



**Research Paper**

**The Digital Revolution in Financial Inclusion and Challenges in Fintech Era**

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**Abstract**

*An efficient financial system is an essential requirement for any country's socio-economic growth. A financial system is needed to mobilize the savings and allocate these to productive investments. Financial inclusion is a matter of concern for the policymakers as it is an enabler for inclusive growth. Till now a large number of efforts have been made by the Government of India and Reserve Bank of India to include the financially excluded segments of society in the financial mainstream. Digital financial inclusion has emerged as a game changer for the under-served as well as un-served low-income households and micro and small enterprises. This article seeks to provide a platform to help identify the various issues that emerging technologies, challenges, and digitalization present for financial inclusion in the Fintech era.*

**Keywords:** Financial Inclusion, Fintech, Digital Finance, Financial Stability, Financial Risk, Financial Institutions

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**Introduction**

India's challenge of financial inclusion – providing each and every household in the country access to the financial sector – has been magically transformed by digital and virtual technologies which have exploded over the past so many years. Millions of households not only have an active bank account but can hope to get efficient, cheap and user-friendly access to a host of financial services – credit, remittance, savings and micro-insurance. Even as the way India implemented digital technologies to deepen financial inclusion is distinctive, there are many dreadful challenges on the way forward. The ongoing Singapore-India cooperation

in financial innovation can be a prospective win-win opportunity for both countries to pull the financial area for sectorial growth.

India has extensively pursued financial inclusion – providing every household in the country access to the proper financial sector – as a policy goal and objective in the expectation that it will open up opportunities for the poor to improve their livelihoods. In practice, this proved to be a rising task because of a disparity of incentives. The expectations of the poor from banks was credit mostly so that they could free themselves from the clutches of usurious moneylenders and vagaries of the informal sector. But banks were not enthusiastic about lending to the poor, thinking they were too much of a credit risk. Banks, on their part, were eyeing the large and stable low-cost deposits these poor peoples' accounts would bring which would improve their cash flow and hence their viability. However, the lower income group had no interest in saving in a bank account that would entail transaction costs but give no concrete benefits.

Digital technologies have made 'banking on the poor' an appealing prospect for banks and led a variety of non-bank entities, particularly financial technology (Fintech) companies, to enter the financial inclusion space even as the competition for the 'fortune at the bottom of the pyramid' has resulted in a host of banking services being offered to the poor at their doorstep, dramatically altering their banking experience. Global internet giant Google, for example, has launched Tez, an app through which money can be sent or received directly into a bank account. Many large Indian banks, both public and private, are tying up with payment wallets for last-mile connectivity offering attractive discounts to customers.

"Fintech" is a captivating tag for the rapid growth and developments in financial services that are basically being driven by digital technologies, but the idiom is not precisely defined in practice. In some references, the Fintech label has become analogous with the companies that provide any of the underlying technologies or services and often comes with the misleading implication of encompassing only start-up companies. Other definitions do not differentiate between the digital technology applied and the financial services to which the technology is functional.

While most definitions contain references to new technologies, innovation, and/or to disruption, definitions that specify 'new technologies' tend to leave out innovations that rely on existing technologies, such as digital and mobile payments. Likewise, the focus on technology potentially ignores developments linked more to innovations in business models, such as the peer-to-peer platforms that are emerging. Also, the implicit beliefs that Fintech businesses are start-up companies ignore the large number of well-established financial service providers offering these new digital technologies or providing similar services.

### **Literature Review**

In countries that were still in the process of developing, the promotion of much-needed financial sector growth was the fundamental reason for the introduction of the concept of microfinance. Financial inclusion and economic growth and development are basically connected with each other (Mia et al. 2019).

Bachas et al (2018) did a study on how digital financial services go far. As per the study, debit cards shorten the distance required to access bank accounts, hence improving financial inclusion. In Mexico, recipients of money transfers who had their funds stored in bank accounts and accepted debit cards reduced their distance travelled to the account from 4.8 to 1.3 kilometres and mentioned being less likely to give up essential tasks in order to withdraw their transfer. They identified a significant negative correlation between travel distance reduction and financial behaviour using account-level data: users with the highest distance reduction increased both the frequency of withdrawals and the amount saved

Shen et al, (2020) intend to present a study on digital financial inclusion and economic growth: A cross-country. The purpose of the study is to provide a methodology for evaluating digital financial inclusion that can be used to compare countries. Using World Bank and IMF data, it generates the index of digital financial inclusion and measures the amount of digital financial inclusion in 105 economies. The linkages between digital financial inclusion and economic development were then explored for 86 neighbouring countries utilising geographical data and methodology. Based on the research, digital financial inclusion boosts economic growth and has a regional impact on nearby nations.

