



FINTECH & CYBERSECURITY: THE REVOLUTIONIZED FINANCE SECTOR IN INDIA

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Abstract: *Fintech currently ranks among the most thriving sectors in terms of both business growth and job creation. Having emerged as the second-largest fin-tech hub in the world (trailing only the United States), India is also experiencing this 'Fintech Boom.' Fintech's wider goal is to meet the unmet financial needs of certain demographic groups that are not the focus markets in mainstream financial services models. It is generally believed that India would be data-rich even before it is financially rich, however, the incidents like Facebook data leak, an alleged Aadhar data breach has brought back the focus on data protection and the urgent need for steps to be taken by all the stakeholders for sustainable growth of Fintech sector. Hence, this paper attempts to explore how India has evolved into a renowned Fintech hub, how this Fintech is perceived to contribute to the broadening of financial inclusion, and what are the barriers to further growth for Fintech firms.*

Key Words: *Fintech, Factor, Review, cyber, Technology, Bank, Digitalization.*

1. INTRODUCTION:

Fintech is the latest buzzword in the area of finance sector; the latest evolution of Fintech, led by start-ups, poses challenges for regulators and market participants alike, notably in balancing the potential benefits of innovation with the possible risks of new approaches in the finance sector. Fintech has changed traditional financial institutions. FinTech is a term used to describe the growing technological innovations in the financial sector. Fintech is increasingly shaping the financial sector. The Indian fintech industry has seen numerous start up entrants in the past few years. With each start up, the industry has now grown a lot and is making a name globally. As per CB Insights 'latest reports, these are the 20 Indian fintech start-ups that have been listed among the 250 global promising start up companies (Wilson, R., 2020) and UPI, BHIM, Payment wallet, digital bank, and many other services are available and we are using them every day on a big scale. Which reflects how finances and technology are playing a crucial role in our life? (Ravi, 2020)

The phrase "fintech" has been around for some time but given how quickly technology is developing and how many new companies there are in the market, it's worthwhile to take a closer look. The financial technology sector includes businesses that offer financial services with technology as well as organisations that supply technology services to financial institutions directly. Technology is used by fintech businesses to support financial transactions between businesses and customers. Start-up businesses are developing new goods and services to break into untapped markets in the financial sector and alter the market dynamics. Traditional financial institutions are being driven by these new pressures to invest in technology and to keep an eye on the shifting preferences of their clientele. FinTech is the most recent development in financial technology. It covers a wide range of banking and financial sector topics. FinTech, which is short for financial technology, is a sizable and expanding segment of the new financial services market of the twenty-first century. A business might be a FinTech startup if it is introducing a financial technology solution to the market.

2. PURPOSE OF STUDY:

Financial technology, often referred to as FinTech, is the technology and innovation that seeks to compete with traditional financial methods, financial services, whereas, it is considered an emerging industry that uses technology to improve financial activities. Many current financial institutions apply financial technology solutions and technologies to improve and develop their services, and to improve their competitive position. In recent years, a new generation of



financial technology start-ups supporting financial institutions and providers of digital solutions has emerged, resulting in a reversal of financial market conditions around the world by leveraging technology innovations in finance. Due to this rapid development, it is necessary to adopt methods that guarantee the utilization of the financial technology revolution for the benefit of society and the economy, considering consumer protection and the financial system.

