

# Fintech: Emerging Trends

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## ABSTRACT

Fintech in simple terms is leveraging technology to deliver banking and financial solutions to individual and enterprise customers. This is one of the fastest-growing sectors in both developed & developing countries with India amongst the top three fintech startups globally. Blockchain, Cryptocurrency, AI, Data Analytics, Machine learning, Big data, Robotics, and Cloud are some of the top technologies leveraged by fintech firms to deliver products. Domestic & global broadband connectivity setup by telecom service providers made available basic infrastructure needed for fintech growth. One of the early fintech innovations was the installation of the first ATM by Barclays Bank in 1967. Post global financial crisis in 2008, many ex-employees of financial firms came up with innovative fintech products. The objective of this paper is to identify globally emerging fintech trends. The Qualitative research methodology was used relying on a review of literature, discussion with the professionals and researchers. The emerging trends include IMF focus on leveraging fintech for cross border payments using distributed ledger technology, Augmented reality for customer satisfaction, Digital insurance, Digital invoicing, Crowd-funding, Crowd investing, Robotics investment advisory, Future relationships between Banks and Fintech firms, Central bank regulatory role. It also came out that although there are many research papers on fintech globally, however, there is not much research work carried out on fintech in India and there is an opportunity for further research on innovation and growth of fintech in India.

**Keywords:** Fintech, Finance, Digital, Technology, Innovation

## 1. INTRODUCTION

‘FinTech’, ‘digital finance’, or ‘financial technology’, in simple terms, all relate to leveraging of newer technology, to transform and innovate the delivery of financial services. Fintech firms could be technology startups, e-commerce companies, or large-tech companies. These firms use emerging technologies like cloud computing, blockchain, artificial intelligence, machine learning, data analytics, and robotics, to offer financial services at a reduced cost for a better value proposition.

### 1.1. Fintech 1.0 (1867-1967)

One of the first instruments for analog finance technology were coins and paper money. The laying of the transatlantic cable (for transmitting telegraphic messages) between London, Paris and New York in 1867 is generally considered the beginning of the first era of fintech. This was later followed by the connectivity of London with Shanghai and Hongkong and subsequently all other markets globally. This was also the beginning of large-scale infrastructure setup for connecting people, media,

governments, organizations, and financial markets across the globe (Arner et al., 2016).

### 1.2. Fintech 2.0 (1967-2008)

In 1967, Barclay’s bank established the first ATM in London, and in the same year, the Texas Instrument launched the first hand-held calculator machine. Both of them were significant innovations and were considered to be the beginning of the second era of fintech. This was the period of digitization, from analog paper to the beginning of the transformation to the digital world with the use of the calculator, computers, and ATMs. Between 1960-1970, payment systems like SWIFT evolved, which formed the basis of large-scale online transactions. In 1971, the first electronic stock exchange NASDAQ was established, a step towards the digitization of the stock market. Beginning of the 1980s, most of the banks in developed countries migrated from manual to computerized systems. Internet technologies transformed from email to internet services facilitating online business. In between, there were three major market crashes: global stock market crash known as Black Monday in 1987, internet and dot

com bubble crash in 1999, and 2008 global financial market crash due to subprime real estate market lending defaults. After every such crisis, a series of reforms and regulations were introduced.

### 1.3. Fintech 3.0 (2008-present)

Post the 2008 market crash, several regulatory changes were introduced which increased compliance costs and decreased profitability. Many employees lost their jobs and ventured into fintech startups offering innovative financial solutions. These startups were not 'banks' in the strict sense but were offering banking solutions. Twentieth-century witnessed the emergence of cryptocurrencies, mobile payments, crowdfunding, initial coin offering, new forms of peer to peer lending, and data-driven finance.

### 1.4. India

India is one of the fastest-growing markets for fintech start-ups. The basic infrastructure of connectivity started through the telecom network and was followed by a digital India flagship program for connecting 250,000 gram-panchayats across the country (Broadband highways n.d.). This infrastructure was a launch-pad for fintech firms to roll out banking like products to the unbanked population. The demonetization announced by the government of India in Nov'16 further accelerated the adoption of digital transactions.