Mondal, (2020) explored India's digital financial inclusion and inclusive growth. The study includes that an effective financial system is a requirement for a country's socioeconomic success. It serves as a foundation for the mobilisation of savings and their allocation to productive resources.

Ogawa, Khera, Ng& Sahay (2022) examined “Is Digital Financial Inclusion Unlocking Growth?” Digital financial services and Fintech services have been major geneses of financial inclusion. While there is proof that traditional financial inclusion boosts growth in the economy, do the same conclusions apply to digital financial inclusion? What is the propel behind digital financial inclusion? Why does it move quicker in certain countries compared to others? Based on the results of a cross-sectional instrument variable method research, the exogenous component of digital financial inclusion is positively connected to GDP per capita growth from 2011 to 2018, meaning that digital financial inclusion can increase economic growth.

It is important to determine all the difficulties and possibilities for each of the different stakeholders (Kim et al. 2018). Most Indian financial institutions have a look at the industry and are coming up to gain knowledge from the experiences of others (Rathod and Arelli 2013). Indian MFIs are about to launch again by espousal speed change and mobile money, while new players are investigating prospective alternatives and partnerships. Several institutional deficiencies and other issues give to the significant lack of approachability to financial services in India's poverty- stricken areas. As a consequence, the economy cannot develop to its extreme potential as people are not making complete utilization of their own economic opportunities (Singh et al. 2013).

Microfinance activities have been launched in industrialized nations, such as India, in order to enhance assistance to those living in impoverished areas, such as inner-city neighborhoods (Singh and Singh 2012). The majority of the requirements of the poor regarding financial

services have not been reached (Singh and Singh 2012), which has resulted in a report on the process of financial inclusion in the underdeveloped region of India (Singh and Singh 2012). The table that follows provides an overview of the main elements, constructs, and variables that were employed to study important operators of financial inclusion.

Financial institutions or Fintech companies should design and build more user-friendly Fintech products and services in order for even older individuals to utilize Fintech. Also, governments in developing nations should focus on customer safety where individuals are thought to be less aware of financial matters, (Nguyen 2022).

This research examined whether increased Fintech-based financial inclusion (FFI) leads to an increase in risk-taking by banks through analysis of data from 534 institutions from 24 OIC nations. The observations provide that banks' risk-taking behavior is forbidden to a great extent by Fintech-based financial inclusion. During Post-Industrial Revolution 4.0, the nexus has become more powerful (Banna et al. 2021).

### **Digital Technologies in India**

The reach of digital technologies has remained confined to payment systems in many countries. What is remarkable about India's digitally-driven financial inclusion is that it has widespread payment systems to the stipulation of credit. Digital technologies, for example, have made it possible for potential borrowers, whether in the small and medium enterprise sector or in microfinance, to build credit histories and confirm their creditworthiness and therefore develop their access to credit as well as the conditions on which they borrow. Going forward, the use of blockchain technology holds the potential to streamline land records and asset registries, eliminate corruption and bring the huge informal sector into the formal economy.

India's digitally-driven financial inclusion and Fintech services are exclusive and unique in serving the public in their kind of transactions. In contrast to many countries where digital infrastructure is privately built and operated, digital infrastructure in India has been built as a public good by the National Payments Corporation of India (NPCI), an umbrella organisation established as a 'not for profit' company at the instance of the Reserve Bank of India (RBI). This deliberately democratic access to digital technology has helped establish common standards which, in turn, have made it possible for all payment systems in India to be interoperable, thereby expanding choice for consumers and encouraging completion among providers.

Those digital technologies will provide an easier pass-through for money laundering is a widely held fear. Uniquely, India built several safeguards in its regulations to minimise this threat. Even as the payments ecosystem is now populated by a host of factors, including banks, non-banks, and Fintech and e-commerce firms, India's regulations require that there should be a bank at either end of a transaction so as to trace every transaction, if necessary. For that same reason, non-bank financial companies and technology firms in the payment space are mandated to tie up with banks. There are regulatory ceilings on the amounts that can be transacted through independent wallets. Also, independent wallets are 'cash in but not

cash out' which means they can be loaded with cash but cannot be used for the withdrawal of cash.