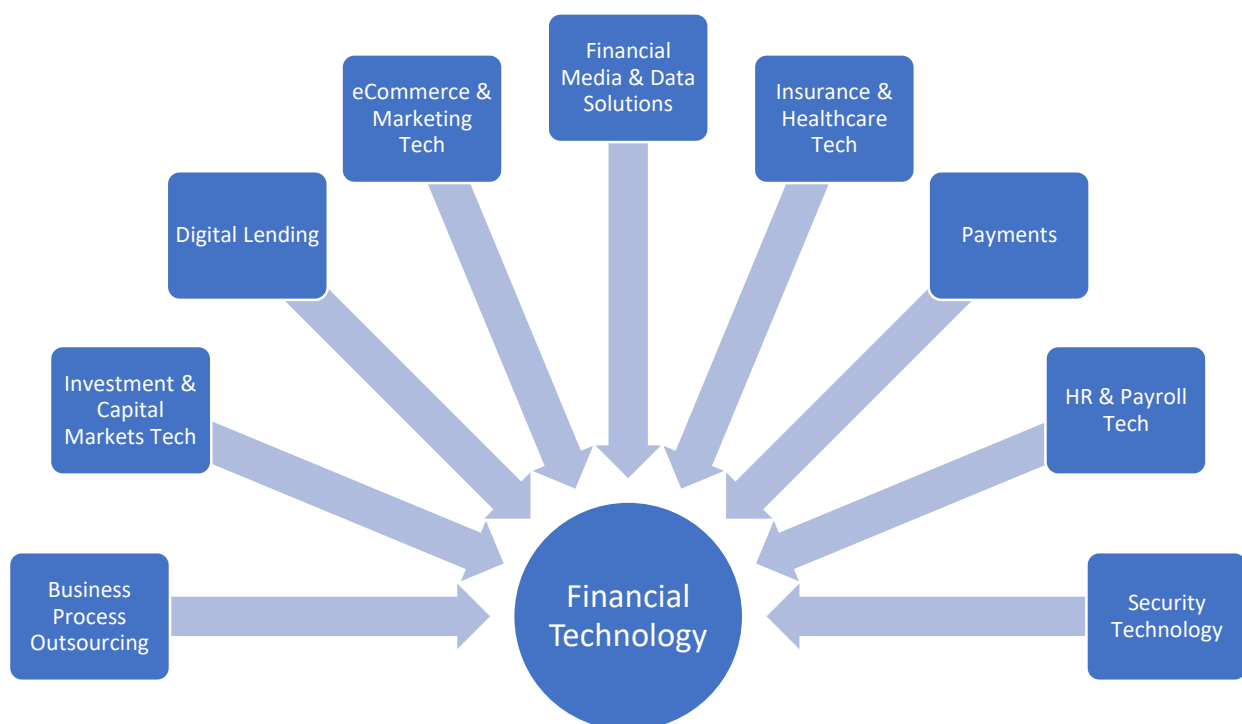
3. FINTECH IN INDIA:

According to the report of (KPMG 2019), India is transitioning into a dynamic ecosystem offering fintech start-ups a platform to potentially grow into billion dollar unicorns. From tapping new segments to exploring foreign markets, fintech start-ups in India are pursuing multiple aspirations. The Indian fintech software market is forecasted to touch USD 2.4 billion by 2020 from a current USD 1.2 billion, as per NASSCOM. The traditionally cash-driven Indian economy has responded well to the fintech opportunity, primarily triggered by a surge in e-commerce, and Smartphone penetration. The transaction value for the Indian fintech sector is estimated to be approximately USD 33 billion in 2016 and is forecasted to reach USD 73 billion in 2020 growing at a five-year CAGR of 22 percent. The investor attention has been concentrated towards hitech cities in 2015, with Bengaluru witnessing eleven VC-backed investment deals of USD 57 million, followed by Mumbai and Gurgaon with nine and six deals, respectively. Bengaluru, the start-up capital of India has benefitted from the same and is ranked 15 among the world's major start-up cities.

India's growth wave may still not be of the scale when viewed against its global counterparts, but it is stacked well, largely due to a strong talent pipeline of easy-to-hire and inexpensive tech workforce. From wallets to lending to insurance, the services of fintech have redefined the way in which businesses and consumers carry out routine transactions. The increasing adoption of these trends is positioning India as an attractive market worldwide.

4. TYPES OF FINTECH:

From personal to corporate finance management, there are many different categories of financial technology available. Through the use of specialized, high-quality tools and FinTech software solutions, private enterprises can compete with traditional financial services, such as those provided by big U.S. banks.



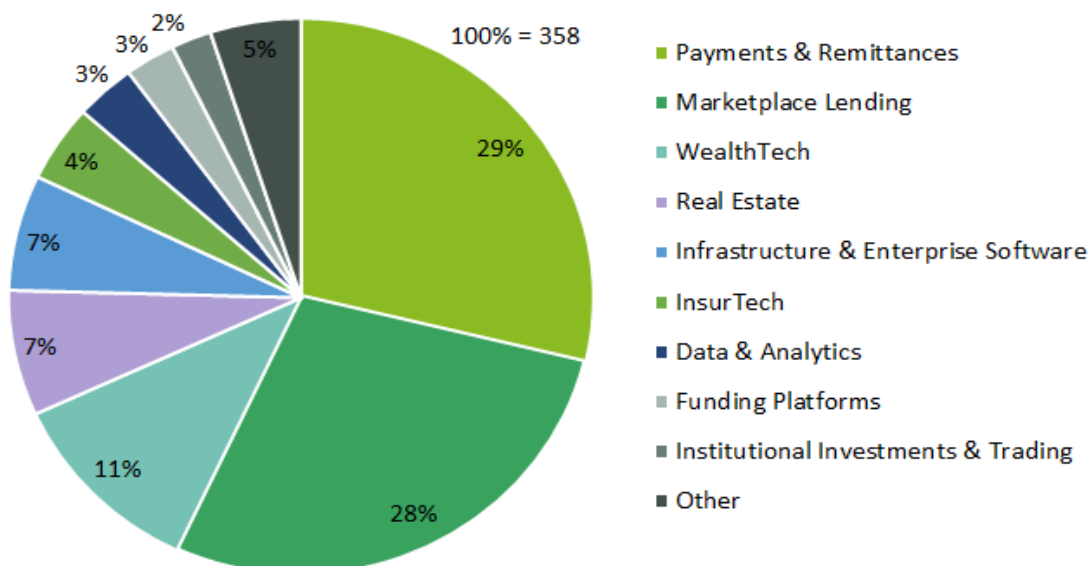
FinTech adoption among digitally active consumers



