Technological Innovation In the Fintech Industry - An Indian Perspective

Abstract: Information technology is the major force behind innovations in the financial sector thanks to fintech. Fintech is looked up as a breakthrough technological innovation disrupting the financial sector using mobile technology. Globally, no financial service is untouched by the new technologies. The mobile technology which has changed the face of the financial sector are Blockchain, artificial intelligence, and data analytics and they have had a strong impact on various areas of financial services, including deposits, lending, remittances, credits (B2B and P2P), underwriting, insurance, cryptocurrencies and so on. India is also seeing a rise in the fintech industry as the mobile penetration is increasing. The development of fintech in India can be ascribed to several important elements that have combined to foster an atmosphere that is favorable to technological innovation. The current research paper seeks to offer an in-depth understanding of the technological advancements made by the Indian Fintech industry. Further, the authors have proposed a conceptual model as an outcome of the various studies that have been reviewed.

Keywords: Technological advancement, Innovation, Financial technology, Mobile Technology, Fintech, Financial Services.

I. INTRODUCTION

The term "fintech" refers to the use of computer/mobile and related digital technology in financial services, and it is fundamentally altering how financial institutions operate. Such technology is increasingly changing our lives, and it has helped to popularize names like [1] AdTech, InsurTech, RegTech, and claim that "FinTech" is the union of "finance" and "information technology." FinTech, as defined by Gai [2], "is a word used frequently to refer to innovative technology used by financial service providers". As FinTech is the use of technology to access financial services digitally and gain insights into financial transactions, it is disrupting the financial services space at a fast pace as per a report by Inc24.

Indian fintech [3] is the third-highest funded in the world as of 2023, the report reveals. Payment, Alternative lending, and Insurance platforms are some of the top financial services in which the growth is recorded. India has seen tremendous growth in the fintech sector. India, which ranks second in terms of the number of internet and mobile users, adapted quickly to the financial technology changes via mobile industry. Digital lending, digital payments, insurtech, wealth tech, and blockchain are some of the important fintech market categories in India. With the highest FinTech adoption [4] rate of 87 percent attained by India, is the third after US and China in terms of digital payments [5]. The mobile penetration in India according to Statista was nearly 77% percent of the population around Jan 2023.

The Indian government and the regulatory authorities like SEBI and the RBI, are continuously promoting and funding efforts to help in the development of a strong fintech ecosystem and a cashless digital economy [6].
Figure 1: CAGR of Fintech Market from (2022-2030)

Source: Statista, 2023

Figure 2: Fintech market size by segment

Source: Statista, 2023

According to Statista, figures 1 & 2 above show that the growth rate and market size of different segments of fintech in India from 2022 to 2030. The growth in Investment tech is expected to grow by 30%, followed by SAAS @ 27% and payment by 9% as per CAGR (Compound annual growth rate) which shows how an investment will grow over a period of time. The fintech market size by 2022 will be occupied by lending tech space where most of the innovations are happening today. The payment space market size is growing, and this growth is mostly due to the UPI services over mobile phones which were recorded in August 2023 to 10.58 Bn (volume of transactions). In view of this backdrop, the present research paper attempts to explore the fintech industry in India mainly on the front of mobile technological innovations.

II. LITERATURE REVIEW AND RESEARCH GAP

The need for current research study is identified based on the review of available literature in the context of fintech industry in India. Following section presents the review of research studies:

In their [7] research analyzing fintech in India, pre and post-COVID scenario, the authors found that before the global health outbreak, FinTech was less prevalent, but following the crisis, it became highly prevalent and permeative. The study examines the adoption of fintech in India, the structure of the Indian fintech industry, fintech startups, and fintech trends [8]. Another study [9] explored that the GOI initiative towards a cashless economy and internet penetration are some of the major factors that paved the way for growth for Fintech in India. However, research study [10] undertaken comprehends the loopholes of the FinTech industry in India and designed a conceptual model declaring “Identity Theft” as the major and common fraud type in this industry.