This paper is a study of emerging trends in fintech.

## 2. OBJECTIVES

Fintech is one of the fastest-growing sectors with several start-ups, e-commerce, and technology companies operating in this space across the globe. Fintech has disrupted financial business and has been posing challenges for traditional banks, financial institutions, central banks, and regulatory bodies. It has also been a topic of great interest for academicians, financial institutions, and research houses. The main purpose of this study is to: (1) understand the definition of fintech; (2) understand opportunities in fintech; (3) study opportunities and challenges of fintech for banks; (4) study emerging trends in fintech; and (5) gather topics for further research on fintech.

## 3. LITERATURE REVIEW

### 3.1. Fintech

Fintech is normally associated with the use of newer technologies for innovative delivery of financial services. *"Fintech is a new financial industry that applies technology to improve financial activities"* (Schueffel, 2016). The financial industry can be a startup or a tech firm or a financial institution that leverages technology to improve financial activities. *'FinTech' is technologically enabled financial innovation that could result in new business models, applications, processes, products, or services with an associated material effect on financial markets and institutions and the provision of financial services,* (Schindler, 2017). This definition is comprehensive, with a focus on innovation leading to improvement in business activity with material impact. *"The term "FinTech" (sometimes: fintech, fin-tech, or Fintech) is a neologism which originates from the words "financial" and "technology" and describes, in general, the connection of modern and, mainly, Internet-related technologies (e.g., cloud computing, mobile Internet) with established business activities of the financial services industry (e.g., money lending, transaction banking)"* (Gomber, 2017).

### 3.2. Banks

Banks missed the initial phase of fintech innovation and acted largely as a pass-through gateway for fintech firms. Banks need to stimulate innovation, drive fintech transformation programs, and invest in fintech initiatives/firms, by organizing focused internal programs, organization, and cultural changes. In the future, banks and fintech firms may co-exist and complement each other. It is possible that larger fintech firms eventually become dominant financial institutions, with banks primarily left to manage wholesale funding. *Banks may have a limited role and would eventually become fractional banks* (Adrian et al., 2019). Most of the banks now have an online presence as internet age customers prefer online transactions. Banks need to take advantage of data-driven analytics for decision making. SIM swap, vishing, phishing, and money laundering are some of the common fraud faced by banking customers. Customer awareness programs have proved useful in the prevention of such frauds and such programs should continue.

### 3.3. Central Bank and Regulator

The role of the central bank is primarily to ensure inter-bank operability, however, this may get challenged in future, if digital money firms take up interbank operability and hold reserves similar to the central bank. This can lead to a monopoly of large e-money providers and can be a risk to the system. *Central banks can be issuing agency for grant of licenses for e-money providers ensuring strict governance and compliances.* (Adrian et al., 2019). Central banks are setting up regulatory sandbox environments for fintech to test regulatory compliances. There were instances, where fintech firms had launched their products without fully complying with central bank regulations like partial adherence to Know Your Customer (KYC) process. *Fintech firm's large term objectives are not aligned with regulatory bodies* (Philippon, 2016). Collaboration between regulators and fintech firms can be of mutual benefit, fintech firms can share changing consumer behavioural data insights that can be used by regulators to create consumer-friendly regulations (Románova et al., 2016). The machine language, artificial intelligence, and big data for the understanding of human behaviour mimic would be a major program for the regulatory framework, enforcement, and compliance in the USA (Bauguess, 2017).

### 3.4. Digital Money

Digital money, e-money, and mobile wallets with online payments, fund transfers, and other banking services, have good awareness and adoption with online customers. M-Pesa, launched in March 2007 in Africa, was one of the first mobile digital wallet products, with wider reach and adoption by a large unbanked population (What is M-Pesa?. n.d.). This was the beginning of the digital money innovation by fintech start-ups.

