

A Study of the Ideas Behind Artificial Intelligence in Financial Technology

Dr. K. Baranidharan¹, Dr. T. Suganya², Dr. N. Selvakumar³, P. Kothai Velan⁴, R. Pavitha⁵, A. Devika⁶

Professor in MBA, Sri Sai Ram Institute of Technology, Chennai, India¹

Assistant Professor in Commerce, Idhaya College for Women, Kumbakonam, India²

Assistant Professor in Commerce, Annai Vailankanni Arts College, Thanjavur, India³

Department of MBA, Final Year, Sri Sai Ram Institute of Technology, Chennai, India^{4,5}

Department of AI&DS, Final Year, Sri Sai Ram Institute of Technology, Chennai, India⁶

Abstract: *Artificial intelligence has the potential to totally revolutionize the financial industry by providing answers that are both knowledgeable and intelligent to problems that people are unable to solve on their own. FinTech systems that are powered by artificial intelligence make use of machine learning algorithms and natural language processing in order to analyze vast volumes of data and produce forecasts or judgments. Artificial intelligence is being used in the financial technology industry to improve the efficiency, personalization, and security of services provided by financial institutions. This is causing a change in the way that these institutions manage their businesses. Significant technical developments that are revolutionizing financial services have been brought about as a result of the incorporation of artificial intelligence and machine learning in the financial sector. Currently, artificial intelligence is being utilized by financial institutions in order to enhance the client experience, automate financial services, and make decisions based on actual facts.*

Keywords: Business, Technology, Financial Services, Artificial Intelligent, Machine Learning

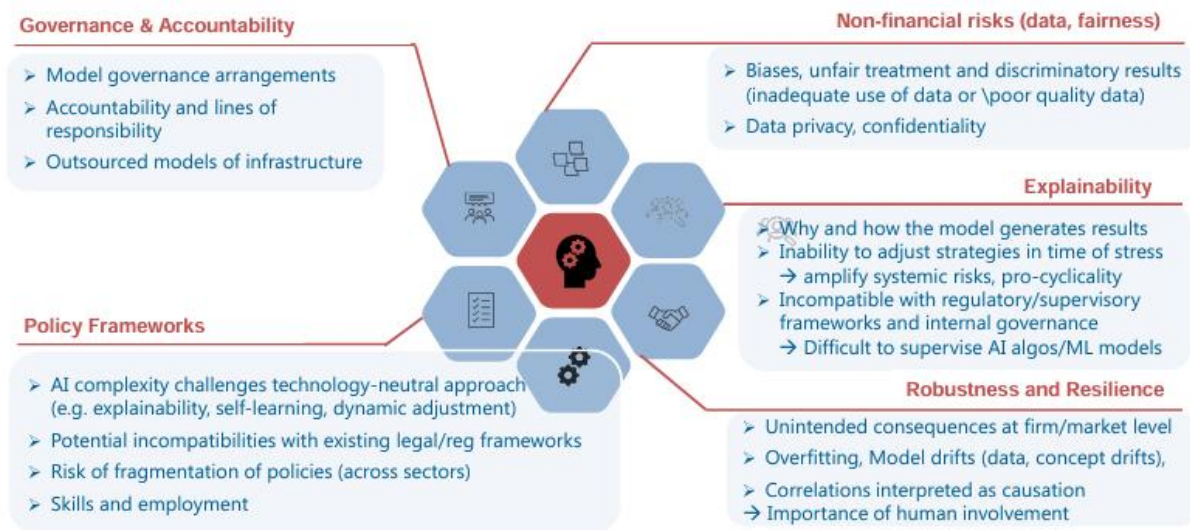
I. INTRODUCTION

Fintech is defined as "a new financial industry that uses technology to improve financial activities." The term is now used to describe any new approaches that improve and automate financial services. Innovative technologies such as artificial intelligence and block chain are driving the rapid development of fintech, which has piqued the interest of innovators, researchers, and regulators. Startup companies promote more user-friendly products, academics study the nature and impact of new technology, and policymakers estimate the projected use of fintech. Although the fintech industry is currently enormous, it is continually growing. This article examines the impact of artificial intelligence, an emerging technology, on the growth and development of fintech.

