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From the Margins to Mainstream: Fintech's Quest for Financial Inclusion in Emerging Markets

Kedareswar Panda[1], Dr. Ansuman Sahoo[2], Dr. Arya Kumar[3]*
[1]Faculty, Department of Business Administration, College of IT and Management Education, Bhubaneswar, Odisha, India, ORCID-0000-0002-0546-2787, Email- kedar19x@gmail.com
[2]Lecturer, Department of Business Administration, Utkal University, Bhubaneswar, Odisha, India
[3]Sr. Assistant Professor, School of Social, Financial and Human Sciences, Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, India, ORCID- 0000-0002-8203-361X, aryantripathy@yahoo.com

Abstract

In contemporary times, governments in developing and emerging economies have noticed an observable inclination to adopt financial technology (Fintech) to enhance financial inclusion and integration within their respective nations. The primary purpose of this adoption is to alleviate poverty rates. This study aims to examine the effectiveness of Fintech innovations in facilitating financial inclusion, focusing on India as a representative case. The researchers employed a range of research methodologies, including doctrinal, sociological, and comparative approaches, to carry out content analysis. The present study investigated various primary and secondary sources, encompassing legislative documents, scholarly articles, newspaper reports, and policy documents. The findings revealed an increasing gap in financial inclusivity, despite significant endeavors undertaken by governmental bodies, regulatory authorities, and monetary establishments to establish digital platforms, advocate for smartphone usage in mobile transactions, deploy automated teller machines (ATMs), and foster the adoption of mobile money services. The presence of this disparity can be ascribed to a multitude of factors, encompassing but not restricted to low levels of literacy, inadequate infrastructure, intermittent electricity supply, limited mobile network reach in rural areas, frequent breakdowns in banking networks, levies and fees imposed, discrepancies in information accessibility, and violations of data confidentiality. This study emphasizes integrating Fintech-enabled financial inclusion to tackle poverty in developing and emerging economies. This study offers significant insights for researchers exploring the impact of technology on financial inclusion. It also advises financial technology policymakers and practitioners on how to improve financial inclusion strategies in these regions. The research also suggests future research on women's views and expectations of Fintech and other financial services.

Keywords: Emerging Market, Fintech, Unbanked, Financial inclusivity

1. Introduction

There has been a notable shift in the financial landscape in recent years due to the rapid growth of financial technology, commonly referred to as fintech. This technological revolution has caused significant disruptions to conventional banking paradigms, with the potential to generate enduring positive effects on financial inclusion in society. Fintech refers to using technology to enhance the efficiency and automation of financial service provision. Its underlying factors include technological advancements, changes in consumer behavior, and regulatory circumstances (Raj & Upadhyay, 2020). One of the primary goals associated with adopting fintech is to enhance the efficiency of business operations. The issuance of directives by the Central Bank of India (CBN) in 2007 and 2013 regarding cashless banking significantly stimulated the growth of fintech companies that provide inventive payment solutions. In order to maintain a competitive edge, traditional banks have strategically incorporated financial technology (fintech) services into their service delivery processes.

[1] First Author

[2] Second Author

[3] Third & Corresponding Author

These recent advancements signify a promising era for the financial industry in India, marking a shift away from the inflexibility of traditional banking systems. The emergence of financial technology (fintech) is being recognized as a potential remedy for enduring obstacles within India's financial sector. Integrating mobile technologies, Unstructured Supplementary Service Data (USSD) is a major step towards the government's goal of providing financial services to the public. This commendable initiative emphasises the importance of financial technology in India's financial sustainability. Financial systems that are efficient and inclusive can benefit the poor and marginalised, according to Demirguc-Kunt and Klapper (2012). Many people in a country with high financial exclusion must use their savings to attend school or start a business. Dependence perpetuates income disparities and hinders economic growth (Demirguc-Kunt & Klapper, 2012).

Financial inclusion and technology have sparked discussions beyond their ability to boost economic growth to include their transformative impact after the COVID-19 pandemic. The Global Findex Database (2014) reported that 1.7 billion adults worldwide lack formal banking services, according to the World Bank. Bangladesh, China, India, Indonesia, India, Mexico, and Pakistan have a large bankless population (Global et al., 2014). The term "unbanked" pertains to adults excluded from formal financial services due to their limited engagement in conventional financial systems. According to a recent study conducted by Merchant Machine, a British platform, it has been revealed that more than 60% of the adult population in India can be classified within this particular demographic (Ventura, 2021).

