

FINTECH 4.0 & EMERGING CHALLENGES IN THE SEGMENTS OF THE FINTECH ECOSYSTEM

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ABSTRACT

Financial technology is redesigning the future of financial services from its traditional ways. The adoption of artificial intelligence, machine learning, big data, and cloud computing are the key factors defining the next phase of the financial revolution. According to the Ministry of Commerce & Industry, India has the highest fintech adoption rate at 87% in the world. This paper briefly describes previous stages of fintech and connects it to fintech 4.0, and highlights the role of tier 2&3 cities in the fintech revolution. It further, identifies the emerging challenges in various segments such as Wealth tech, Regulation tech, Payment tech, Lending tech, and Insurance tech separately.

Keywords: *Fintech Ecosystem, PayTech, RegTech, Wealth Tech, InsurTech, Artificial Intelligence, Super App.*

Introduction

The last few decades have witnessed significant changes driven by technological advances in the financial industry. As services in the financial industry are intangible in nature, they produce technological innovation to lower transaction costs and immediate delivery of services. With the advancement of the internet in the 1990s internet banking was introduced. In the 2000s blockchain, crowdfunding, cryptocurrency, and mobile payment were introduced. After that India got its first fintech unicorn in 2015 Paytm. Since then, 21 more unicorns have been added to the fintech ecosystem. BlinC Insight reported as the Indian financial service sector touched USD 500 billion, of which the fintech market conclude USD 31 billion in it(BlinC,2020)[4]. So, it shows that fintech is revolutionizing financial services and can be seen as the fastest growing sector in the financial industry.

FinTech is the summation of words viz. 'financial' and 'technology'. "The term "FinTech"(sometimes: fintech, fin-tech, or Fintech) is a neologism that 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)[13]The fintech industry is the industry that uses technologies to improve services that deal with finance. Its area generally occurs outside the traditional methods of financial services that trust new innovative technologies, applications, products, processes, and business models to provide better, easy, and less time is taken financial services. (Pilani,2021)[32]

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Evolution of Fintech



It was the 19th century, which can be considered the genesis of financial services. Whether connecting one side of the Atlantic to another side with transatlantic cable or Transmitting money throughout the globe with morse code is one of the first financial services with technology. This era established the infrastructure for supporting globalized financial services. To be more precise fintech 1.0 paved the way for cashless payment with the introduction of the Diner's card for payment in restaurants in 1950.

The event introducing the first ATM by Barclay's to the world in 1967 starts the second age of fintech 2.0. Two more limestones of this era were the introduction of NASDAQ in 1971 and SWIFT in 1973. The digital banking trends for connecting customers to manage their money in different ways began in 1990. later, Fintech 2.0 was dominated by third-party payment network gateway like PayPal, visa, etc. These financial services not only opt for cashless transactions but it also make easier, and more convenient for the transactions of money while sitting in the home. With the great recession in 2008, fintech 2.0 came to its ending point. (Sam, 2022) [40]

Fintech 3.0 begins during the crisis. This led to all focus on cost-effective technologies for services in this industry. To re-architecting the industry some strict compulsory regulations get imposed on traditional banks. Two milestones were the introduction of Bitcoin in 2009 and the Peer-to-Peer money transfer system in 2011.

Objectives

- To study the evolution fintech 4.0 industry.
- To illuminate the emerging challenges in segments of the financial ecosystem.
- To analyse the concept of the Super App with SWOT Analysis.

Literature Review

• Fintech Industry

The fintech industry has a very wide spectrum and it has the potential to reshape financial services. In 2021, Statista reported that most no. of fintech companies indulged in payment services around 48 percent followed by alternative lending services and insurance platforms. (Statista, 2021) [43] This figure gets increases very quickly, Boston Consultancy group and the Federation of Indian chamber of commerce and industry reported that India's industry valuation is estimated to reach USD 150-160 billion by 2025. [12]