### 3.5. Cross Border Payments

Cross-border payment is a key mandate of the International Monetary Fund for fintech innovation using blockchain, an open system distributed ledger technology. This system can set up trust between intermediaries and address terror funding and money laundering issues. This can potentially reduce costs and improve service parameters. *A key uncertainty is whether changes in financial markets will be gradual and evolutionary or potentially disruptive* (He et al., 2017).

### 3.6. Blockchain

The launch of the first cryptocurrency Bitcoin was a stepping stone for blockchain technology. Bitcoin and other cryptocurrencies are on open-source distributed ledger technology, with no role of the central bank, and managed by transparent interactions of parties on a trusted and secure network. (Nakamoto, 2019). The internet of trusted data, robust digital identity, distributed internet trusted authorities, distributed safe computation, universal access would be leading financial technologies (Pentland et al., 2016).

### 3.7. Niche Technologies

Blockchain, machine learning, artificial intelligence, data analytics, robotics, and cloud computing are major technologies used by fintech firms in product development. An evidence-based study summarizes the internet of things (IoT), robo-advising, and blockchain as the most valuable innovations for the financial sector (Chen et al., 2019). Unmanned drones have an application in insurance, financial, and underwriting businesses by capturing sensor data and transmitting through wireless communication for insurance claim adjustments (Luciani et al., 2016). Some of the emerging trends are mobile wallets, growth of neo banks with virtual presence and new millennial age customers having strong connect with technology companies like Amazon and Google. These firms have leveraged machine learning & data analytics for customer support, artificial intelligence for investment advisory, blockchain for peer to peer lending & contract management, etc. Augmented Reality (AR) can be leveraged for better customer engagement and can be a major service differentiator. AR enables consumers to observe information in an engaging, concise, and immersive way (Dubey, 2019).

### 3.8. Fintech Research Topics

Fintech is at the growth stage and with the evolution and maturity of newer technologies has the potential for further innovation & transformation of business products, services & processes. There are several opportunities for research in fintech especially in emerging areas like digital insurance, electronic invoicing, electronic factoring or electronic leasing, crowd investing, robot investment advisory, and understanding of cryptocurrencies other than bitcoins and their interlinkages (Gomber, 2017).

Robot investment advisory can be studied to understand the relationship between intent to use the service and using the same, technology readiness and need for social interaction (Belanche et al., 2019).

### 3.9 Fintech in India

India is considered as one of the fastest-growing markets for fintech innovations and is a global leader along with China at 87% fintech adoption of digital payments amongst the digitally active users. Similarly, 99.5% of digitally active users in India are aware of the availability of fintech services for making online payments and fund transfers. This awareness is attributed to the government of India's announcement in 2017 for reducing paper money circulation in the open market (Global fintech adoption, 2019). Many successful fintech innovative products were launched by the government organization like Immediate Payments Service (IMPS), Unified Payments Interface (UPI), Bharat Interface for Money (BHIM), Bharat Bill Pay System (BBPS) and Aadhaar-enabled Payment System (AePS). These products or interfaces are used by fintech firms and banks. Some of the thrust areas of the Reserve Bank of India, a central bank, are financial inclusion, regtech-technology for regulatory function, supotech - technology for supporting regulatory supervision function, and sandbox infrastructure for fintech innovators. (Das, 2019). Fintech use cases in India have come up in the social sector as well, with organizations such as Milaap helping with online fundraising. (Jutla et al., 2016). NASSCOM has predicted stronger data analytics, a need for enhanced collaboration amongst stakeholders, customized solutions, and democratizing data as major fintech 2020 trends for India. They have recommended that the regulator simplifies the KYC process, adoption of digital KYC, and setting up a default reporting platform (Fintech Lending – Unlocking Untapped Potential, 2019).

### 3.10. Risks

As fintech firms are launching new products and services, there are underlying risks of using technology for financial institutions especially concerning technology failure, data security, cyber threat, and regulatory compliances. *There is a need for new and modified regulations for fintech companies due to evolving business models* (Pejkovska, 2018).