Notably, a considerable portion of India's population needing access to banking services comprises individuals with low incomes who collectively hold substantial idle funds despite possessing relatively small amounts of money individually. The collection of resources at hand constitutes a significant reservoir of capital that, if effectively utilized, can be allocated toward long-term expansion with minimal expenses. Significantly, technology and digitization have become essential instruments in promoting financial inclusion, specifically in India, where the utilization of mobile phones is prevalent in both urban and rural areas. Multiple research studies have emphasized the increasing significance of financial technology (fintech) in delivering financial services, specifically focusing on payment systems. However, the global spread of COVID-19 highlights the need for governments and financial institutions to collaborate to address the financial inclusion gap and provide cost-effective financial services to more people.

Financial inclusion, particularly in-person banking, has been extensively studied. Digital financial inclusion research is lacking, especially in developing and emerging markets (Ozili, 2020, Kumar, 2018). This paper uses institutional theory to fill a research gap on a fundamental question. The question is how much financial exclusion Indians face and how fintech can help. The following sections of this paper will examine the complex relationships between financial inclusion and fintech, investigate the factors that influence fintech's role in promoting financial inclusion, assess financial inclusion and fintech adoption in India, and identify barriers to fintech's effectiveness.

This paper also suggests ways to improve India's institutional environment to promote fintech-based financial inclusion. The text concludes by analysing the Indian case study and drawing lessons for developing and emerging markets. It also emphasises the study's findings and suggests future research.

2. Examining the Fundamental Nature and Interrelationship of Financial Inclusion and Financial Technology

Throughout the world, countries have implemented various strategies and regulatory measures to alleviate poverty and improve the overall quality of life for their populations. These initiatives aim to mitigate poverty and improve economic prosperity. One noteworthy example is the Vision 2030 blueprint of Kenya, which has been formulated to steer the country towards achieving middle-income status. Reduce the number of adults without financial services from 85% to 70% (Mwega, 2014). Financial inclusion promotes inclusive economic development and helps reduce poverty in many countries (Sahoo et al., 2017). Citizens' access to formal financial services transforms low-income households. It empowers people to invest for the future, stabilise consumption, and manage financial risks, reducing poverty and inequality. Before examining the nuanced interpretations of financial inclusion and fintech and investigating their interconnectedness, it is imperative to provide a concise overview of the institutional theory underpinning this study, specifically within the complex institutional landscape of India.

2.1 The Significance of Institutional Theory in the Context of Financial Inclusion

Applying institutional theory to financial inclusion discourse provides a conceptual and analytical framework that helps explain why strong institutions promote financial inclusion. This framework also helps develop solutions to financial exclusion in developing and emerging markets. Institutional theory examines how structures, rules, schemas, and routines become social norms (Scott, 2004). This perspective emphasises formal and legal government structures in policymaking. The institutional framework in which individuals and corporations operate shapes their economic behaviour, according to Ohnesorge (2007). Thus, institutional theory shows how India's institutional environment limits property rights, financial services, and adult financial prospects, preventing financial inclusion.

Institutions strongly influence market participation, according to institutional theory. Thus, market development institutions are crucial to economic growth and poverty reduction (Tebaldi & Mohan, 2010). Efficient institutions promote social progress and financial inclusion, reducing poverty in a community (Park & Mercado, 2018). Empirical evidence links functional institutions to financial inclusion. Financial exclusion is rare in the UK, where institutions are well-established. In their study, Kempson and Collard (2012) analyzed the advancement of financial inclusion within the United Kingdom. Drawing upon existing data, the researchers formulated a comprehensive ten-year strategy. The objective of their framework was to establish a system that would enable universal accessibility, usability, and maintenance of a suitable account or comparable financial product conveniently and securely.

Additionally, it aimed to instill in individuals the confidence and proficiency to utilize financial services for routine and occasional requirements effectively. The United Kingdom Government has implemented various recent initiatives to foster financial inclusion. These initiatives include the No-Interest Loan Scheme, the Breathing Space scheme, and the regulation of the Buy-Now-Pay-Later scheme. These measures are by the framework proposed by Kempson and Collard. Nevertheless, implementing these initiatives in India presents difficulties attributable to the diverse institutional environments, further amplifying disparities in financial inclusion across various regions. Developing and emerging markets face the challenge of dealing with institutional voids, which refer to inadequate and dysfunctional institutions (Khanna & Palepu, 1997). Hence, this study argues that the institutional context in India plays a role in financial exclusion within the nation. This can be attributed to political and socio-economic structures that result in inadequate institutional functioning, exacerbating the disparity in financial inclusion.