- **Connect to Fintech 4.0**

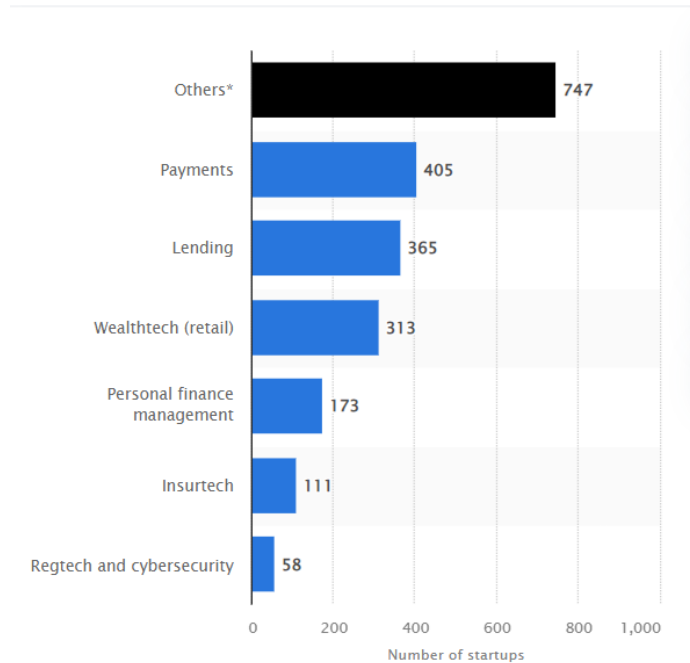


The era of fintech revolution 4.0 is a new era of dominant digital finance era. Nathaniel and Ellitan (2019)[30] describe this era as witnessing a variety of things that can be practical and beyond limits. Removal of the middle man or central regulation like cryptocurrency, computer bot for customer services, increased use of robotics and artificial requirement like meta verse, smart contract through blockchain technology, etc. could be the impact of fintech 4.0 over the financial services. McKinsey Global Institute (2016) predicts due to its eruption, the emerging economy could grow by 6% or more, which represents around USD 3.7 billion by 2025. Big Companies with technologies like Meta, Google, Amazon, Tencent, and Alibaba represent a market with their dominance and diversification over technology that decides the industry's growth, scale, and pattern because of the scale at which they are associated with different sectors of people. The world is moving towards a virtualization model of service, with the fastest financial transaction, increased volume in liquidity, or reduced requirement of human tech talent, fintech 4.0 limits the traditional ways of financial services. According to Wikipedia, "*Virtualisation can be referred to as the art of creating a virtual version of services at the same authenticity level, including virtual computer hardware platforms, storage devices, and computer network resources*". [46]

- **Tier 2 & 3 cities' role in fintech 4.0**

Throughout the ages, financial technology services were centered and concentrated in the bigger cities or tier cities. With the advancement in connectivity, technology tier 1 cities played the important role in this ecosystem. With the end of fintech 3.0, tier 1 cities have achieved their saturation point. Now the digital revolution has taken financial technologies into the class of tier 2 & tier 3 cities. The pandemic blows up financial technology as a necessary adoption. Razorpay, a payment gateway reported that financial services via technology had risen by 174% from 2020 to 2021. (Rozarpay, 2021) [38]

Talking to the nation, in his 2nd address from the Red Fort in 2015, PM Narendra Modi introduced the slogan 'Start Up India, Stand Up India'.



Source: Number of Fintech Startups across India as of 2022, Statista 2022

The culture of fintech grows very rapidly and presents a great elasticity toward the recovery of the economy after the pandemic. Adopting digital technology is the new normal. The semi-urban cities i.e. tier2 & tier 3 cities represent a major portion of India's population and are the strongest force towards digitalization. A report from ICUBE, 94% of urban and 90% of rural users are accessing the internet on daily basis. [18]

- **Challenges in the Different Segments of The fintech ecosystem**

The breadth of the fintech industry services can be segregated into various services like PayTech, RegTech, Digital banking, Wealth Management, etc.



- **Paytech**

Paytech or payment through technology refers to the use of technology, which makes transferring value faster, more secure, and easier. The shift of the pattern towards the cashless economy can be seen by the fact that the volume of paper clearing, shrunk to 3% in FY 2019-2020, from 60% of total retail payment in FY 2009-2010. (RBI, 2021) [34]

The pandemic in 2019, brings revolutionary changes in the pattern of payment throughout the world. Payment innovations such as QR Payment, open banking, contactless cards open banking, and mobile wallets bring a rapid structural change to the cashless economy. As per the National Payment Corporation of India (NPCI) report, aggregate UPI transaction was more than 841 thousand crore in the financial year 2021-2022 [31].