## 4. METHODOLOGY

A comprehensive review of the literature on fintech, digital money, fintech innovations, cryptocurrency, blockchain, and financial technology was undertaken to define the scope of the study and ensure its objectivity. The selection criteria were based on top-cited research papers on google scholar website and the International Monetary Fund website. Some key data and trends for future innovations in fintech were taken from websites of leading market research organizations.

## 5. FINDINGS/DISCUSSION

The study examines the definition of fintech, emerging trends in fintech, the impact of fintech on financial institutions, risks from fintech innovations, and future opportunities. Fintech is transforming the world of finance faster than ever before using newer technologies. Some of the key findings from the review of literature are:

Fintech has 64% global consumer adoption; 96% of global consumers are aware of digital payment services, 68% of consumers prefer non-banking institutions for financial services, and 46% of consumers are willing to share their banking data with the non-banking firm are key findings of 2019 fintech consumer survey. On the SME segment, 25% is the global adoption rate, 56% use banking payment & fintech service, and 46% use fintech financing service (Global fintech adoption, 2019).

Digital payment has maximum awareness and adoption rate, with India and China being global leaders. It has become the backbone for non-finance industries like insurance (comparison, purchase), transportation (e.g. radio taxi), telecom & utility (recharges, bill payments), travel (bookings, payments, offers), hospitality (booking, payments), entertainment (content purchases), FMCG (point of sale), e-commerce, etc. Even, the government in many countries like India are carrying out direct fund transfer for purchases and subsidies to eliminate corruption and reduce the cost of a transaction. Digital payment shall continue as core fintech services with further innovation.

Banks are driving initiatives to encourage fintech innovation, they need to address challenges from people, processes, and organizational culture. Neo-banks are posing challenges for traditional banks by offering innovative products at a lower cost.

Regulatory bodies and central banks are supporting fintech innovations by setting up sandbox environments and policy changes for licensing and governance. The regulator needs to leverage fintech innovations for its governance and supervision function and be more proactive using newer technologies.

Blockchain has immense potential to transform businesses, reduce costs, and improve trust and transparency. The potential of tracking any transaction from source to target with trusted intermediaries is a powerful capability of blockchain and has strong use cases, like diamond stone tracking from mining to retail store, organic farming from farmer to market, land records in maintaining a transparent history of ownership and sharing secure medical records of a patient.

Newer technologies like cloud computing, blockchain, artificial intelligence, cognitive learning, machine learning, robotics, augmented reality, big data, IoT, and drones are leveraged by fintech firms.

IMF as a global financial institution believes fintech can improve cross border payment service, cost of the transaction, and transparency using blockchain distributed ledger technology.

Digital insurance, digital invoicing, electronic factoring, electronic leasing, crowd investing and interlinkages of cryptocurrencies other than bitcoin are newer topics where further research can be carried out.

Investment advisory using robots has the potential to disrupt the investment advisory business. These robo-advisors can meet the customer expectation of trust and transparency, at a lower cost, and with better knowledgeable information; however, customers still expect a human interface for investment advisory, which can be addressed by a hybrid model of a human face along with a robo-advisor.

## 6. CONCLUSION/IMPLICATIONS

Fintech has disrupted financial markets with technology and innovation by transforming the finance business and is growing faster than ever before. Digital finance is now emerging as the backbone of businesses. This makes it crucial for fintech firms to address concerns relating to online business risks more proactively. The financial market crisis of 2008 was the beginning of fintech and it has evolved with time. The challenges for fintech firms

in the current year have increased substantially due to the coronavirus pandemic; however, the current situation also presents them with the opportunities to monetize from increasing digital transactions and growing demand for tele-medicines and insurance products. Currently, the new investments in fintech have almost stopped as many firms are forced to cut costs and reduce redundancies. The online or digital business is here to stay, and fintech firms can further learn from the current crisis and come out strongly with innovative solutions (Beyond COVID-19: New Opportunities for fintech companies, 2020).