2.2 The Multifaceted Concept of Financial Inclusion

Over time, many perspectives and conceptualizations regarding financial inclusion have surfaced. TThe definition of financial inclusion is crucial for building a conceptual framework, identifying the main barriers to financial system access, and demonstrating how financial technology can help complex institutional environments. Scholars disagree on the definition of financial inclusion, as evidenced by the lack of consensus in the literature (Ċih'ak et al., 2021). Non-inclusivity in finance marginalises adults' financial system participation and benefits. Financial exclusion has mostly been studied in terms of geographical access to financial services (Leyshon & Thrift, 1996). Financial exclusion may encompass more social exclusion. Individuals who cannot easily access formal financial services are called financially excluded. This problem is worse in developing and emerging markets due to a lack of institutional support. A certain subset of the population has limited access to affordable, secure, and fair financial services from major financial institutions. Thus, this scholarly article must examine various financial inclusion conceptualizations to lay the groundwork for discourse.

Financial inclusion occurs when less than 50% of adults have access to financial services globally. The issue is especially important in developing and emerging economies because financial inclusion is needed worldwide (Ardic et al., 2011). The main goal is to overcome educational, gender, age, income, regulatory, and geographical barriers that prevent a large portion of the global adult population from using financial services. Financial inclusion means offering a wide range of affordable financial services to everyone, especially the poor and marginalised (Gardeva, 2010). These individuals should have convenient and dignified access to high-quality financial services. Gardeva (2010) suggests that many service providers offer financial services to a wide range of people, including rural and marginalised groups. According to the World Bank (2008), financial inclusion is when no barriers to financial services, whether pricing or non-pricing, prevent their use.

This paper has examined financial inclusion from multiple perspectives, all of which share underlying principles. Many scholars define financial inclusion as access to financial services. Amidˇzi'c et al. (2014) define financial inclusion as universal access to essential financial products. According to Sahay et al. (2015), financial inclusion involves the availability, use, and distribution of affordable financial products in society. Sarma and Pais (2011) explain financial inclusion in detail, emphasising the role of financial institutions in providing financially eligible people with a wide range of financial products and services.

2.3. Examining the Development of Financial Technologies

Before examining fintech, it is imperative to delve into the historical progression of financial technologies. The historical context provides the foundation on which we will examine the intricate connection between financial technology (fintech) and the promotion of financial inclusion, focusing on regions facing challenges related to complex institutional frameworks. The term "Fintech" has gained significant attention in contemporary discourse, yet its origins can be traced back to a distant past.

The focus of our historical exploration is directed towards July 1867, a significant juncture marked by the introduction of the Trans-Atlantic transmission cable, which played a transformative role in enabling communication on a global scale. Communication between North America and Europe dropped from ten days to seventeen hours with this cable. This technology had a wider impact than fast communication. It started the fintech era in finance (Leong & Sung, 2018).

The emergence of financial technology is inherently interconnected with the ascent of enabling technologies. This historical account delineates three pivotal phases of financial technology.

Fintech 1.0: The period saw financial globalisation emerge. The Trans-Atlantic transmission cable and mainframe computer systems were key enablers. Financial technology products like SWIFT and ATMs have emerged due to technological advances. During the 1950s, introducing credit card systems solved the inconvenience associated with the physical handling of cash. Fintech 2.0 denotes a significant phase characterized by the shift from analog to digital technologies, accompanied by the emergence of conventional financial institutions. The introduction of the inaugural handheld calculator marked a momentous achievement. The advent of NASDAQ, the world's inaugural digital exchange, marked a significant milestone in developing contemporary financial markets during the early 1970s.

Established in 1973, SWIFT emerged as the predominant communication protocol utilized for facilitating cross-border payments. The 1980s witnessed a significant increase in the utilization of mainframe banking systems. At the same time, the subsequent decade, the 1990s, experienced a notable expansion of online banking platforms due to the emergence of the Internet. The advent of digital transformation has significantly reshaped individuals' perspectives on currency and their engagements with financial establishments. The digitization of banks' internal processes, external relations, and customer services was fully realized in the early 21st century, and the period above ended abruptly due to the worldwide financial crisis in 2008. Fintech 3.0 emerged due to the global financial crisis, signifying a transformative shift in the financial industry's paradigm. During this era, there was a notable rise in the presence of novel participants and established financial institutions. The introduction of Bitcoin v 0.1 in 2009 constituted a significant milestone, catalyzing the proliferation of numerous cryptocurrencies. The widespread utilization of smartphones constitutes a significant determinant influencing the fintech industry. Smartphones have emerged as a prominent medium through which a substantial number of individuals across the globe can connect to the Internet and avail themselves of a diverse range of financial services—the year 2011 witnessed the launch of Google Wallet, which was subsequently succeeded by the introduction of Apple Pay in 2014.

Financial technology (fintech) has caused 'financial service disintermediation,' necessitating new safeguards for consumers and partners. Fintech startups have reduced intermediation costs and minimum capital requirements in conventional banking. Big data analytics and data services have transformed data collection, processing, and analysis, reducing costs (Iman, 2020).