The growth of Fintech [8] can also be credited to the surge in smartphone ownership among the different sections of the society, including women, small entrepreneurs, small business which increased during the covid time. This is because of the many government schemes and initiatives [9] to a lot of credit services which can be accessed through mobile phones. This has escalated in digital lending accessible to nearly 77% of the Indian population. The
paper [55]

The author suggests some preventive techniques to prevent corporate frauds in the FinTech industry. In another study, the [111] research presented a review of fintech in the banking business, focusing on innovation based on technology in the industry. Authors used an exploratory technique to analyse [12] extensive literature reviews to find out the issues and prospects of Fintech in India. In another paper, the [13] research conducted a systematic literature review (SLR) of recent literature (Scopus database 2019–2022) on the embracing of fintech innovations and acceptance by users. Their research revealed that the most popular theoretical pillars are the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Further, additional elements developed by earlier academics, including as safety, trust, and financial literacy, are important predictors of the adoption of fintech. In the [14] research, the authors acknowledged that FinTech is still in its infancy and is experiencing constant development and application through the disruption, innovation, and transformation of products and processes.

In the backdrop of above discussion, it is seen that there are research studies covering different areas of fintech in India. However, as FinTech is a recent development, there is still a scope of research to highlight technological innovations covering various aspects of FinTech. This research study aims to fulfill this gap by providing holistic view about the same. Therefore, the present study attempts to explore answers for these research questions:

1. What are the drivers underlining the need for technological innovations in fintech?
2. Exploring technological innovations from various areas of fintech?
3. Based on literature review and theoretical background, can a conceptual model be constructed for fintech?

2.1 Theoretical Foundation And Model Development

Customers' expectations are shifting and thus there are newer technological advancements, upcoming advancements in technological infrastructure and technology adoption across the [15] financial and banking industries. To reinvent and become competitive, the financial and banking sector receives massive investments. Customer management is essential since there is fierce rivalry for acquiring and keeping customers. FinTech competitiveness and performance [16] have been the subject of several studies [17]. In this view, banks may streamline procedures, analyse patterns, understand consumer behavior, provide customized services, save costs, minimise errors, and improve customer interactions with banks due to recent advancements in artificial intelligence [19]. Customers that use FinTech services such as e-banking and m-banking save time and money by avoiding branch visits. Banking institutions become more efficient and effective when banking processes are simplified [20]. Perceived ease of use is one of the pre-dominant factors affecting the adoption of fintech. This is due to the attitude and complex nature of digital banking [21]. A study [22] found a substantial correlation between people’s intention to adopt FinTech and their perceptions of value, risk, and social influence.

In addition, FinTech can enhance the traditional business model by lowering bank operating costs, enhancing service effectiveness, strengthening risk control capabilities, and developing enhanced customer-oriented business models for customers; improving overall competitiveness [23] [24] [25]. Financial organizations that strategically utilize the adoption process benefit from fintech technologies. This boosts performance and competitiveness in the current market [26] [27]. According to Author [28], fintech companies are attempting to attract customers by providing goods and services that are easier to use, more effective, transparent, and automated as compared to the existing ones. The adoption of fintech leverages the accessibility of communication, ease and security of financial transactions, the pervasiveness of the internet, and the automated processing of data and transactions in the financial industry [29].

As stated in a study on fintech by authors [30], governments have made the necessary investments in digital transformation and supported fintech companies after realizing the technology's potential to improve financial stability and inclusivity. To better serve their customers, banks and other financial institutions are collaborating with fintech firms. The Reserve Bank of India's (RBI) and other regulatory agencies' proactive regulatory stance has had a significant impact on the development of Indian fintech. According to authors [31], regulatory sandboxes and fintech-friendly rules have produced an ecosystem that encourages innovation.
A. Need for technological disruption and innovation in Fintech

Fintech companies are the companies that use technological innovations as it helps to increase efficiency and efficacy in the finance industry [32]. Fintech business are outperforming traditional financial services mainly in terms of quick income generation, high-quality customer care, and cost savings [33]. Almost all financial activities are now carried out using fintech, including cashless payments, investment management, credit application without visiting a bank branch, and capital raising for new businesses. New product and service development is a key concern for revitalizing mature businesses and developing new markets. Driving forces are new technology, competitive pressures and changing customer needs [34]. Compared to traditional financial services, fintech generates fast revenue, provides quality service, and reduces expenses that reconfigure the financial industry, thus stabilizing the financial system [33].