The financial sector covers many different types of transactions in such areas as real estate, consumer finance, banking, and insurance. It also covers a broad spectrum of investment funding, including securities. The financial services industry encompasses all roles that deal with managing and exchanging money. Sometimes called the financial sector or financial services sector, this industry includes segments such as banking, investing, insurance, and financial analysis. Financial services include accountancy, investment banking, investment management, and personal asset management. Finance functions primarily involve activities like raising funds and investing them in a company's various assets. Another scope of financial function is to balance the inflow and outflow of cash. Finance function primarily includes 3 decisions – investment decision, financing decisions, and dividend decisions. We know that all of the trends mentioned above have been successfully used by financial services companies to automate and streamline back-office functions like transaction processing and fraud detection. Now companies are comfortable with these technologies; they will increasingly feel confident deploying them to solve problems relating to their most important asset – their customers. The challenge they face is significant: In a competitive environment of rising cost pressures, where rapid action and response is imperative, financial institutions must modernize their technology function to support expanded digitization of both the front and back ends of their businesses.

Progressive financial services firms are on the search for innovative technology that will enhance efficiency and service speed while also providing a better customer experience. The exponential rise of information technology has encouraged businesses to use banking technology digitalization to alter the financial services industry through customer experience management. Because of competition from consumer brands such as Amazon, Facebook, and Google, the financial services industry is seeking to improve online customer service. Importantly, most financial services executives believe that improving the client experience is the primary driver of banking digitization. With the introduction of smart analytics, financial services organizations may mine the abundance of consumer data to better understand and serve clients. Technology has also aided organizations in developing new financial services. Organizations face a critical problem in developing better payment systems. There is also a chance that robo-advice may become a prominent application in the future. Likewise, blockchain-based services will become more widespread in the future years.

Figure 1. Relevant issues and risks stemming from the deployment of AI in FinTech



II. THE EVOLUTION OF FINTECH

FinTech services have evolved at an exponential rate, revolutionising products and money transportation. FinTech now allows for online retail banking, investing, trading, peer-to-peer lending, financial advice services, portfolio management, and a variety of budgeting tools. Financial services that would previously have required extensive, time-consuming processing periods and mounds of documentation are now either immediate or very near to it thanks to AI. This expansion has been disruptive to traditional money holders: banks. According to Henri Arslanian, 30% of banking positions will be lost.

"What you see now is a lot of retail banks closing branches because people don't need to go to the bank anymore to open an account, transfer money, or apply for a loan," says Robert Nelson, a B2B bank operations manager in Chicago. They can scan documents and electronically sign documents." "There are still a tonne of complex transactions that require a tailored approach and a high level of skill to execute," he continues, "and that's not going away anytime soon because of technology or AI." What we're seeing in the space is that jobs that were lost due to technology developments are now being created on the tech side of things, so there's plenty of opportunity."

Digitization of financial services is an ongoing revolution. Enterprises have the choice of making innovation the focus of a stand-alone organization or they may integrate it throughout their organization. This demands "great engineering." Firms will do well to have a full stack of engineers who can introduce dynamism to deal with innovation while adopting a start-up approach. Financial services organizations can tap the potential of the cloud to make processes more transparent and collaboration easier. Evolving technologically is at the heart of efforts to serve customers better through customer experience management. Adopting new banking technology is, therefore, critical for financial services organizations to thrive.