The paytech sector is still in the developing phases, to make it more secure and consumer-centric. The challenges are as follows

- A required conceptual framework and guidelines for a digital wallet for customer satisfaction.(Fainusa,2019)[1]
- Exploring more in the field of mobile payment with biometrics and voice commands(Kata,2020)[23]
- Providing secure consumer data protection and security of digital payment as Paytech directly works with very sensitive data related to banks. ATM, Mobile no, and Aadhar no.(RBI,2020)[35]
- Lack of internet connectivity or low speed of internet especially in a remote area could be a major drawback. Business insider report says that due to poor connectivity network, two out of three Indians are facing payment issues. [8]
- Spread and create digital finance awareness and digital finance literacy from phishing, identity theft, or malicious software.(Jonna,2021)[21]

▪ **LendTech**

Technology over lending or LendTech refers to a virtual platform that provides loans and basic facilities of banks to people in a secured environment. Lendtech emerges as a highly spontaneous loan point of sale platform that helps borrowers by connecting them to banks, credit unions, or private lenders very easily.

The challenges are as follows:

- To provide a Big and Unified data management for consolidating lenders' information and completing a review for a quick decision.(Fang,2016)[11]
- To prevent from practices of predatory lenders. Predatory lending practices impose unfair and abusive loan terms on lenders such as high fees, high-interest rates, etc.(Block,2021)[5]
- Lending services via the internet requires regulations. Changing business rules on continuous basis results in lenders in a vague situation. Managing constant rules for business can be treated as a challenge.
- A better model for fintech peer-to-peer lending system as it cannot be tracked the post-loan information from the borrowers.(Wang,2015)[45]

▪ **Wealth Tech**

Wealth technology comprises the uses of technology in the field of assets or wealth management intending to provide technology-based solutions. In India. Wealth tech is evolving over the last few years, to make people's lives with more profitable. Technology such as artificial Intelligence(AI), Big Data, Software as a service(SaaS), etc, helps traders to understand market patterns quickly in comparison to human expertise. In tier II cities, direct access to the wealth tech solution results Ina uptrend in the investor participation rate with growing disposable income.



Fintech Global report enlightens the fact that Global WealthTech Investment outperform totally of 2020 funding by USD 4.4 billion in the first half of 2021. INDWealth, Zerodha, Groww, Upstox, and Kuvera are an example of some of the dominating assets management companies.

However, the sector still has the potential to improve.

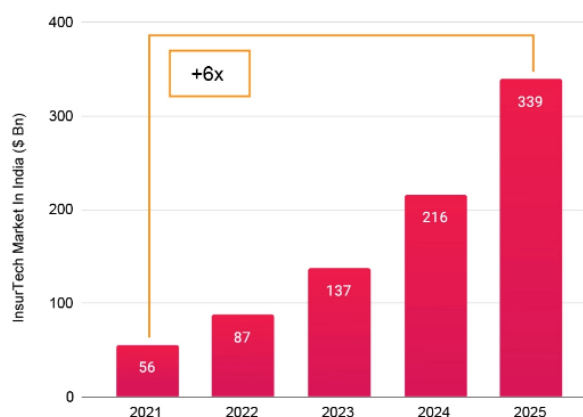
- Delivering modern customer experiences and aligning with their customer expectation is one of the major obstacles in the growing wealthtech industry.
- To provide a good amount of potential advisers. As per government data. The number of SEBI registered investment advisors to investor stands at one in 76510, and these experts are highly associated with ultra-wealthy segments. (Jethwani, 2022) [20]
- To comply with better Environmental, Social, and Governance (ESG) regulations for the risk of losing capital flows due to the low ESG scores. (Roselle, 2016) [37] As per the report by S&P Global on the Dow Jones Sustainability Index, ESG performance of the business on a global level shows an uptrend rate of 33 percent in 2021. [39]
- Expansion of Robo advisory at a level that complicated risk management and profiling questionnaires automatically suggest a good investment idea via self-learning artificial intelligence investment algorithms. As per the report of Statista, assets management by Robo advisor is expected to enjoy annual growth of 31.45% in the period of 2019-2022. (Blenche, 2019) [3]
- To discourage the trade-based money laundering practices in this industry and the enforcement of anti-money laundering regulations. Trade-based money laundering is hard to trace as it keeps quiet amongst legitimate transactions or activities. (Deloitte, 2020) [10]