2.3.1 The term "Financial Technology" (Fintech) refers to the application of technology in the financial industry.

It's a combination of "Financial" and "Technology," and Gomber et al. (2017) define "fintech" as the integration of modern internet technologies with commercial banking operations. This includes technology-based initiatives that disrupt roles, business models, and service offerings. Hung and Luo (2016) identify five dimensions that could transform fintech. This includes actors, added value, rules, tactics, and scope. Writers recognise "fintech" as a complex concept with many interpretations. Puschmann (2017) defines fintech as incremental or disruptive financial services innovations. Information technology drives the creation of new models, products, services, organisations, processes, and systems within and between organisations. Ng et al. (2017) identified four fintech innovations with distinct characteristics: streamlined payments, automated financial advisors, peer-to-peer lending and deposit platforms, and crowdfunding.

2.3.2 Exploring the Interconnection of Financial Technology and Financial Inclusion:

"Fintech" is a portmanteau of "financial" and "technology," referring to a wide range of technological advances that improve financial services. Financial literacy, wealth and asset management, lending and borrowing, retail banking, fundraising, money transfers, payment systems, investment management, digital insurance, and cryptocurrency are

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covered (Gomber et al., 2017). Financial Technology (FinTech) automates and streamlines financial services. It helps businesses and clients manage, execute, and improve financial interactions using software-enabled devices (Leong & Sung, 2018).

It is of utmost importance to comprehend the complex interrelationship between financial technology (fintech) and the promotion of financial inclusion. The objective is to guarantee the availability of financial services to every adult individual within society. Numerous studies commonly define financial inclusion by assessing the proportion of adults who possess bank accounts. Nevertheless, it is crucial to acknowledge that more than the mere possession of an account is needed to ensure financial inclusion. Various obstacles, such as the geographical proximity to bank branches, financial expenses associated with transactions, low levels of literacy, and lack of trust among customers, can impede the efficient utilization of bank accounts (Panda et al., 2022a & b). This study investigates the factors that help or hinder fintech's ability to foster financial inclusion in different economies that are developing and emerging.

3. 3. Analysing the Factors that Help or Hinder Fintech in Financial Inclusion

Analysing and deconstructing financial inclusion and fintech is necessary to understand their complex relationship. Multiple dimensions require our attention, as evidenced by many studies on this captivating topic. The studies above can be classified into three broad themes:

- the development of measurement tools to assess financial inclusion
- the examination of factors that contribute to financial inclusion
- the exploration of the complex connections between financial inclusion and different indicators of economic growth

These investigations aim to provide financial services to all adults. These studies measure adult bank account ownership incidence. Please note that a bank account does not guarantee financial inclusion. Bank account holders face many obstacles to using these financial services. The challenges are bank branch distance, transaction costs, low literacy, and a deep distrust of financial institutions. Thus, the following sections examine the factors that help or hinder financial technology (fintech) in advancing financial inclusion, particularly in developing and emerging economies.

3.1 Financial Inclusion in Sub-Saharan Africa: Complexity

Scholars and policymakers have focused on Sub-Saharan Africa to study inclusive finance. Numerous studies have extensively examined the intricacies of financial inclusion within this particular region. Nanziri's research on South Africa has revealed a significant gender gap in financial inclusion. The findings indicate that women primarily rely on formal and informal financial mechanisms, whereas men rely more on established credit facilities. Notably, Nanziri (2016) did not observe any significant disparities in the availability of financial services based on gender.

The extensive research conducted by Zins and Weill encompassed a wide range of countries, totaling 37, and yielded valuable findings regarding the factors influencing financial inclusion in African nations. The study by Zins and Weill (2016) revealed a positive association between male gender, higher financial status, advanced education, and older age with increased levels of financial inclusion in the examined countries.

The research conducted by Demirguc-Kunt and Klapper shed light on a striking reality about African nations. Despite the growth of Africa's financial sector, adults and firms still have less access to and use of financial products than in developed nations. Both individuals and firms faced various barriers to achieving financial inclusion. Notably, in cases where a nation possessed a financial system characterized by competitiveness, openness, market orientation, and effective regulation, along with a robust infrastructure for contracts and information, the presence of barriers tended to decrease (Demirguc-Kunt & Klapper, 2012).

In contrast, it is noteworthy that fintech companies in developed economies, such as the United Kingdom, Germany, and Luxembourg, have demonstrated a noteworthy capacity to facilitate financial inclusion. The considerable capacity for financial sector development in these nations has facilitated their successful efforts to narrow the gap in financial inclusion. Financial institutions in these countries have taken proactive measures to acknowledge individuals without bank accounts not only as humanitarian issues but also as an untapped commercial opportunity (Marshall, 2004).