Source: EY FinTech Adoption Index 2021 Country Dashboard

Fintech investments in India by sector

FinTech Investments in India by Sector, 2014 - 2017 YTD
 (number of deals, as of 30/10/17)



Source: FinTech Global



The evolution of fintech industry

1860	The Pantelegraph was Invented
1880	Using Charge Plates and Charge Coins For Credit
1918 -1970	The Invention of Fedwire
1919	An Important Book Was Published Linking Finance and Technology
1950	Diner _S Club Introduced a Credit Card
1958	American Express Introduced Their Credit Card
1960	Quotron Allowed Stock Market Quotes to be Shown on a Screen
1966	Telegraph Replaced by the Telex Network
1967	First ATM Installed By Barclays Bank
1971	NASDAQ Established
1982 -1983	Evolution of E – Trade and Online Banking
2009	Release of Bitcoin
2011	Google Pay Send Developed (Google Wallet)
2017	—Smile To Pay“ Services Introduced by Alibaba

Source: www.getsmarter.com



5. RECENT DEVELOPMENTS OF FINTECH INDUSTRY :

- **Open banking:** Open API, or open banking, works on the principle of providing bank client data to third parties with the consent of the owner. This format of information exchange is beneficial for the bank user.
- **The internet of things:** FinTech companies are increasingly using connected devices to gather business-friendly customer insights and make more informed decisions. Connected wearables perform many useful tasks in FinTech such as through mobile banking applications, financial institutions monitor customer behavior to decide what relevant services to offer systems replace traditional Point Of Sales (POS) systems.
- **RegTech:** RegTech is a platform that helps organizations to comply with complex industry regulations. Regulatory technology finds issues that do not comply with the rules and makes them compatible with the system.
- **Biometric authentication:** Biometric authentication is considered to be more secure than regular passwords and PINS. Users dislike multiple passwords and consider biometric authentication to be the best form of identity verification. Confidential information will remain safe even when your smartphone or laptop is stolen.
- **Potential of Artificial Intelligence (AI):** With AI being introduced in all market segments, this technology with a combination of machine learning has brought tremendous changes in cybersecurity. Although, it is being used to develop smart malware and attacks to bypass the latest security protocols in controlling data, AI enabled threat detection systems can predict cyber-attacks and notify admins for any data breach or threat instantly.

Pros & Cons of Fintech and Cyber security

✓ **Cybersecurity:**

Pros		Cons	
Cyber security safeguard business	The most significant benefit is that the best in IT security cyber security solutions can give your company comprehensive digital protection. This allows flexibility of accessing the internet by the staff and ensuring the safety and protection from possible threats and risks.	The High -Cost of Cyber Security	Businesses may find cybersecurity to be too expensive. This disadvantage may be experienced by businesses that do not have sufficient funds to protect their data and systems. It is not unusual for a company to have to invest more in cybersecurity than they receive in return.
Protects and Enhances Productivity	Viruses infecting your systems and network will result in functioning resulting in the almost impossibility of further working. In effect, this will cause downtime in work for your staff and wastage additionally bringing the entire company to a halt.	The complicated nature of Cyber security	Businesses or organizations may find cybersecurity to be too difficult. Cybersecurity measures take a long time and effort to implement. For some businesses, it can even be too difficult to comprehend. This might lead to a slew of issues in the workplace.
Protects Personal Information	In this age of a digitally-driven world, one of the most valuable commodities is personal information. If a virus is able to collect personal information about your employees or customers, it is quite likely that it will be sold or used to steal their money.	The need for constant monitoring	Cybersecurity necessitates ongoing surveillance. A company's entire system's cybersecurity must be closely monitored. Especially since hackers and cybercriminals are constantly devising new ways to gain access to a company's network.