Under fintech, almost every financial activity is being performed, such as applying for credit by bypassing a bank branch, raising capital to start a business, investment management, and cashless payments. Thus, it can be said that the Fintech businesses are creative financial intermediaries that use technological improvements to enable new business models, changes to operational processes, and the supply of improved goods and services [35]. This has stimulated the development of digital infrastructure and services for everyone in India. This has been possible due to the internet penetration and affordable mobile phones. As far as the Indian fintech industry is concerned, due to the rapid advancements in technology, India is seeing a significant shift and disruption in the operational models of several sectors.

In view of the above discussion, the present research study provides a glimpse of technological innovations that have been taking place in the fintech industry in India. The authors have referred to Fintech segments categorized into four main segments i.e., financing, asset management, payments, and others as mentioned by [28].

1) Technological Innovation in Financing

When a consumer uses mobile to pay for services, or to buy shares online via an app, or takes help of an app service for wealth management, then the person is using fintech power for his work. The percentage of Indian consumers who use technology to manage their finances increased during the pandemic and has been on a rise. India's fintech adoption rate is nearly 87%, surpassing the global average, showcasing that the technology is transforming the financial sector. [36]. The increasing use of digital payment systems, mobile banking, and other fintech innovations, is also because of the basic economic principle as services become affordable and easily accessible which in turn reduce transaction costs.

The Indian Fintech [37] sector has received funding amounting to 14% of the Global Funding as per Deloitte article in 2022 and it ranks India as number 2 in the volume of deals.

In the financing segment where the investing and lending takes place, there are min 2 parties involved, people with funds and people who want or are in need of funds. For example LenDenClub, [38] a Peer to Peer Lending platform is an example of innovation in this segment.

Milaap (milaap.org) is another such example of crowdfunding. There are four main types of crowdfunding - donation, reward, equity, and debt. Equity-based crowdfunding is prohibited in India (due to RBI regulations) [40].

As shown in Fig 3, Open data platforms [47] like PhonePe Pulse is one such innovation in fintech which has revolutionized payments space by building an App to provide cashless and a harmonious payment experience. Then there are the neobanks and other large banks which also want to enter the payment space with their own super apps like SBI's YONO and Kotak 811. There are other payment apps which are trying to enter in collaboration with large banks like Open, Free, Jupiter etc.

2) Innovation in Asset Management

Asset management is the process of managing capital appreciation in terms of assets and investments in the long run and in this segment too fintech has brought in new trends such as Internet of Things (IoT), cryptocurrency, etc due to digitization. IoT or the internet of things helps to connect smart devices so that they can communicate with each other.
For example, a consumer can use a phone via a smart watch or look at his personal statistics like steps, calorie burning using the same watch. This provides access to real-time data of the physical assets and this power is being used by analysts to design innovative financial products and services. Artificial Intelligence (AI) is being used to predict, forecast so as to make faster and better decisions. For example, Hedge fund companies are now injecting AI into their operations and trading strategies. Blockchain is the future of the investment market and for asset management firms as it provides data security for Big data as well as accelerating the speed of data transmission. This helps to improve operational efficiency.

Digital lending services are now providing instant loans, ‘Buy Now Pay Later’ cards/services to encash the credit demand of Indian consumers. In the last 5 years, nearly $9 billion investments have been made in digital lending. Technology like the Account Aggregator framework and AI-backed credit assessment techniques help the banking sector to efficiently supply credit where most needed.

Zerodha is one of the stock brokers in India with over 5 million clients who can invest in different financial products like futures, commodities and currency etc.

Robo-advisory players like Kuvera, is an Indian fund-based robo-advisory services firm that helps users to invest in direct mutual funds, diversified funds, domestic and US stocks, cryptocurrencies, fixed deposits, and gold.

According to the World Bank, global investment in fintech has grown from $8 billion to $111 billion in the last 10 years. Research from CB Insights predicts that investments in fintech companies will reach $200 billion by 2023.

The scenario has changed from pre-covid to post-covid where India was primarily a cash-based economy, and now leads the world in real-time digital payments, accounting for almost 40 percent of all such transactions. In 2015, the Indian government launched its Digital India program, with one of the objectives to achieve a “faceless, paperless, and cashless” status for financial transactions. The adoption of UPI in India increased manifold during the COVID-19 pandemic.