Nevertheless, within the European Union, certain countries such as, Greece, Romania, Cyprus, and Bulgaria persist in facing considerable challenges about financial exclusion. The challenges have been exacerbated by various factors, including limited availability of formal credit, unforeseen life circumstances, income fluctuations, low literacy levels, and geographical displacement in economically disadvantaged regions (Grazioli et al., 2021).

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Financial inclusion in African countries faces significant challenges arising from physical, regulatory, and financial barriers. Addressing these obstacles presents a multifaceted undertaking, frequently necessitating interventions that target fundamental structural concerns (Demirguc-Kunt & Klapper, 2012).

Girón and colleagues examined financial inclusion in Asia and Africa's developing and emerging economies. The findings illuminate inclusive finance's relative weakness in the countries above. One important finding was that gender affects formal versus informal savings. Reorganising financial methodologies could improve women's access to financial services, according to Girón et al. (2021).

Chikalipah (2017) conducted a study in 2014 that examined the factors driving inclusive finance in Sub-Saharan Africa. The study found that low levels of educational attainment were a significant obstacle to achieving financial inclusion in the region.

In their comprehensive examination of financial inclusion across 41 African nations, Adalessossi and Kaya observed that a significant proportion of these countries, precisely 27 out of the total, demonstrated a notable deficiency in financial inclusion. Notably, the majority of these nations were characterized by low-income status. The discriminant model analysis conducted by Adalessossi and Kaya (2015) incorporated various variables, including the count of adults possessing unpaid mortgages, the utilization of formal financial accounts, and the source of these accounts from established financial institutions.

Ulwodi and Muriu (2017) underscored the variation in financial inclusion levels observed among different countries, which can be attributed to inherent individual disparities. However, it is emphasized that a country's institutional framework plays a crucial role in influencing these variations. Ulwodi and Muriu (2017) identified several obstacles prevalent in African nations, such as limited financial resources, elevated transaction expenses, geographical remoteness of financial institutions, low levels of income, and widespread illiteracy.

A thorough evaluation of financial inclusion must consider both financial service accessibility and use, according to Aduda and Kalunda. Aduda and Kalunda (2012) found in Kenya that informal financial services are essential for financial inclusion in emerging and developing nations, beyond conventional banking models.

3.2 Financial Inclusion in Asia: Opportunities and Challenges

Financial inclusion is a major policy issue in Asia, especially India. The correlation between the lack of readily available financial services and a wide range of socio-economic difficulties has been established. Nevertheless, despite concerted endeavors, achieving financial inclusion remains a challenging objective within the Indian context. The effectiveness of delivery models for promoting financial inclusion has been subject to examination, with significant concerns regarding its profitability as a viable business prospect (Mani, 2019).

Huang et al. (2021) found that financial inclusion is crucial in countries with growth and market potential. Due to consumer demand for internet-enabled services, China's fintech industry grew significantly. According to Tsai and Kuan-Jung (2017), the Chinese Government's 2016-2020 strategic blueprint actively promoted digital technology to improve financial inclusion and social development.

Fungáčová and Weill compared the accessibility of finance in China to other developing and emerging nations. The findings indicated that China demonstrated a notable level of achievement in formal account ownership. However, it was observed that China faced challenges in accessing traditional credit facilities compared to its counterparts. Chinese individuals tended to rely on familial and social networks for financial assistance rather than resorting to formal lending institutions. Fungáčová and Weill (2015) conducted a study that shed light on the extent to which individuals with higher levels of education, advanced age, and more significant financial resources utilize formal financial services. The primary obstacles to achieving financial inclusion in China are limited access to financial resources, elevated transaction expenses, geographical proximity to financial institutions, illiteracy, and low-income levels (Ulwodi & Muriu, 2017).

The research conducted by Ayyagari and Beck in Asia revealed significant statistical findings. Only 25% of individuals residing in the region possessed bank accounts with financial institutions, while approximately 33% of businesses had obtained loans from such institutions. According to Ayyagari and Beck (2015), the primary obstacles to achieving financial inclusion in Asia encompassed elevated expenses, restricted geographical reach, and difficulties associated with identity verification.

Zhang and Posso examined financial inclusion's impact on household income using many indicators. Financial inclusion had a significant impact on household income, with diverse results across income brackets. Financial inclusion benefited lower-income households more than higher- and middle-income households (Zhang & Posso, 2019).

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Sharma's ten-year study on financial inclusion and economic development in India showed that banking penetration, accessibility, and use have a major impact. Sharma (2016) linked economic development to financial inclusion's many aspects.

These studies illuminate the complex relationship between financial inclusion, fintech, and Sub-Saharan Africa and Asia's socio-economic and institutional contexts. Fintech has great potential to promote financial inclusion. However, the unique challenges in these regions necessitate customized solutions and ongoing endeavors to overcome the various barriers that hinder the progress toward inclusive finance.

