THE STUDY OF MONEY AND AI: A NEW ERA MANY DIFFERENT KINDS OF FINANCIAL SERVICES MAY BENEFIT FROM THE USE OF AI

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Abstract: The field of artificial intelligence is seeing explosive growth, and it would seem that no single business or market segment has been immune to the influence and pervasiveness of this field. The realms of finance and banking are among those investigating significant new applications for the power offered by this paradigm-shifting technology. The use of AI has facilitated the streamlining of operational procedures, eliminating mundane tasks, enhancing customer satisfaction, and the growth of businesses' bottom lines. By 2023, financial institutions and banks are expected to save $447 billion thanks to the use of AI, according to a report by Business Insider. Eighty percent of financial institutions are aware of the potential advantages that AI might provide, but the significance of AI has significantly grown as a result of the widespread influence that COVID-19 has had. The repercussions of this have been felt throughout the financial sector, and as a direct result, an increased number of customers have been motivated to embrace the digital experience. According to Mani Naga Sundaram, senior vice president and vice president of solutions of international economy services at HCL Technologies, who was recently quoted in an article published by AI News, banks and other financial institutions are required to respond to customers at even faster rates and at all hours of the day and night. Mani Naga Sundaram's comments were made in response to the fact that banks and other financial institutions must respond to customers all day and night. Freeing up workers, bolstering safety precautions, and ensuring that a business is moving in the right direction in terms of technical progress and creative thinking are all possible with the help of artificial intelligence.

Keywords: Artificial Intelligence, Finance, Deep Learning, Convolutional Neural Network, Technology, Machine Learning.

Introduction

Keeping track of one's money may be challenging for many of us in today's hyper-connected and materialistic society. Future generations, however, may be able

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to envision a day when artificial intelligence helps them manage their money. We can anticipate this with excitement. The digital personal financial manager (PFM) is one of the most recent innovations in the area of artificial intelligence-based wallets (personal financial management). Wallet is a San Francisco-based firm that uses AI to create algorithms that help people make better financial choices. The digital wallet is based on a simple principle: it displays your purchasing habits as a graph, based on the data found in your digital trail. Even while proponents of snooping on internet users may not like it, this might end up being the norm in the future. Since a result, it needs to be the go-to method for managing one's finances, as it may significantly save time making spreadsheets or keeping track of transactions manually. It is predicted that AI will serve as a kind of financial watchdog, keeping tabs on investments of all sizes. Through AI, organisations can cut down on the costs associated with staffing a firm and the faults that come with it. It is realistic to anticipate less losses, improved trading, and outstanding customer service, even though the rate of change in the financial industry is still in its infancy. Despite the fact that the pace of change is still relatively new, it is common practice to plan ahead for them. Because the financial industry is still maturing, this is the case. (Sahai & Goel, 2021)

Objective

The research aimed to fulfill the following objectives:

- The study the Artificial Intelligence in Finance
- Applications of Artificial Intelligence in the Financial Industry
- The Value of AI in the Financial Industry

Methodology

In every industry, it functions almost like a second language, and it's an essential part of any organization's infrastructure. The process of analyzing the merits of a firm or an entrepreneurial endeavor is referred to as financial analysis. To begin, it is the study of how one may effectively manage one's financial resources and the many options available to them. Second, it is a term that refers to the process of really amassing financial resources to grow one's labor or firm, regardless of whether that individual is an individual or a corporation. Since the middle of the 1990s, the financial industry has been subject to significant changes in both structure and practice. Because of the growth of digital banks and mobile banking, this industry is now more digitalized than ever. The introduction of digital technology has had a tremendous impact on this company; consequently, this industry is now more digitalized than ever. We are now living in an era in which speed and convenience are the most important criteria that determine the degree to which a firm may differentiate itself from its competitors in any industry. They are used to being able to have access to any and all pertinent information as well as complete transactions by just touching the screens of their mobile devices.