Artificial Intelligence

Artificial intelligence (AI) is the intelligence of computers or software, as opposed to human or animal intelligence. It is a branch of computer science that researches and creates intelligent machines. The term "AI" can also apply to machines. AI technology is widely employed in business, government, and science. Advanced web search engines (e.g., Google Search), recommendation systems (used by YouTube, Amazon, and Netflix), understanding human speech (e.g., Siri and Alexa), self-driving cars (e.g., Waymo), generative or creative tools (ChatGPT and AI art), and competing at the highest level in strategy games (such as chess and Go) are some high-profile applications. Artificial intelligence was established as a scientific study in 1956. The field went through several cycles of excitement followed by disappointment and lack of funding, but after 2012, when deep learning outperformed all previous AI techniques, money and interest skyrocketed. The numerous subfields of AI study are centred on specific aims and the usage of certain methods. Traditional AI research goals include reasoning, knowledge representation, planning, learning, natural language processing, perception, and robotics assistance.[a] One of the field's long-term goals is general intelligence (the capacity to solve any problem). AI researchers have adapted and incorporated a wide range of problem-solving techniques, such as search and mathematical optimisation, formal logic, artificial neural networks, and methodologies based on statistics, operations research, and economics, to solve these difficulties.[b] AI also makes use of psychology, linguistics, philosophy, neuroscience, and a variety of other disciplines.

AI in FinTech Sectors

Fintech is an example of how innovation can transform financial services. As artificial intelligence platforms gain popularity on a massive scale, it is important to look for applications of AI in the domain of fintech. The support of AI in fintech can help in creating faster and more resilient workflows alongside reducing operational costs. AI can help in completing certain tasks at a faster rate while ensuring minimal errors, which fits perfectly with the requirements in fintech.

Figure 2. Impact of AI pm business models and activity in the FinTech



Improved Financial Decision Making

FinTech apps are creating new and exciting methods for consumers to digest information. Data science and visualisation tools make it simple to analyse data using apps, translating it into digestible insights. As a result, consumers can use complex information to make better financial decisions.

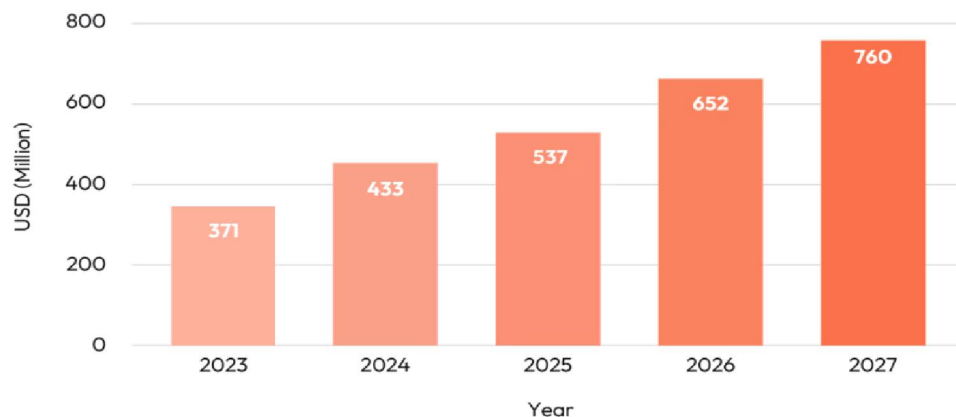
Detection of Security and Fraud

Financial cybercrime will increase as digital transformation processes take over the planet. The silver lining is that, thanks to AI and ML, businesses and consumers can now secure themselves and their accounts

Asset Administration

For a long time, investment funds have used complicated algorithms to create reliable projections and simulations. As a result, the asset and wealth management industry has been able to reform many of its procedures and offer new services such as wealth management tools. FinTech firms have taken note and are incorporating these solutions into apps so that users can benefit from them. App users may now manage their bank statements and conduct crucial transactions from any device. Most importantly, AI and ML technologies enable consumers to do so while minimising the number of intermediaries. As a result, wealth management has been able to eliminate redundant processes, assisting in the reduction of operational costs. economics.[b] AI also draws on psychology, linguistics, philosophy, neurology, and a variety of other disciplines.

Figure 3. AI and Asset Management Market



Customer Service

One of the most well-known AI applications is bots. Although they have been present for some time, they have just recently gained interest because to ML algorithms. We are currently witnessing the advent of powerful chatbots that can engage with customers and provide an immediate response to a variety of client requests. Bots are being used extensively by FinTech companies to resolve client complaints. Some of the most common ML solutions are robo advisers and automated customer support. The results have been significant, since chatbots enable businesses to save expenses while increasing customer happiness.