The five most valuable FinTech firms in India in the payments space are led by digital wallet and online payments app PhonePe, with a valuation of $12.9 billion, and followed by Razorpay at $7.9 billion as per CB Insights report. CRED, a credit card bill payment platform, has a valuation of $6.4 billion.

![Figure 3: Indian Fintech – Valuation and Market Capitalization](image)

Source: CB Insights

3) **Technological Innovation in Payments**

India’s digital revolution in the past two decades has significantly contributed to the adoption of digital payments in the country. Between 2015 and 2020, while digital payments grew nearly 10 times in volume, mobile
data use grew 24 times, and m-commerce grew 2.4 times as per a report by [49] IBEF. As new innovations are happening in the payment space and with FDI infusion, there will be an accelerated growth path by 2025.

A few statistics into the digital payment space are: Digital payment transactions have increased from Rs 2 trillion in 2019 to Rs 4 trillion in the 2020 pandemic. From January to August 2021, digital transactions have totalled Rs 6 trillion. Social Trading via Fintech is being done via apps like WhatsApp, chatbots, digital insurance apps, trading apps, and online marketplaces to provide a user-friendly customer experience. The fintechs are using social media platforms, YouTube and Instagram to attract the customers by creating engaging content on platforms. This helps to boost digital sales and rise in fintech adoption. According to the [50] Salesforce Report, 2022, 71% of those surveyed in India said they expected to shop via social media in the coming three years, while 77% said they would use contactless payments.

III. DISCUSSION OF RESULTS

Based on the theoretical background and literature review presented in the preceding sections the authors have proposed the following conceptual framework. The framework has been designed after reading the existing literature available in and around Fintech.

According to the proposed conceptual framework, changing business landscape, technological factors, individual factors and Govt. support are the prominent drivers leading to the technological innovation in fintech. The same is being supported by many research studies and reports. To remain competitive, fintech organisations must continually invest in cutting-edge technology like AI, blockchain, and data analytics [51].

Figure 4: Conceptual Framework

![Conceptual Framework]

Source: Authors

Due to the high standards that consumers have for convenient, safe, and user-friendly financial services, there is competition to provide better customer experiences [52]. These studies emphasise on the changing landscape of business and technological factors contributing to the technological innovation in fintech. Speaking about the individual factors, users choose to adopt fintech services if they think that these can be valuable to their company operations and activities, which is related to perceived utility [53]. Further, an author revealed [54] that users prefer to use fintech services because they perceive them easy to use, easily accessible, safe and secure [54]. Digital payments, which have gained momentum from recent inventions like the United Payments Interface (UPI) platform, are a major driver of FinTech adoption in the nation. Due in large part to government initiatives, rising mobile and internet usage, and other factors, India has seen a significant transition away from cash and towards digitalization.

The above said drivers highlight the need to integrate technological innovations in financial services. Further, these innovations are needed for delivering efficient products/services, better quality, cost reduction and enhancing customer experiences. Fintech companies that are mainly into payment segment are able to acquire customers at lower costs and they are one of the most innovative and quickly adopting in terms of new payment capabilities. FinTech providers are developing new services and products [55]. Fintechs must be aware of the market segment they are serving and work to be the best in that market. Priority must be given to excellent customer service [56]. Thus, new products/services, excellent customer service result in enhancing customer experiences. In this section authors have discussed the drivers that influence the technological innovation need in fintech industry subsequently resulting into innovative fintech business models mainly in Financing segment, Asset management, Payments and Other Fintech and to give users a better experience with the service or product. All this shift is possible due to the
technological innovations maybe in internet speed, data cost etc.

IV. CONCLUSION

The highly dynamic and competitive environment in which financial technology businesses operate is referred to as the competitive business environment in the context of fintech. Fintech businesses need to innovate, develop and expand their market share. The authors of this study have provided a conceptual model highlighting key factors that help fintech businesses to identify the need for technical innovation. The framework is designed to help policymakers and fintech enthusiasts understand the key drivers for fintech innovations in different products and services. The drivers have been framed as per the need and requirement of users, industry analysts and economists and also looking at the future landscape. The innovations in fintech should be focused to reduce the service/product cost, provide better quality service/product.

V. REFERENCES

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