Artificial Intelligence in Finance

The vast discipline of computer science known as artificial intelligence (AI) focuses on the development Imagine machines that are so smart they can do activities that normally need human intelligence. Machine learning and deep learning's recent advancements are creating a paradigm shift in the whole IT industry (IT). Although AI draws inspiration from many other areas of study and research approaches.

Examples of current inventions include the virtual assistants Siri and Alexa, tools for disease mapping and prediction, drone robots and manufacturing, suggestions for optimized, highly personalized healthcare therapy, stock exchange robot advisors, email spam strainers, and monitoring tools for harmful content or fake information on social media. Like they do with music, Netflix and Spotify may recommend new shows to watch and music to listen to.

A "financial service" refers to any product or service offered by a financial institution or the financial market. When the word "money management" is used, it usually refers to a company whose primary focus is the governance of monetary assets. Common examples of financial institutions include banks, investment banks, insurance providers, banks issuing credit cards, and stock brokerages. Stock brokerages are an additional kind of financial institution. According to the results of the research (Guo and Polak 2021).

Companies of this kind may be found all throughout the economy, and together they're responsible for a wide range of banking, insurance, investment, and other related services. The worldwide financial sector is the single largest contributor to global GDP.

Insurance; estate; trust and agency services; securities; and other forms of financial or market intermediation, such as the sale of financial items, are all examples of financial services. The acquisition of financial products is yet another instance of a financial service. These three broad forms of financial assistance are only the tip of the proverbial iceberg of what's available in the world of finance.

Artificial intelligence (AI) and machine learning have several uses in the financial sector, including chatbot assistants, automated task execution, and fraud detection. Eighty percent of banks, as shown by Insider Intelligence's study "AI in Banking," are well aware of the benefits of AI.

The evolution of technology, the rising popularity of AI among consumers, and the alteration of legal frameworks will all speed the decision of financial institutions (FIs) to use AI. AI may help banks automate otherwise arduous activities and dramatically improve the customer experience by providing clients with 24/7 access to their bank accounts and financial advising services. (Sarea et al., 2021)

Applications of Artificial Intelligence in the Financial Industry

AI algorithms are being applied by

financial institutions across the board, with important economic advantages and the pressure of tech-savvy customers at the forefront of the decision-making process. Here's how:

➢ *AI Applied to Private Finances*

The demand for economic autonomy is propelling the adoption of AI in the personal finance sphere, where it may help people better manage their own financial health. Every financial institution that aspires to be a market leader must use AI to give 24/7 financial advice through chatbots powered by natural language processing or personalize insights for wealth management products.

Capital One's Eno is an artificial intelligence (AI) personal financial platform that has been widely hailed as a first of its kind. When a US bank initially offered Eno, it was the first such assistant to communicate with its users using just SMS texts and a natural language processing system. 2017 saw its debut as the first year of availability for anything like it. Eno collects information and looks forward to what its customers may need thanks to its about 12 proactive capabilities. One such feature is the ability to warn customers of impending fraud or price hikes for recurring services. (Sarea et al., 2021)

➢ *AI in the Field of Consumer Finance*

Artificial intelligence's capacity to deter fraud and hacking is among its most important applications in the financial sector. With $48 billion lost each year by companies and individuals to online payment fraud by 2023, customers are looking for banks and other financial institutions that provide safe accounts. It is possible that AI may study and find anomalies in patterns that would ordinarily go undetected by humans.

Certain financial institutions, including JPMorgan Chase, use AI to improve customer service. Chase derives more than half of its net revenue from consumer banking; hence the company has invested much in providing superior fraud detection tools for its clientele. As one example, it developed a unique algorithm to spot telltale signs of fraudulent activity. When a credit card is used, the relevant information is sent to one of Chase's data centers. These machines analyses the information they have to decide whether the transaction is fake. Chase was regarded as the second most reliable digital bank by Insider Intelligence in 2020. This organization did very well in the Trustworthiness and Safety metrics as a direct consequence of their usage of AI. (Giudici, 2018)

➢ *AI Applications in Business Finance*

Artificial intelligence is highly useful in the world of corporate finance because it can more correctly detect and analyze the risks associated with loans. The use of artificial intelligence technologies, such as machine learning, may help improve the process of loan underwriting and reduce the amount of financial risk that is taken on by companies who are working to increase their value. AI could be able to assist minimize financial crime by improving fraud detection and revealing aberrant behaviours as business accountants, analysts, treasurers, and investors work for long-term profitability.