Insurance

One of the most creative applications of AI and ML is in reshaping how insurance plans are appraised. Because this industry is primarily reliant on financial technologies, FinTech apps are being utilised to assess risk. Companies can determine a person's level of risk based on their conduct.

Loans

This is most likely the most common method that FinTech companies gain from HiTech. The ability to use someone's financial habits and credit exposure to compute credit scoring has resulted in a flood of money lending applications, making the underwriting process more efficient without the need for human participation. Loans may be processed more quickly and efficiently using AI and machine learning. Furthermore, because of an improved client risk profile approach, they are more accurate than traditional underwriting processes. Some experts even believe that this may benefit customers by minimising biases that can arise during human decision-making.

Forecasts

Apps have the ability to assist users in doing robust calculations on critical subjects such as their spending patterns at a low cost and in a personalized manner. Using consumer insights gathered through critical data points, applications can

assist throughout the full data analysis process to provide effective predictive analytics. This helps customers keep track of their expenditure and determine whether they will accomplish their financial objectives.

Banking is now open.

Simply put, open banking is a framework that allows third parties to obtain financial information required to create new apps and services. It provides account holders with greater financial transparency choices on the customer side. Barclays, one of the first UK banks to offer account aggregation within its mobile banking app, is an example of a bank that successfully drove open banking. In other words, it allowed users to view their accounts with other banks using the Barclays mobile app, which was previously unheard of.

Voice-activated payments

Consider the following statistic when estimating the effectiveness of voice payments: According to research, 80% of shoppers are pleased with their voice buying experience.

Consider the use case of Westpac Banking Corporation in Australia, which provides voice-enabled services to consumers who use Amazon's Alexa services to perform simple banking operations such as checking accounts, making payments, and so on. Voice payments are transforming the Fintech industry by making it more conversational, user-friendly, and personalized.

Blockchain Innovation

So far, the major goal of blockchain technology has been to enable secure and safe transactions. This technology is based on the decentralized financial philosophy and aims to reduce centralized procedures. It reduces the risk of fraud by ensuring that user data is securely preserved. According to Insider Intelligence, 48% of banking executives attribute the beneficial impact on the banking experience to blockchain and artificial intelligence. According to the study, banks are looking at blockchain technology in the hopes of streamlining processes and decreasing costs.

Biometric protection

According to experts, biometric security is quickly becoming a vital component of the FinTech equation. When implemented effectively, it not only streamlines but also makes the consumer experience efficient, effortless, and speedy. According to rumours, Japan's Seven Bank will replace its old ATMs with ATMs that include biometric authentication technologies and QR code reading capabilities. Using biometric technology, which includes facial recognition, QR-code scanning, and Bluetooth functionality, will pave the way for a more seamless banking experience and increase consumer happiness.