✓ ***FinTech:***

Pros		Cons	
Time optimization	Thanks to the fact that all processes are carried out through the Internet, it is not necessary, in most cases, to go to a physical branch.	Lack of physical branches	This can be a disadvantage when there is a problem in the provision of the service, since everything must be dealt with via email or social networks.
Variety of services	Fintech have managed to segment services, so that a whole range of services is offered, according to the needs of both financial services users and providers.	Lack of regulation	It is a reality that it is such a notorious phenomenon that authorities around the world continue, in many cases, to study and legislate this phenomenon. Therefore, the regulations around fintech in the world are not perfect, and there is the possibility that some of these may be some potential fraud in the absence of regulation.
Greater accessibility	This also translates into an increase in the banked population since anyone with internet access can open an account and apply for a loan without any problem.	Security	Third parties can easily steal data that is available online. They could be used for lucrative purposes or even for identity theft.

6. FUTURE OF FINTECH:

It is a little challenging to peer into a crystal ball and forecast the future as the world is now recovering from a serious pandemic. Venture Capital fintech funding decreased by \$6.1 billion as of May 2020, reaching its lowest level since the first quarter of 2019. Blockchain and open banking, the underlying technologies that propelled the Fintech 3.5/3.5 era, will continue to propel innovation in the years to come. The way we engage with banks and insurance firms is about to change as a result of machine learning, which is intended to improve client relationships by creating "segments of one." Financial institutions can target people in this way to offer them tailored support and offers that are tailored to their behaviour and will improve their experience.

German electronic bank while their rival Revolt is working on a machine learning solution to assist users budget based on their last 3-6 months of expenditure, N26 is already providing customised offers like discounts with flexible workspace WeWork and online vacation booking site GetYourGuide. This development is not merely applicable to the financial industry. Insurance companies to expedite the processing of insurance claims will use machine learning. Insurer Ping An has developed a system that automatically resolves claims using an algorithm that determines the type of automobile involved and the extent of the damage before sending over an offer to pay the claim right away. This is already happening in China.

7. CYBERCRIME PLATFORMS OF FINANCIAL FRAUD:

Internet is an enormous infrastructure that provides connections to various networks, to facilitate digital payments, banking transactions, online trading platforms and money transfer services. Web, on the other hand is a service that utilises internet to provide information to users. Due to the large content of information, transactions and storage databases that are integrated and communicated in the web through Internet, cyber criminals utilise this opportunity to commit financial fraud. Web can be segregated into two parts of surface web and deep web, in which both platforms are vulnerable to cyberattacks. Surface web is accessible by the public using normal search engines, such as Google Chrome and Safari. However, this only holds a tiny portion of the internet, about 0.03%. Conversely, deep web is an invisible web that contains private information of companies and databases. It is restricted from public access through secure networks and cannot be accessed through the normal search engines. Delving further into deep web, there lies dark web, which is anonymous and intentionally concealed through sophisticated encryption and decentralised nodes to hide IP addresses of the users. The deep web and dark web constitute 96% of the Internet. Although financial



fraud occurs in both platforms of surface web and dark web, the additional features of being less regulated and anonymity makes cybercrime activities to be conducted in a greater extend through dark web. A study conducted on the differences in malicious activities of surface web and dark web revealed that leaked honey webmail accounts through paste sites were accessed in a greater scale in Dark Web as compared to Surface Web. The duration of exposure of this leaked information is also longer in Dark Web, as the site is not monitored and regulated as stringent as Surface Web.

8. CONCLUSION:

Fintech is the most critical factor in the finance industry. The fintech research field is emerging as an exciting topic in academics. The concepts of fintech are also fragment; thus, it needs to be clarified. In this study, we aim to review the existing studies to clarify the factors of fintech. Fintech is an emerging field in academics. The number of publications has been increasing dramatically. The debate regards the fintech research fields is going on. For example, the debate about fintech definition, fintech business models, and history of fintech, etc. have attracted many scholars. In this study, we aim to contribute to understanding the factors of fintech, which is meaningful for the next studies. The review study is conducted to indicating the factors of fintech. With the evolution in technology, abundance of tasks are conducted virtually, from mobile banking, crowdfunding, insurtech to robo-advising, affecting the individuals, organisations and governments at all levels. However, there are also setbacks that comes along with this advancement if technology is used by fraudsters with malicious intent. This paper has reviewed the aspect of cybersecurity in protecting and providing a safer virtual environment for transactions and negotiations to occur in a more secure manner. For understanding the usage of technology, which includes cybersecurity innovations, regulatory sandboxes were adopted to benefit both Fintech companies and regulators in facilitating the innovations, to determine if the solutions provide positive impacts to the organisations and to the market.

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