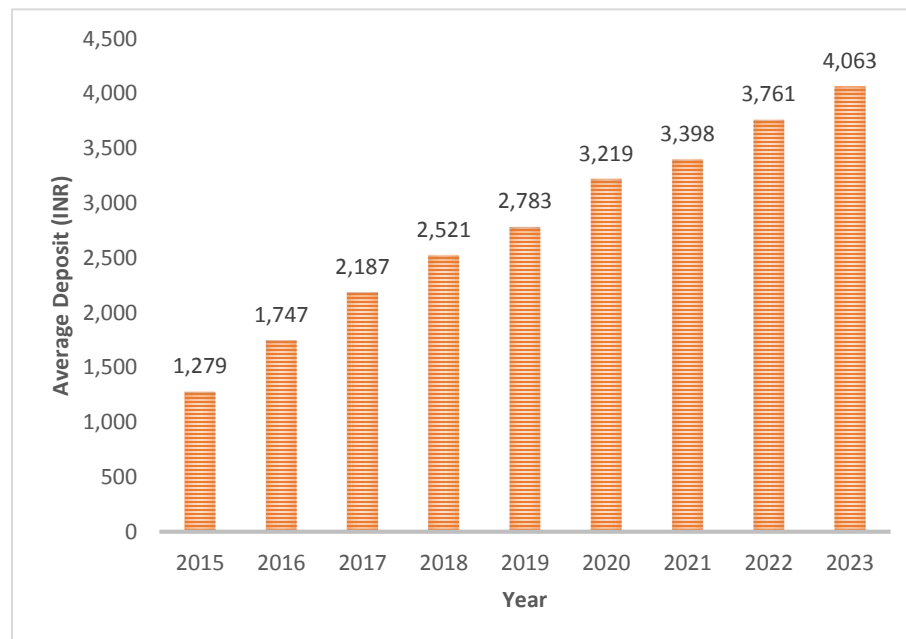
Source - RBI, 2023



India's Financial Inclusion (FI) Index increased steadily over the course of three fiscal years, from 53.9 in 2020–21 to 56.4 in 2021–22 and 60.1 in 2022–23, as seen in the graph. The increasing availability and use of formal financial services nationwide, especially in underserved and rural areas, is reflected in this upward trend. The steady rise underscores the significance of digital financial solutions, government-led inclusion initiatives, and the growing contribution of FinTech to closing the gap between formal financial systems and the unbanked population. All things considered, the evidence shows that India has made great strides towards equitable and sustainable financial growth. "Basic Savings Bank Deposit Accounts" (BSBDAs), formerly known as "no-frills accounts," are a type of small-sized deposit facility that the RBI created in 2005. These accounts have a zero or low minimum balance and some common minimum features at zero or minimal price. The efforts towards financial inclusion gained impetus when the RBI urged banks in 2010 to establish financial inclusion plans, and targets for opening BSBDAs were incorporated as a part of these plans. Additionally, banks opened BSBDAs (later referred to as PMJDY accounts) in a mission mode after the launch of Swabhiman in 2011 and PMJDY in 2014.

RuPay debit cards, a small payment mechanism based on BSBDAs, were established under PMJDY (Pradhan Mantri Jan Dhan Yojana). These cards could be used to withdraw money from ATMs and make purchases at point-of-sale (PoS) terminals. Account holders were also granted access to a minor credit facility in the form of an overdraft once BSBDAs were utilised effectively. Last but not least, the PMJDY now has a microinsurance feature that allows holders of BSBDAs to purchase accidental and life insurance. Like the overdraft feature, the insurance coverage was reliant on the use of debit cards and BSBDAs.