The safeguards built in for consumer protection also make India's use of digital technologies unique. A major source of revenue for wallet providers, in general, is the 'float' they enjoy with the money put in by customers in their wallets. Wallet companies typically deploy this float in short-term investments which yields them a return but thereby exposes consumers to potentially huge losses in the event the investments go bust. India has eliminated, or at any rate minimised, this risk by mandating that wallet companies hold their entire float in an escrow account in a bank.

In other measures towards consumer protection, the RBI has also issued guidelines restricting the liability of consumers on account of unauthorised transactions. Reserve Bank of India is planning to constitute ombudsmen to deal entirely with consumer grievances arising from digital financial technologies.

### **Technology as an Enabler for Financial Inclusion**

The innovations outlined in this report highlight different solutions to these three core problems that we will highlight across different verticals. The article does not aim to be perfect but rather uses chosen examples to justify how greater financial inclusion can be realized by building innovative business models and applying technology to different categories of financial services for individual consumers and small businesses including start-ups.

As we consider these different efforts for the expansion of financial services, financial inclusion is broadly defined for consumers as access to cost-effective means of managing their financial lives—borrowing, saving & investing, spending, and protecting their financial well-being through insurance. For businesses, financial inclusion is defined as having access to efficient means of managing their expenses and revenues; fairly-priced funding, working capital facilities, and insurance.

All the innovations and companies outlined in this report are pursuing strategies for expanding financial capacity and, as such, are increasing financial inclusion according to this definition. And, importantly, all of these companies are for-profit entities, demonstrating that it is possible to provide services that expand financial capacity while being profitable.

### **Managing Technology Enabled Financial Services and Promoting Digitisation**

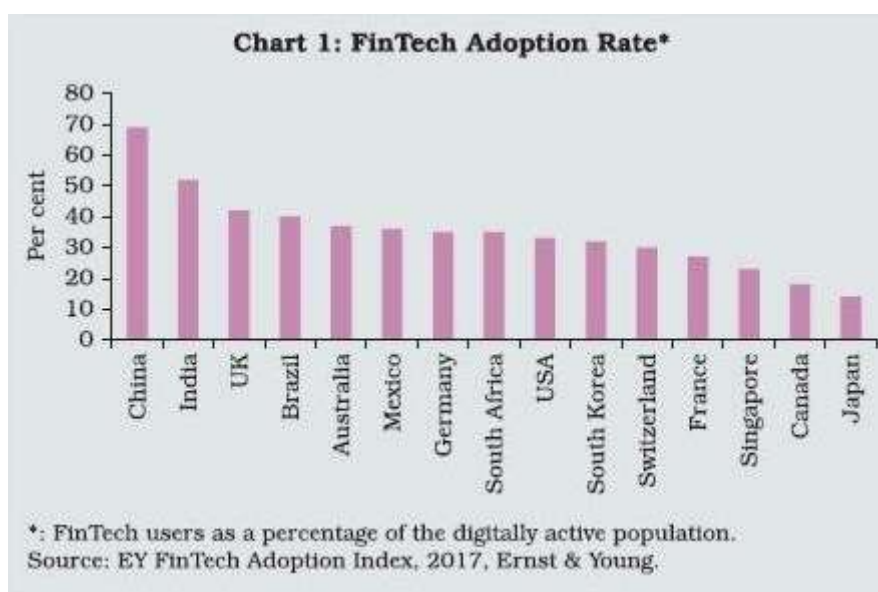
Recent initiatives have opened up vast opportunities for both the incumbent financial institutions as well as for Fintech to introduce large-scale innovations in financial services that permeate to 'last mile' touch points and boost financial inclusion. The Government's Start-Up India program, which aims to nurture innovations, and the India Stack platform, which offers a state-of-the-art technological framework to businesses, start-ups, and developers aimed at presence-less, paperless, and cashless service delivery, make available a conducive environment for accelerated escalation of Fintech, which would overlay way for leveraging innovative technology in the provision of financial services.

From a global perspective, Fintech innovations are bringing in alternatives to fiat currency, challenging various forms of traditional financial intermediation and even the conventional monetary system. International standard-setting bodies are increasingly focusing awareness on understanding the risks and opportunities connected with the Fintech revolution.