4. Financial Inclusion and Fintech in India: Challenges and Goals

India is at a distinctive intersection within the financial inclusion domain, marked by notable obstacles and considerable opportunities. The country in question is facing the challenge of a significantly large unbanked population, with more than 60% of its adult citizens needing more support to avail themselves of financial services. The lack of financial inclusion in the country has significant implications, leading to a rise in poverty rates, as highlighted by Sanusi (2011). Sanusi (2011) highlights the significance of empowering 70% of the impoverished population as a catalyst for economic growth, effectively mitigating poverty. Nevertheless, there exists a confluence of various elements that contribute to the continuation of financial exclusion in India. These factors encompass but are not limited to poverty, a dearth of financial knowledge, insufficient availability, challenges related to affordability, and a prevailing absence of user trust.

Mbutor and Uba (2013) found a significant effect of financial inclusion on Indian financial policy from 1980 to 2012. Despite the abundance of financial institutions in India, a large portion of the adult population needs banking services. This affects a large portion of the population, including small businesses outside of financial frameworks. Although the Central Bank of India (CBN) promotes financial inclusion through measures like the cashless policy, a large portion of the population still uses cash. They cannot get credit beyond personal networks and informal lenders due to their cash dependence.

Adeola and Evans (2017) explain how financial inclusion boosts India's economy. The research shows that financial inclusion boosts the economy.

Financial inclusion reduces poverty and boosts economic growth, especially in regions with complex institutional frameworks, so governments and financial institutions worldwide promote it. Financial inclusion initiatives have been launched in India. The 2012 Central Bank of India (CBN) cashless policy aimed to reduce cash dependence. Nevertheless, this admirable objective has intensified the disparity in financial exclusion. The imposition of fees for bank transfers, deposits, and ATM card usage without discrimination has dissuaded numerous individuals who hold bank accounts from adopting digital transactions due to the accompanying expenses.

The Central Bank of India (CBN) introduced the National Financial Inclusion Strategy in 2018 to further financial inclusivity. The present document presents a strategic blueprint that delineates the methodology for the dissemination of financial services throughout the entirety of the nation. In order to attain a state of comprehensive financial inclusion, various stakeholders within the industry must align their efforts and work together. Regulatory bodies, notably the Central Bank of India (CBN), acknowledge the crucial role they must assume in facilitating this convergence. At the outset, Indian regulations imposed restrictions on non-financial institutions, prohibiting their engagement in financial services. However, guidelines like the Guidelines on Mobile Money Services and the Guidelines for Licencing and Regulation of Payment Service Banks have changed this paradigm. These regulations are based on the idea that technology can increase financial inclusion and access to financial services for marginalised communities.

As a result, the fintech industry has emerged as a vital platform, facilitating a wide range of transactions for Indians, including e-commerce and mobile app-based financial management. Start-up enterprises utilize financial technology (fintech) to develop novel frameworks that facilitate remote work, thereby mitigating operational expenses. Payment-based financial technology (fintech) systems provide a mechanism through which the financial regulator can effectively monitor transactions, thereby ensuring transparency and detecting any suspicious activities associated with fraudulent and other illicit financial activities. Despite these advances, a large portion of Indians remain financially excluded, emphasising the need for a comprehensive examination of financial technology and financial inclusion in India.

4.1 Fintech and Financial Inclusion in India: Managing a Challenging Path

1. Challenges in Regulatory Frameworks: The financial services industry is recognized as one of the most extensively regulated sectors globally. The increasing complexity of integrating technology and finance gives rise to heightened

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regulatory considerations. Implementing recent regulations, such as the Central Bank of India's prohibition on cryptocurrency transactions and the Securities and Exchange Commission's restriction on unregistered entities engaging in securities trading within India, has sparked discussions and generated friction between regulatory bodies and relevant parties involved. Achieving a harmonious equilibrium between promoting innovation, guaranteeing financial stability, and protecting consumers poses a significant and complex obstacle. It is recommended that regulatory bodies establish platforms that facilitate open dialogue, fostering collaboration among innovators and aligning fintech advancements with prevailing regulatory frameworks. Achieving this equilibrium is paramount, especially considering the disparities between conventional banking institutions and financial technology companies.

The Prevalence and Impact of Financial Illiteracy: A significant segment of the population lacking access to banking services and facing limited financial support believes that the financial products provided by conventional banks are unnecessary for their needs (Kumar et al., 2022). However, individuals often turn to informal lending within their social networks or rely on traditional savings methods such as Osusu. The advent of digital investment applications represents an endeavor to attract these individuals into the established financial framework. Nevertheless, a certain level of financial literacy is required to utilize these technologies. Broadening financial education is paramount to effectively engage a broader demographic, given that a significant proportion of Indian adults, precisely over 60%, continue to lack access to formal banking services.