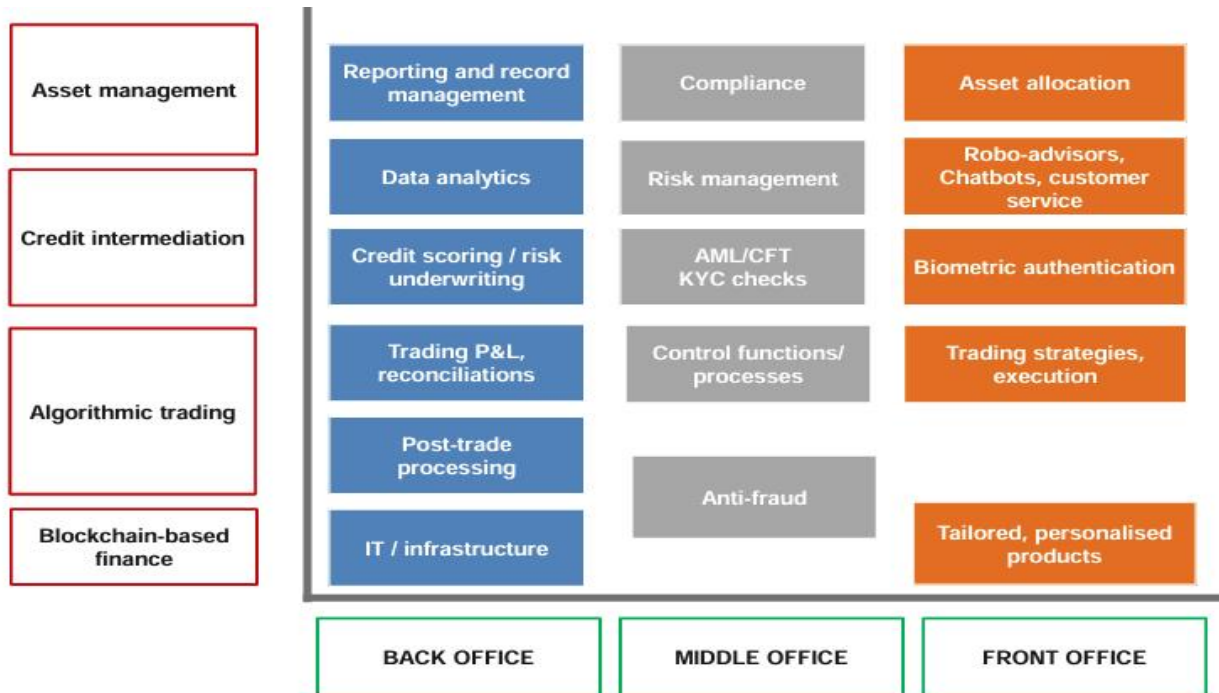
Trading

This is the most significant application of machine learning in fintech. ML algorithms are used by hedge funds and investment banks to perform extensive data analysis in order to facilitate trading.

Personalization

This brings us to the final thing on our list. Although this may appear simple, it is a significant method in which FinTech companies use AI, ML, and Natural Language Processing. The integration of these technologies, together with smart apps, has enabled businesses and customers to personalize their money. Smart wallets, which allow users to manage their funds in new and customized ways, are one of the most successful devices in this category. What was once a rigorous industry is now breaking down obsolete assumptions to provide a personalized User Experience.

Figure 4. Examples of AI applications in some FinTech market activities



The Influence of Artificial Intelligence in the Financial Industry

Artificial intelligence offers enormous advantages to a wide variety of companies. Each aspect has both a positive and a negative impact on the situation: In a similar vein, artificial intelligence also has some of the following:

Arguments

1. Handles big amounts of information efficiently.
2. Assists in forecasting and provides strong business relationships and advisory work.
3. Metrics are free from bias.
4. More informative charts and graphs help in making safe decisions.
5. Complete financial-related tasks such as insurance, trading, bookkeeping, etc. as quickly as possible. Users of financial services can access their transaction data both online and offline, which helps them save time, money, and effort.
6. A system that uses artificial intelligence to detect fraud is based on smart cards.

Against

1. High production and maintenance costs are associated with complex nature.
2. Every company couldn't afford the premium AI application since high-end financial technology is too expensive.
3. Many experts have voiced concerns about the potential dangers of AI, citing the fast-paced advances in technology.
4. In the approaching time, there might be issues due to a lack of regulatory oversight.
5. Massive joblessness as computers and technology supplant humans in the workforce. Also, make people more reliant on machines by obstructing their minds.
6. Working creatively

Artificial Intelligence is Everywhere

We now live in the age of "big data," in which we have the ability to collect massive amounts of information that would be too difficult for a single person to comprehend. Artificial intelligence has already proven to be beneficial in various fields, including technology, banking, marketing, and entertainment. We've seen that, even if algorithms don't improve significantly, large data and massive computation just enable artificial intelligence to learn by brute force. Although

there is evidence that Moore's law is slowing slightly, the increase in data has not slowed. Breakthroughs in computer science, mathematics, or neurology are all potential ways to break past Moore's Law's ceiling.

III. CONCLUSION

AI in FinTech helps financial institutions better handle and analyze their data, which makes them more efficient and accurate and helps them give better financial services to customers. There are some problems that come up when AI is used in FinTech, but there are also a lot of great possibilities and benefits that could come from it. AI will be a big deal in managing money in the future as the finance business changes with it.

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