▪ InsurTech

InsurTech refers to the use of technology in the business of insurance. The base of this business model is to transfer the risk factor to the other party, the insurer. Technology in insurance offered services of digital insurance, insurance comparison platforms, remote claim estimations, etc.

According to Forbes (2021), Companies that dominate the insurance industry are moving toward changing the business of insurance through the introduction of Machine Learning, AI capabilities, and Big Data. This data-driven insurance technology brings a wave to all aspects of the insurance industry, from pricing to claims or distribution to underwriting.

India's Insurtech Sector Offers A \$339 Bn Market Opportunity



Source: Inc42

Inc42

Source: Inc42

In collaborating with trends in fintech 4.0, the InsurTech sector still needs to deal with some challenges. These are

- o The claim process is the backbone of any insurance model. With technology such as AI, Robotic Process Automation (RPA), and Intelligent Process Automation (IPA), recent claiming activities have been replaced by automation. To comply with the curve, companies should opt for features like digital claims status tracking, automated claims settling, and multichannel First Notice of Loss (FNOL). Robotic Process Automation not only helps to concentrate data from Big Data Base but also checks membership validation and ensures legal compliance to make claims regulatory. (Madakam, 2019) [28]



Source: Damco (Jul 2022)

- o Approx USD 6.25 billion costs insurance fraud in India every year [16]. Fraudsters steal these data to furnish their fraudulent purpose by selling it to the dark web for some nominal amount. Technologies with artificial intelligence can detect and prevent such hacks and predict losses before they occur. Anti-fraud technology such as artificial intelligence with the capacity to produce reports, geotargeting, link analysis and data visualization, photo analysis technology, and other advancement paving the way to the stage for more secure technological advancement in this field. (Insurtech, 2022) [17]
- o Big tech companies such as Amazon, Meta, Netflix, and Google are getting higher attention from a large segment of the population because of their highly personalized and seamless services. Customers now expect the same level of personalized experience in insurance products, claims, etc. Ideas such as Small ticket insurance, Do-it-yourself products, and bundle offerings have the potential to diversify the insurance ecosystem. [7]
- o The explosion of data from connected devices or digital paper records with optical character recognition

▪ **RegTech**

Regtech comprises a class of advanced technologies with the characteristics of speed, integration, analytics, and agility, that are utilized to accomplish regulatory requirements within financial services, banking, gambling, digital assets, etc. Functions of regtech mainly regulatory monitoring, reporting, and compliance. These advanced technologies comprise biometrics, know your customer (KYC), cloud computing, regulatory monitoring, risk management, and anti-money laundering (AML). Information leakage, cyberattacks, and fraud could be additional concerns.

Challenges in the Regtech ecosystem to connect with the next generation fintech could be the following:-

- Nowadays cybersecurity is the major concern in the virtual world. High-profile cyber attack shappen almost every single day. Identity theft, personal data breach, and phishing attack are drawing rapid attention to cybercrimes. A report grim SOPHOS stated the fact that 54% of the cyberattacks are too advanced to handle by IT teams on their own.(Sophos,2021)[42](Lezzi,208)[26]
- In the paving to reduce the negative image of financial technologies, a regulatory sandbox whose objective is to test new products, services, or business models requires strengthening standards and overcoming limitations such as post sandbox testing, case-by-case bespoke authorization, etc. (RBI,2019)[36]
- Maintaining the standard of the rising cost of compliances for companies in order to deal with regulations and expand jurisdiction to ensure compliance with anti-bribery, anti-terrorism, and antimony laundering. unnecessary compliance burden results in poor enforcement and administration, unnecessary duplication, and problems with regulations. (Sharma,2022) [41]
- Transaction monitoring is one of the major challenges in Regtech. The role of transaction monitoring is to identify financial crimes even if they occur. These programs generate an alarm i.e. SAR for suspicious transactions. Through machine learning not only the rate of false positives can be managed with more accuracy but also monitoring money transactions to fight money laundering.(Alkhalili,2021) [29]