### The Fintech Revolution: Impetus, Opportunities, and Risks

Globally, technology-enabled innovations in financial services (popularly known as Fintech) have been growing rapidly in the past few years, at both retail and wholesale levels. From an analytical perspective, Fintech activities are classified into five categories of financial services: (i) payments, clearing, and settlement; (ii) deposits, lending, and capital raising; (iii) insurance; (iv) investment management; and (v) market support.

The Fintech landscape has been evolving. Global investment in Fintech increased rapidly till 2022. Subsequently, in spite of moderation, it remains vigorous, registering US \$8.2 billion in comprehensive across 274 deals. Simultaneously, there is significant adoption of Fintech across major markets (Chart 1). Fintech activities are also growing rapidly, as reflected in the sharp increase in the market size of Fintech credit in certain jurisdictions, although they remain small relative to overall credit (Table 1).



**Table 1: Size of Fintech Credit Market by Jurisdiction**

(US\$ Million/ Billion)			
	2013	2017	2022
China	5,547	99,723	5,92,342
USA	3,757	34,324	1,02,569
UK	906	4,126	45,578
Japan	79	326	3,124
Australia	12	276	2,659
Germany	48	205	2,085
France	59	201	1,891

Canada	8	71	685
South Korea	1	38	224
Singapore	0	21	186
<b>India</b>	<b>4</b>	<b>20</b>	<b>270</b>

**Source:** *Financial Stability Board (2022), Report on 'Fintech Credit: Market Structure, Business Models and Financial Stability Implications.'*

Driving the Fintech revolution are forces, such as (i) consumer preference for convenience, speed, cost-effectiveness and user-friendliness in financial interactions; (ii) technological advancement related to the internet, big data, mobile telephony, and computing power; and (iii) changing financial regulations and supervisory requirements. The emergence of Fintech is also attributed to the high cost of financial intermediation by incumbents, despite significant improvements in information technology (IT), pointing towards the inefficiency of the existing system. Estimates suggest that the unit cost of financial intermediation in the US has remained around 2 percent for the past 130 years, with only a marginal decline since the crisis. It is similarly high in other major countries like the UK, France, and Germany. This reflects that the benefits of upgradation in Information Technology have not percolated to the end-users of digital financial services.

Although the size of Fintech is small relative to the global financial services sector at present, it has the potential to transform the way that financial services are delivered and designed as well as fundamentally alter the underlying processes of payments, clearing, and settlement. Today, it has permeated across the entire financial services value chain and in the process has demonstrated the prospective to honestly compete with/challenge the traditional financial intermediation by banks. The true commitment of Fintech activities from its proficiency at unbundling banking services into its core functions of settling payments, providing maturity transformation, sharing risk, and allocating capital investments. This potential is being driven by new entrants – payment service providers, aggregators, robot advisers, peer-to-peer lenders, and innovative trading platforms.

As many Fintech innovations have not yet been tested through a full financial cycle, it is important to analyse both the potential benefits and risks from the perspective of financial stability. The potential benefits include (i) decentralisation and increased intermediation by non-financial entities; (ii) greater efficiency, transparency, competition and resilience of the financial system; and (iii) greater financial inclusion and economic growth, particularly in emerging markets and developing economies. Potential risks include (i) micro-financial risks such as credit risk, leverage, liquidity risk, maturity mismatches and operational risks, especially cyber and legal risks; and (ii) macro-financial risks such as indefensible credit growth, increased interconnectedness or correlation and contagion incentives for greater risk-taking by current organisations.

The FSB (2022) has identified ten issues, three of which are considered as priorities for international cooperation, viz., managing operational risks from third-party service providers; mitigating cyber risks; and monitoring macro-financial risks. Moreover, it recommends that national authorities should pay attention to cross-border legal issues and regulatory

arrangements, develop governance and disclosure frameworks for big data analytics, assess the regulatory perimeter, and update it on a timely basis. Regulators should also encourage shared learning with a diverse set of private sector parties. Open lines of communication need to be developed across relevant authorities, build staff capacity in new areas of required expertise and study alternative configurations of digital currencies.

Although many of these issues are not new, they are important for promoting financial stability, fostering responsible innovation, and developing a more inclusive financial system. As regards the guidelines, harmony is emerging that it should aim at creating an advantageous environment for Fintech to produce without compromising investor faith and confidence, efficiency, and integrity of the market and the stability of the digital financial system.