Figure 3 - Average Deposit Amount per Jan Dhan Account (2015–2023)



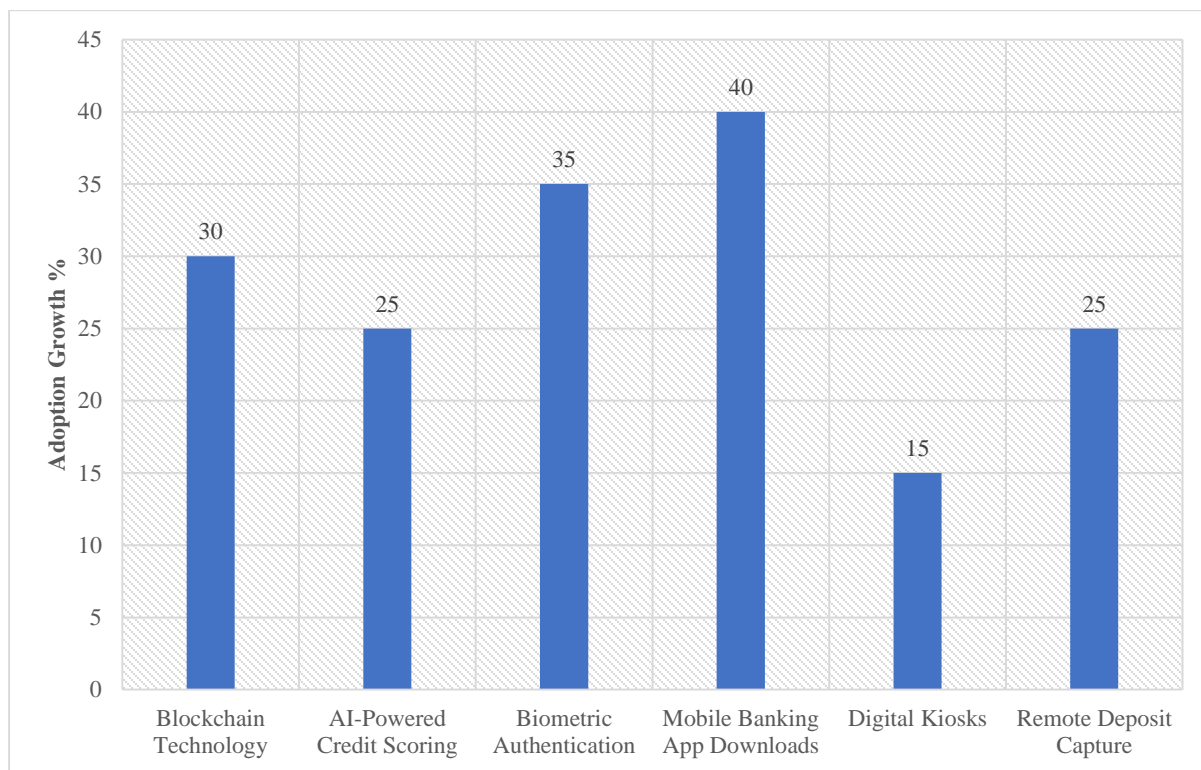


Source - Pradhan Mantri Jan Dhan Yojana

<https://pib.gov.in/PressReleasePage.aspx?PRID=2049231>

The PMJDY deposits are trending upward, as the above graph illustrates. The average deposit amount in Jan Dhan accounts increased steadily and noticeably between 2015 and 2023, rising from ₹1,279 to ₹4,063 (a growth of more than 217%). This upward trend is a reflection of the growing trust and usage of official banking, especially in rural areas. Among the factors propelling this growth are direct benefit transfers (DBTs), increased financial literacy, increased adoption of digital banking via FinTech solutions, and the government's persistent efforts to promote financial inclusion. A shift from simple account ownership to active account use is also indicated by the steady increase, which suggests improved financial behaviour and a more complete integration of underserved areas into the mainstream financial system.

Figure 4 - Adoption of FinTech Innovations in Rural Banking (2024)



Source - Rural Banking Statistics 2025

It is evident from the above graph that various FinTech innovations are seeing a noticeable rise in adoption, particularly in banking environments that are rural and semi-urban. With a 40% growth



rate, mobile banking app downloads are in the lead, underscoring the growing dependence on smartphones for financial services and transactions. Biometric authentication follows with a 35% adoption growth, reflecting a strong push for safe, identity-based banking access, particularly in low-literacy areas. AI-powered credit scoring and blockchain technology, with respective percentages of 30% and 25%, demonstrate their growing significance in enhancing transparency, trust, and credit availability for disadvantaged groups. Together, these patterns imply that FinTech is changing rural finance by bringing in user-friendly, safe, and scalable solutions that remove long-standing obstacles to financial inclusion.