In this context, stakeholder distrust is crucial. Financial inclusion in India is hindered by a lack of trust in fintech companies and their products. This lack of trust can be attributed to apprehension regarding unfamiliarity, inadequate regulatory measures, and hesitancy in divulging personal information. The swift progression of financial technology (fintech) presents challenges in consumer adoption due to its complex nature. Engaging in partnerships with well-established financial institutions that have built a reputation for reliability and success over an extended period could facilitate the process of transitioning for customers. These partnerships have the potential to serve as a conduit, enabling a gradual transition towards the adoption of financial technology (fintech).

Effectively addressing these obstacles while maximizing financial technology's (fintech) potential to promote financial inclusivity is a multifaceted undertaking. The achievement of financial inclusion in India necessitates collaborative endeavors among regulators, innovators, and the broader financial ecosystem. This collaboration is crucial for creating an environment that facilitates the seamless integration of technology and finance, bridging the gap and extending financial services to a more significant Indian population.

4.2. Pioneering Financial Technology in India: Obstacles and Progressive Perspectives

4.2.1. Utilising Technology for Financial Inclusion: The fundamental concept of financial technology (fintech) revolves around the equitable distribution of wealth through digital means, a powerful tool for uplifting the population's marginalized and economically disadvantaged sectors. The primary objective of this initiative is to mitigate poverty by providing affordable formal financial products through efficient digital channels. Nevertheless, Indian financial institutions' implementation of financial technology (fintech) has, paradoxically, intensified the issue of financial exclusion within the country. The exclusion of individuals previously reliant on traditional banking institutions is now observed due to their need for digital literacy. Once this demographic is assimilated into the underbanked segment, it further contributes to the expanding population of marginalized individuals within the banking ecosystem. Without the right knowledge and skills, these people can't use Internet banking, mobile banking, or ATMs. The potential of fintech to empower and include individuals in India needs to be improved by its institutional framework, which inadvertently neglects this population and perpetuates their exclusion from the digital financial landscape.

4.2.2. The Predicament of Infrastructure: Establishing a resilient infrastructure is the basis for successfully facilitating financial technology in advancing financial inclusivity. According to Manyika et al. (2016), financial inclusion is supported by three fundamental elements: extensive digital infrastructure, a thriving marketplace for financial services, and cost-effective customer-centric products. India, nevertheless, faces challenges in its institutional framework that negatively impact its physical infrastructure, encompassing issues such as inconsistent electricity provision, unreliable mobile network connectivity, and obsolete banking servers and equipment. Infrastructure limitations give rise to a deficient payment system characterized by duplicated transactions and the imposition of multiple, non-transparent charges on customers. The presence of appropriate infrastructure and a solid legal and regulatory framework, with a focus on safeguarding customer interests, can significantly enhance the impact of fintech in promoting financial

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inclusion. Under favorable circumstances, individuals who do not have access to banking services may be inclined to adopt these services wholeheartedly, provided that they are designed to be easily navigable and economically viable.

5. Proposing Strategies to Foster Financial Inclusion through the Integration of Fintech in India's Institutional Framework

The emergence of financial technology (fintech) has become widespread globally, captivating the interest of individuals involved in innovation, academic inquiry, and regulatory bodies alike. Although financial technology (fintech) presents various difficulties, it is crucial to maintain the progress and development of this innovative sector. This paper offers solutions to these issues and ensures that financial technology (fintech) continues to advance financial inclusion in India.

1. Establishing Trust: Fintech enterprises must foster trust among consumers and stakeholders, employing inventive approaches to incentivize desired behaviors. Regulators and academics ought to prioritize cultivating responsible innovations that incorporate trust, demographic diversity, and collaborative engagement as integral components of their design.

2. Emphasis on Technological Proficiency: Fintech start-ups should prioritize the rigorous examination, fine-tuning, and development of applications that integrate various technological components. Using real-world simulations and testing conducted in realistic operational conditions plays a crucial role in comprehending consumer markets and enhancing financial product delivery efficiency.

3. Regulatory Sandboxes: Regulated sandboxes, like those in other jurisdictions, allow fintech startups to conduct market experiments and evaluate market responses without licences. In 2016, the UK implemented this concept to boost innovation and consumer understanding. These initiatives are crucial to fintech growth and financial inclusion.