## REFERENCES

- Adrian, M. T., & Griffoli, M. T. M. (2019). *The rise of digital money*. International Monetary Fund.
- Arner, D. W., Barberis, J., & Buckley, R. P. (2016). 150 years of Fintech: An evolutionary analysis. *JASSA The Finsia Journal of Applied Finance*, (3), 22.
- Bauguess, S. W. (2017). *The role of big data, machine learning, and AI in assessing risks: A regulatory perspective*. U.S. Securities and Exchange Commission.
- Belanche, D., Casalo, L. V., & Flavián, C. (2019). Artificial intelligence in FinTech: Understanding robo-advisors adoption among customers. *Industrial Management & Data Systems*, 119(7), 1411-1430.
- Beyond COVID-19: New Opportunities for fintech companies. (2020). Retrieved from <https://www2.deloitte.com/us/en/pages/financial-services/articles/beyond-covid-19-new-opportunities-for-fintech-companies.html>
- Broadband Highways. (n.d.). Retrieved from <https://www.digitalindia.gov.in/content/broadband-highways>
- Chen, M. A., Wu, Q., & Yang, B. (2019). How valuable is FinTech innovation? *The Review of Financial Studies*, 32(5), 2062-2106.
- Das, S. (2019). Opportunities and challenges of FinTech. *Monthly Newsletter* (pp. 26-29). CCIL.
- Dubey, V. (2019). FinTech innovations in digital banking. *International Journal of Engineering Research & Technology (IJERT)*, 8(10).
- Fintech Lending – Unlocking Untapped Potential. (2019). Retrieved from <https://www.nasscom.in/knowledge-center/publications/fintech-lending-unlocking-untapped-potential>
- Global Fintech Adoption. (2019). Retrieved from [https://www.ey.com/en\\_gl/ey-global-fintech-adoption-index](https://www.ey.com/en_gl/ey-global-fintech-adoption-index)
- Gomber, P., Koch, J. A., & Siering, M. (2017). Digital finance and FinTech: Current research and future research

- directions. *Journal of Business Economics*, 87(5), 537-580.
- He, M. D., Leckow, M. R. B., Haksar, M. V., Griffoli, M. T. M., Jenkinson, N., Kashima, M. M., ... & Tourpe, H. (2017). *Fintech and financial services: Initial considerations*. International Monetary Fund.
- Jutla, S., & Sundararajan, N. (2016). India's FinTech ecosystem. In *The FinTech Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries* (pp. 56-57).
- Luciani, T. C., Distasio, B. A., Bungert, J., Sumner, M., & Bozzo, T. L. (2016). U.S. Patent Application No. 14/843,455.
- Marafie, Z., Lin, K. J., Zhai, Y., & Li, J. (2018, July). Proactive fintech: Using intelligent IoT to deliver positive insurtech feedback. In *2018 IEEE 20<sup>th</sup> Conference on Business Informatics (CBI)*, (vol. 2, pp. 72-81). IEEE.
- Nakamoto, S. (2019). *Bitcoin: A peer-to-peer electronic cash system*. Manubot.
- Pejkovska, M. (2018). *Potential negative effects of Fintech on the financial services sector: Examples from the European Union, India and the United States of America*.
- Pentland, A., & Shrier, D. L. (Eds.). (2016). *Frontiers of financial technology: Expeditions in future commerce, from blockchain and digital banking to prediction markets and beyond*. VisionaryFuture.
- Philippon, T. (2016). *The fintech opportunity* (No. w22476). National Bureau of Economic Research.
- Románova, I., & Kudinska, M. (2016). Banking and Fintech: A challenge or opportunity? In *Contemporary Issues in Finance: Current Challenges from across Europe*. Emerald Group Publishing Limited.
- Schindler, J. W. (2017). *FinTech and financial innovation: Drivers and depth*.
- Schueffel, P. (2016). Taming the beast: A scientific definition of fintech. *Journal of Innovation Management*, 4(4), 32-54.
- What is M-Pesa? (n.d.). Retrieved from <https://www.vodafone.com/what-we-do/services/m-pesa>