Challenges to Financial Inclusion in Rural Areas

Even while numerous nations have made direct efforts to increase access to financial services, many rural communities still face financial inclusion obstacles.

- **Lack of Physical Banking Infrastructure** - The lack of local bank branches continues to be a significant obstacle to financial inclusion in many rural communities. Because of their high operating expenses and poor profitability, traditional banks are frequently hesitant to open branches in isolated or low-income areas. Such expenditures are not economically feasible due to the low population density and low level of commercial activity. Because of this, residents in these locations must travel great distances in order to obtain basic banking services, which deters regular financial participation and limits their access to the official financial system.
- **Low Financial Literacy** - a sizable section of the rural populace is ignorant of the fundamentals of financial services and products. Many people don't understand ideas like digital transactions, interest rates, insurance plans, and savings accounts. Confusion, poor money management, and fraud susceptibility result from this lack of financial literacy. Even when infrastructure or digital tools are made available, people are less likely to trust or use banking services if they don't understand them, which reduces the effectiveness of financial inclusion initiatives.
- **Digital Divide** - In terms of digital skills, smartphone availability, and internet connectivity, the technological divide between urban and rural areas is clear. Accessing digital financial services is challenging in many rural areas due to inadequate network coverage and slow internet speeds. Furthermore, low-income households may not be able to afford the price of smartphones and data plans. Even in cases where access is available, rural users' limited digital literacy makes it more difficult for them to use online financial platforms or mobile banking apps, which limits the expansion of digital financial inclusion.
- **Trust Issues** - The adoption of financial technologies is still heavily influenced by trust. Because of worries about data privacy, cyber fraud, and the impersonality of digital transactions, many people in rural areas have doubts about digital finance. They might find digital platforms confusing or dangerous because they have historically relied on cash and



unofficial financial systems. Despite the convenience that digital tools provide, many people are afraid of losing money as a result of scams or technical malfunctions. Overcoming this obstacle requires establishing trust via customer service, awareness campaigns, and open policies.

FinTech as a Solution for Rural Financial Inclusion

- **Mobile Banking and Digital Wallets** - FinTech has significantly expanded the reach of financial services in rural areas through mobile banking and digital wallet solutions. These technologies eliminate the dependency on physical bank branches, which are often absent in remote regions. With the help of mobile phones, users can perform a variety of financial activities, such as transferring money, checking account balances, paying utility bills, and even saving money, without visiting a bank. For instance, platforms like M-Pesa in Kenya and Paytm in India have demonstrated how mobile-based services can revolutionise access to finance in underserved communities. These tools are particularly beneficial in rural settings where people may not have access to traditional banking but often own basic mobile phones. The convenience, cost-effectiveness, and real-time access provided by mobile financial services empower individuals to manage their finances efficiently and securely.
- **Micro-lending and Credit Access** - Rural residents have historically had difficulty obtaining formal credit, particularly those without collateral or proof of income. FinTech solves this problem by using online channels to offer microloans to people without official credit histories. Numerous FinTech businesses assess a borrower's creditworthiness using alternative data sources, including transaction histories, payment trends, and mobile phone usage patterns. These platforms can create more accurate and inclusive lending decisions by using machine learning algorithms and artificial intelligence (AI). With little documentation and quick disbursement, this innovation makes it possible for small company owners, farmers, and daily wage workers in rural areas to obtain loans for personal or commercial purposes.
- **Blockchain and Secure Transactions** - Security and transparency are major concerns in rural financial systems, particularly in areas with weak legal infrastructure or limited regulatory oversight. Blockchain technology offers a solution by enabling tamper-proof and transparent digital ledgers. Transactions recorded on blockchain are immutable and time-stamped, reducing the risk of fraud and unauthorised changes. This enhances user confidence, especially in communities that have traditionally relied on informal finance due to mistrust in formal institutions. By ensuring that every transaction can be traced and verified, blockchain builds accountability and can help mitigate disputes over payments or records, thereby fostering a more secure financial environment in rural regions.
- **Agri-FinTech** - Agriculture is the backbone of rural economies, and FinTech innovations tailored to the agricultural sector—commonly referred to as Agri-FinTech—are transforming the way farmers access financial support. These platforms offer services such as crop insurance, input financing, and equipment loans, which are essential for managing agricultural risks and improving productivity. Through partnerships with banks, insurance