A stocktake of regulatory measures to Fintech by the FSB reveals that the most widespread model is the “regulatory sandbox”, where innovative products or services can be experienced in a (controlled) environment. This is used by Australia, Canada, Hong Kong, Korea, Netherlands, Singapore, and the UK, while Mexico, Turkey, and Saudi Arabia are considering this model, and Indonesia is in the process of establishing a regulatory sandbox. Other approaches include “innovation accelerators” and “innovation hubs” as well as other forms of interaction, in order to promote innovation and improve interactions with new Fintech firms.

### **Challenges on the Way Forward**

There are of course many challenges on the way forward to deploying digital technologies to deepen financial inclusion. The challenges posed by Fintech are depicted in Fig. 1. Topping the list is cost. The cost of printing and distributing currency is typically borne in every country by the central bank which issues the currency. Shifting from cash to cashless shifts that cost from the central bank to the transacting parties or to the intermediary. Obviously, people will shift from cash to digital-only if the convenience exceeds the cost. Anecdotal evidence suggests that cost is an inhibiting factor, particularly at low-income levels.

Governments in several countries are subsidising digital transactions to encourage the shift from cash to cashless. India, for example, offers a two-percent point reduction in the Goods and Services Tax for digital transactions. This is on top of internet charges which are among the lowest in the world. A subsidy may be necessary, even desirable, to increase awareness and drive away the fear of the unknown, but to be sustainable in the long run, digital transactions have to be attractive even without a subsidy. The hope and expectation are that costs will drop steeply as volumes grow and that competition will drive down charges.

Second, on the list of challenges is the vigour of technology across India’s huge rural hinterland where breakdowns in power and network connectivity are still all too common. There are complaints too that the Aadhar authentication is slow and erratic, and authentication failures are above tolerance limits. That too should improve when the ongoing project of laying an optical fibre network giving broadband connectivity to all villages across the country is completed.



Consumer protection and grievance redressal have always been a big challenge in deepening financial inclusion, and digital technologies enhance that challenge in many ways. The potential backlash from a scandal or fraud can be large and can set back the ‘going digital’ campaign. Regulators require to fight this threat on two fronts. First, there should be robust systems to prevent cybercrime and swift action in the event a cybercrime is reported. Second, regulators should also enforce a code of financial conduct on the part of players in the financial inclusion space to inspire the trust and confidence of people. This is especially important in the low literacy and low awareness environment in India.

**Fig. 1. Challenges posed by Fintech**

**FinTech also presents a number of challenges...**



The difficulties for regulators such as the RBI extend beyond consumer protection. The exploitation of digital financial technologies for financial inclusion offers the innovation and originality of a variety of Fintech firms which have reduced costs and enhanced convenience. But where there is business, there is also risk. Financial sector regulators have always had to tread a delicate balance between controlling risk without choking innovation. This balancing task becomes all the sharper because Fintech firms operate by combining finance and technology, putting financial sector regulators on a sharp learning curve.

Another mission for regulators is to manage, organise and utilise data. Big data, as is widely known, is a big business opportunity. The reason large technology companies of the world are attracted to India is its large consumer base and the promise of its rapid expansion in contrast to advanced economies and even other emerging markets where consumption growth is subdued. Precisely for the same reason, Indian regulators, particularly the RBI, are anxious that data generated in the financial space is not compromised. The RBI has issued some regulations on data localisation and its export for authorised reasons. The right to data and the right to privacy are contentious but are also evolving issues everywhere as they are in India.

There is presently a draft data protection bill in the Indian parliament and the debate on the bill can be expected to marshal international experience and adapt that to Indian conditions.

### Conclusion

The present article includes a discussion on digital finance and its revolutions for financial inclusion and financial stability. Digital finance via Fintech providers has positive effects on financial inclusion in emerging and advanced economies, and the convenience that digital finance provides to individuals with low and variable income is habitually more precious to them than the superior cost they will pay to gain such services from conventional regulated banks and financial institutions. Despite the benefits of digital finance, this article has highlighted some challenges that digital finance pose for financial inclusion and financial stability. Finally, an exciting path for prospective research would be to discover the relationship between digital finance and financial crises to resolve whether digital finance is used to disseminate financial contagion during the financial crisis.

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