AI is being used across the board at US Bank, from the front- to back-office operations. Deep learning is used to unlock and examine all of the pertinent data on clients of US Bank in order to assist in the identification of criminals. According to research by Insider Intelligence, it has quadrupled the output of its anti-money laundering efforts since it began using this technology. This is in comparison to the typical capabilities of the earlier systems. (Moloi & Marwala, 2020)

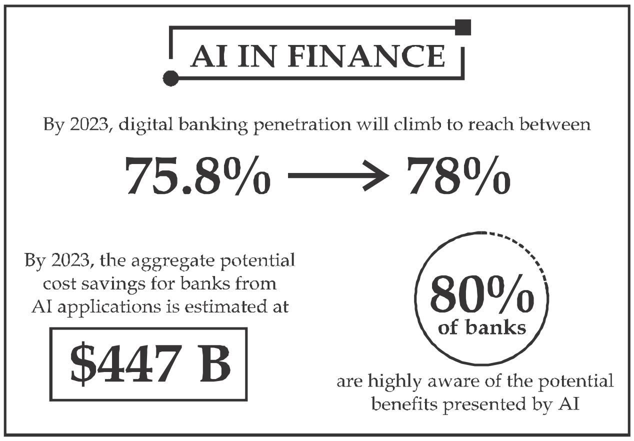

Figure 1: Artificial Intelligence In Finance

The Value of AI in the Financial Industry

The use of artificial intelligence in the financial sector offers enormous advantages, including the automation of routine tasks, the identification of fraudulent activity, and the provision of individualized suggestions. Use cases of artificial intelligence in the front and middle offices have the potential to revolutionize the financial sector by

- Facilitating seamless, around-the-clock connections with customers
- Eliminating the necessity for labor that is repetitive
- reducing the number of false positives and errors caused by humans
- Saving money

The use of artificial intelligence (AI) to automate work that was formerly handled by personnel working in the middle office has the potential to save banks in North America $70 billion by the year 2025. Additionally, it is estimated that the overall potential cost savings for banks resulting from the implementation of AI applications would amount to $447 billion by the year 2023, with the front and middle office accounting for $416 billion of that total potential cost savings. (Hadi et al., 2021)

The Future of Artificial Intelligence in Fintech and Financial Services

Traditional financial institutions are making haste to implement digital service delivery methods in response to the growing demand for digital solutions from consumers as well as the competition from tech-savvy startups. It is anticipated that global financial institutions will spend an amazing 297 billion dollars on information technology in 2021.

As a result of the millennial and Gen Zerhr demographics being the largest addressable customer group for banks in the United States, financial institutions are coming under increasing pressure to improve their spending on IT and AI in order to satisfy higher digital standards. This is because higher digital standards require financial institutions to meet higher digital standards. A whopping 78% of today's younger customers would prefer not to enter a bank branch under any circumstances, opting instead to conduct their financial transactions using an online or mobile banking platform.

Because of the coronavirus, the widespread implementation of stay-at-home orders hastened the movement from conventional banking channels to online and mobile banking. This movement was already in progress due to the rising potential among digitally native customers before the epidemic. However, the widespread implementation of stay-at-home orders hastened it. According to projections made by Insider Intelligence, by the year 2024, 72.8% of clients in the United States will use online banking, and 58.1% will use mobile banking. Because of this, financial institutions that wish to grow and stay competitive in this dynamic market will need to use artificial intelligence (AI). (2021 will be known as the Year of the Pig, also known as Purthi).