- **SuperApps**

The innovation of mobile applications was a revolutionary view. Throughout the years, it gains our undeniable and unending point of attention. Presently, different types of applications provide various ranges of services in the area of communication, banking, health, shopping, media, education, etc. A super app is an idea of providing multi-functionality services under an umbrella. A Super app is a digital brainchild that offers a wide range of highly personalized services including payment and financial transaction processing, and communication. Self-controlled commerce, etc. 'A *Super app* is a closed ecosystem of many apps that people would use every day because they offer seamless, integrated, contextualized, and efficient experiences. – Mike Lazaridis, founder of Blackberry.'



Source: Inc42

While connecting to the financial ecosystem, companies with enormous user data, try to accelerate their services towards the improvement of consumer experience in every dimension, whether it is investing opportunity, shopping, or credit decisions.

▪ **Strength**

The strength of a super app relies on its structure, shaped around customers' daily social needs, using one platform. Super app volunteer a range of services and experience to the customer on a single one-go platform that the user feels confident using it. The following are some strengths:

- Convenient and easy to run the application with one unique single sign-in.
- Super appendances the experience by giving access to users for self-services like real-time KYC, Biometrics, and Facial recognition.
- Due to its wide range of services, it can give points as a reward and relevant offers to the customer
- It also covers users from every culture, social class, religious values, custom, and tradition.

▪ **Weakness**

- Before using super mobile applications, a user needs to feed a large volume of personal data.
- A super mobile application is a combination of different network connects, data read and writes, and launches that are associated with various standards, methods, and protocols. These applications generally adopt a single kind of security model.(Appdome,2022)[2]

▪ **Opportunity**

- The purpose of the interface of the super application is to access services in different sectors such as grocery, mobile, electronics, medicines, fashion, hotels, lab tests, beauty, flight, entertainment, and fitness in one home screen. The size of the icons, color, and overall design make it very hard to handle properly. Tata Neu, the first Indian super app user interface produces 26 possible different interaction links to get different services.



Source: Tata Neu App

- Super app had not touched the area of some home services such as the arrangement of maid, cook, child caretaker, car wash appointment, etc. Including these services not only diversify the area but also add new users to the super application.
- **Threat**
- To experience the services of these applications the user allows the application to access the user's phone, message, contact, and file directory. This makes the user become a target for third-party bodies. With its huge capabilities, the super app becomes the new gateway for cybercriminals to breach the data.
- Malware attack is always a major threat in the digital world. Trogen, ZeusGameover, and IoT Device Attack are a few examples of malware. Cyberhackers use this malware for invalid traffic (IVT) and Account Takeovers (ATOs).

Methodology

This research paper follows a qualitative research methodology for a systematic review of the literature. Secondary data were gathered from top-cited research papers on google scholar, Sodhganga, RBI bulletin, National Payment Corporation of India database, and Federation of Indian chamber of commerce and industry(FICCI). These articles were selected according to title and abstract. Further, these articles and papers were divided into fintech revolutions, digital payment, Robo advisory, lending technology, big data, and super apps. The websites of leading market research organizations got followed for some recent key data and challenges in different segments of the fintech ecosystem.

Conclusion

Fintech is becoming the backbone of every economy in every country. It is the key that can revolutionize the economy of the world by making it more inclusive, decentralized, and egalitarian.(Guild,2017)[14].The reviews show that the framework of fintech affects the traditional way of financial services. Users with first-hand experience with the tech, show more interesting adopting digital financial services. Technological innovation in the production of financial services brings meaningful changes and higher expectations toward procurement and delivering the services. Already set frameworks in the different segments such as insurance and regulatory, of the fintech may not sufficiently handle the new players and produce difficulty in surveillance on a regular basis.

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