companies, and input suppliers, Agri-FinTech startups provide customised financial products directly to farmers via mobile platforms. Additionally, some services integrate weather forecasting, market price tracking, and advisory support, helping farmers make informed decisions. By addressing the unique financial needs of the agricultural community, Agri-FinTech not only promotes inclusion but also boosts the economic resilience of rural households.

Suggestions to Strengthen FinTech for Rural Financial Inclusion

- **Improve Digital Infrastructure in Rural Areas:** The successful operation of FinTech solutions depends on dependable mobile networks and strong internet connectivity. To guarantee that digital financial services are available even in isolated areas, government and private sector collaborations should make investments in enhancing rural digital infrastructure.
- **Promote Digital and Financial Literacy** - FinTech adoption depends not just on access, but also on understanding. Awareness programs should be conducted to educate rural populations about the use, benefits, and safety of digital financial tools. This includes training on mobile apps, digital wallets, online banking, and cybersecurity practices.
- **Encourage Customised FinTech Products for Rural Needs** - FinTech companies should design user-friendly, low-cost financial products tailored to rural users. This includes localised interfaces in regional languages, voice-enabled services, and simplified user experiences suited to people with limited literacy or technological familiarity.
- **Build Trust Through Community Engagement** - Skepticism toward digital finance can be overcome by involving local influencers such as panchayat leaders, SHGs (Self-Help Groups), and village-level entrepreneurs. When trusted community members promote digital tools, adoption becomes faster and more confident.
- **Strengthen Cybersecurity and Data Privacy** - Rural users often hesitate to use FinTech due to concerns over fraud and data misuse. Companies must implement strong data protection policies and educate users about safe digital practices. Transparent grievance redressal mechanisms can also help build user confidence.
- **Facilitate Public-Private Partnerships (PPP)** - Collaboration between FinTech firms, banks, and government bodies can lead to greater innovation and scale. PPP models can support last-mile delivery of financial services through initiatives like digital kiosks, mobile ATMs, and agent networks.
- **Incentivise FinTech Innovation in Agriculture and MSMEs** - Farmers and small business owners can fill the credit and insurance gaps with targeted incentives for Agri-FinTech and MSME-focused platforms. These industries stand to gain a great deal from digital financial solutions and are essential to rural livelihoods.
- **Monitor and Evaluate FinTech Impact Regularly** - It will be easier to improve policies and scale up effective models if a framework is established to monitor the effectiveness, outreach, and socioeconomic impact of FinTech initiatives in rural areas. Regular evaluations guarantee responsibility and ongoing development.



CONCLUSION

In rural areas that have historically been shut out of the formal financial system, fintech has become a potent force for financial inclusion. FinTech businesses are removing long-standing obstacles like geographic isolation, a lack of documentation, and restricted access to traditional banking infrastructure by utilising mobile technology, digital platforms, artificial intelligence, and alternative data analytics. Rural communities no longer need to rely on physical banks to carry out basic financial functions like saving, borrowing, insuring, and transacting thanks to these innovations.

FinTech solutions are particularly well-suited for remote and low-income communities due to their cost-effectiveness and scalability. In addition to increasing financial access, initiatives like mobile banking, microlending platforms, blockchain-based transaction systems, and Agri-FinTech services are also improving the standard, ease of use, and transparency of financial services. Universal adoption is still hampered by issues like inadequate digital infrastructure, low financial literacy, and a lack of trust.

The future of financial inclusion in rural areas appears bright despite these obstacles. FinTech has the potential to close the financial gap between urban and rural areas and make a significant contribution to inclusive economic growth with sustained investment in digital infrastructure, user-centric innovations, and supportive government policies. These technologies will be essential in empowering rural communities and promoting sustainable development as they advance and become more widely available.

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