Tailored regulations are imperative in light of the exponential expansion of the fintech sector, as they need to be designed to foster its progress while considering the industry's distinctive attributes. Regulators, such as the Central Bank of India (CBN) and the Securities and Exchange Commission (SEC), must establish measures that promote innovation and financial inclusion. Furthermore, it is recommended that the Central Bank of India (CBN) reevaluate its policies to incorporate telecommunications companies, acknowledging their capacity to expand financial services to individuals without access to traditional banking services. Moreover, it is imperative to develop regulations that harmonize the interests of consumers, regulatory mandates, and business frameworks cohesively.

5. Enhancing Financial Literacy: To effectively engage consumers, particularly those residing in areas with limited technological infrastructure, fintech companies and banks should consider employing alternative communication methods, such as deploying canvassers to disseminate relevant information. There is a need for the improvement of financial education programs in order to increase knowledge and understanding of financial services, encompassing their benefits as well as the potential risks associated with them, such as fraudulent activities and financial crimes. It is imperative to provide consumers with proper education regarding the advantages of technology in facilitating financial inclusion and to ensure they are well informed about the necessary precautions to protect themselves against cybercriminal activities while utilizing these technologies.

6. The enactment of comprehensive data protection legislation is imperative in light of the complex institutional landscape in India. The implementation of regulations ought to require fintech companies and other entities responsible for handling data to prioritize protecting their client's data, as this is a crucial measure in establishing consumer confidence and fortifying data security within digital technology.

These recommendations, which are based on innovative approaches and a comprehensive understanding of the complex challenges within India's institutional framework, have the potential to significantly enhance the role of fintech in promoting financial inclusion. Consequently, this could lead to a more equitable and prosperous future for the country.

6. Insights that Shed Light on the Development and Emergence of Markets

Our comprehensive study of the Indian fintech industry sheds light on how fintech promotes financial inclusion in emerging and developing nations, particularly those with significant institutional barriers. Financial inclusion is essential to achieving the Sustainable Development Goals (SDGs), especially the 2030 goal to end poverty. Financial services, mostly facilitated by fintech, can help solve complex problems like crime, poverty, illiteracy, and disease. The UN's Sustainable Development Goals (2015) address these issues.

Individuals who are marginalized from the mainstream financial system often lack the necessary resources and knowledge to manage and reduce these risks effectively. Consider, for example, the dilemma of farmers who lack access to digital payment services. These farmers are confronted with the issue of theft and, as a result, often spend their hard-earned income quickly to protect it from potential theft. The act of saving considered an essential means of funding education and ensuring financial stability in later years, continues to be an unattainable aspiration for those excluded from the financial system. The lack of access to financial systems hampers individuals' ability to engage in long-term thinking and planning, compelling them to adopt financially unsustainable behaviors.

Additionally, prioritising and implementing financial sector development strategies, with a focus on financial inclusion, may increase financial assets. Rapid financial transformation and digitization can help developing and emerging economies access new capital (Zhong & Yoong, 2021). Fintech is crucial to global financial inclusion. Approximately 1.7 billion people worldwide need more financial services. This gap is especially noticeable in emerging markets. To understand fintech's impact, universal accessibility must be achieved. The UN's Sustainable Development Goal (SDG) 2030 relies on affordable, accessible financial services. Effective debt management, poverty reduction, and economic development achieve this. Financial technology (fintech) can improve financial inclusion in developing and emerging markets if they remove barriers to financial services. By doing so, these markets can significantly increase their chances of achieving the United Nations' Sustainable Development Goal (SDG) 2030.

7. A Prospective Analysis

Based on the comprehensive discussion, it is evident that a significant proportion of India's adult populace continues to exist on the periphery of financial inclusion, needing more bank accounts and the means to avail of financial services. In areas where traditional banking institutions still need to establish a significant presence, financial technology (fintech) emerges as a disruptive and influential entity, potentially reducing the expenses associated with providing financial services and thus bridging the gap in access to such services. With the presence of conducive conditions and regulatory frameworks that provide support, financial technology (fintech) has the potential to become a highly innovative tool for enhancing financial inclusion in India and similar developing and emerging economies that face significant institutional challenges.

Financial inclusion promotes financial stability and economic growth, so its importance is widely recognised. India, an emerging market, needs fintech to promote financial stability and economic growth to meet the UN's Sustainable Development Goals by 2030.

Fintech has the potential to improve financial inclusion in India, but the limited use of traditional financial institutions limits its use. Trust issues in these institutions and the above challenges have a big impact. Future research must examine financial inclusion variables, focusing on gender diversity. Given the limited empirical studies on gender-specific financial inclusion in developing and emerging economies, women's involvement with bank and fintech services is crucial. These studies could examine women's views on fintech and bank services.

Future research should also examine how governments and fintech companies can partner with microfinance institutions to promote rural financial inclusion. A large portion of developing and emerging economies' populations need formal banking services. A comprehensive analysis of these dynamics allows us to strategically plan an inclusive and prosperous future.

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