It should come as no surprise that artificial intelligence (AI) is seeing tremendous development in the banking industry given how much COVID-19 has revolutionized human interaction. The use of AI may now be found throughout the whole of the economy. The influence of AI is expected to result in savings of over one trillion dollars in the banking sector by the year 2030, according to predictions made by experts. This will be accomplished via the simplification and consolidation of processes, as well as the processing of data and information at rates far faster than those that are possible for human people.

According to McKinsey & Company, in order for financial institutions to maintain their competitive edge, they will need to use AI technology on a vast scale. Your company's future rests on your ability to effect profound change across a variety of fronts.

It is also interesting to note that "Gen Z" and millennials are fast becoming the "largest targeted consumer demographic" for financial institutions in the United States. To "accomplish better digital standards," several financial institutions are increasing their investment in information technology and artificial intelligence to cater to their younger customers' preferences. In fact, a whopping 78% of millennials have said they would not use a bank if they have access to another option. (Chowdhury & Uddin, 2021)

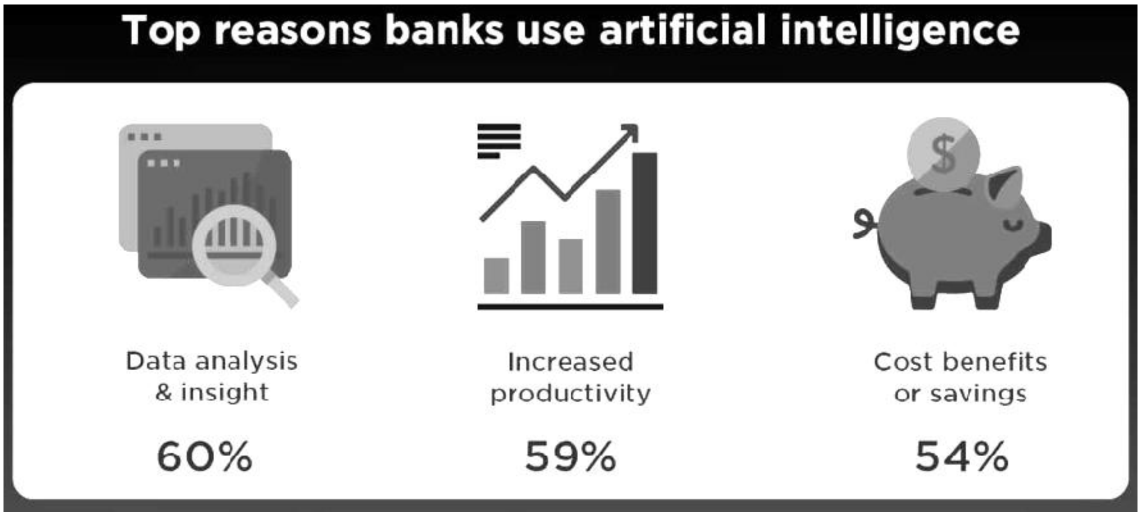

Figure 2: Reasons Bank Uses Artificial Intelligence

Conclusion

The field of financial services is one that might benefit from the use of artificial intelligence technology in a number of different ways. Each and every one of them is focused on automating processes, making those processes more efficient, and doing away with the need for human actions and efforts of any kind. The many applications that have been discussed so far are evidence that AI has the potential to bring about widespread economic growth and maintain industrial stability. At the same time, artificial intelligence is a trending issue at the moment. There are a variety of points of view on its progression and the impact it will have in the future. Some researchers in the scientific community have expressed concern that these cutting-edge technologies may come with unintended consequences. Despite this, advancements are still being made in AI. Our future will be bright and full of opportunities if we can successfully arrange the cohabitation of artificial intelligence technology and humans. In order to develop software solutions that really help people and the planet, rather than hurt it and destroy it, every potentially negative impact must be investigated. Tools based on artificial intelligence might be of considerable use to financial institutions. Despite this, the industry may be rather profitable when done correctly. The choice to implement financial software that AI powers calls for a very labour-intensive process that requires the resolution of many technological challenges.

Conflict of Interests

The authors declare that there are no conflict of interests that are directly or indirectly related to this research work.

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