Impact of Artificial Intelligence in Financial Sector

Mr. Dhruv Kirit Gohil[1] and Dr. Balram Gowda[2]
Research Scholar[1] and Assistant Professor[2]
The Byramjee Jeejeebhoy College of Commerce, Mumbai, Maharashtra, India

Abstract: *A true artificial intelligence (AI) system is something that "learns" from the data it stores, in order to perform tasks and solve problems that typically require human intelligence - either with the help of a human expert or independently. The area of AI is an interdisciplinary field, which has been designated as a strategic area in the European Union (EU) approach and a key driver of economic development that can bring solutions to many social challenges and problems. Due to its nature and its tendency to be digitally advanced and smarter with analytics, the financial sector is one of the early adopters of AI and expects multiple benefits from its application, that is, the ability to provide better service in the shortest time possible and at a lower cost. AI in the financial sector is based on an understanding of the business needs of financial organizations, institutions and markets and the ability to connect with technological capabilities. They are powerful tools that completely transform this sector. The basic idea of this paper is to consider where the real value of AI in the financial sector is, i.e. what are the practical aspects and business implications of AI in the financial sector globally. It is common knowledge that evolving technologies have always had a strong impact on the sectors in which they are applied because they give them the opportunity to improve existing manufacturing processes, services, customer experiences, operate more efficiently, achieve cost savings, etc. The aim of this paper is to identify areas of application of AI in the financial sector, and to explore leading AI applications that are changing the financial ecosystem, transforming the financial sector and that have the potential to significantly improve many of its functions. The paper further highlights other implications of AI implementation in the financial sector such as employment - job creation and termination of existing AI-influenced employment, the scope and potential of application in developing countries, the problem of regulation and use in the best interests of man, and the importance of properly managing specific AI risks.*

Keywords: artificial intelligence

I. INTRODUCTION
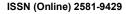
BACKGROUND OF ARTIFICIAL INTELLIGENCE (AI)

In the current market, artificial intelligence becomes trendy in many areas. Artificial Intelligence (AI) is a major innovation in the technology that includes machine learning (ML) and algorithm language. AI could be described as the ability of machines (computers) to make an intelligent decision like human beings i.e. work out what to do – usually in the context of achieving a particular task. Definition: According to John McCarthy (1955) defined "Artificial intelligence is making a machine behave in ways that would be called intelligent if a human were so behaving". ML is a subset of AL that involves building models, mainly statistical models that give analytical results. In the finance sector, AI plays a significant role for future forecasting like investment in stock market investors apply various methods of investment analysis and data mining in the amount of stock data to predict the market trend and maximize the profit. The stock market is highly affected by both market and non-market factors, so this machine learning plays a significant role in the "black box" model prediction for increasing the accuracy of market prediction. Similarly, regression algorithms and time series models in machine learning are used in the performance measure problem in establishing a prediction model, which could improve the accuracy of prediction and financial data analysis.

OBJECTIVES

- To study the applications of artificial intelligence in the field of finance sectors with a brief introduction.
- To study the challenges and impacts of AI in financial sectors with pros and cons.
- To study the Future prospectus of AI in India with recommendations.

SCOPE:

The study covers the area of AI in financial sectors like banking industries, investment companies, insurance companies, real estate firms, etc.

II. METHODOLOGY

The study is based on secondary data and descriptive. The data collected from various journals, reports, and articles. LIMITATIONS: Our study is only based on AI in the field of Finance sector, there are many more applications of artificial intelligence such as Automobile, healthcare, Gaming, Robotics,

Surveillance, Entertainment, Space Exploration, Agriculture, E-Commerce, Social Media on which further study can be done.

III. REVIEW OF LITERATURE

AS per Kunwar M (2019) present thesis on "Artificial Intelligence in Finance: Understanding how automation and machine learning is transforming the financial industry" examines the influence of artificial intelligence on the modern world, especially in the field of finance. The research concludes that throughout the value chain in financial services whether it is processing, analytics, or investing, there's going to be more and more technology that can get things done. Development of Artificial Intelligence and Effects on Financial System by Xie, M (2019) focused on the development and application of artificial intelligence and machine learning in the financial system, as well as its impacts on macroeconomics and microeconomics. Some suggestions and strategies were provided for reasonable usage of artificial intelligence in financial risk management, based on the financial risk management raised by artificial intelligence. The thesis on "Artificial intelligence applications in corporate finance" by Wallon (2019), focused on the usage of AI in corporate finance with the current usages and its prospects in a near future. It offered a viewpoint on this subject through information retrieved from papers, reports, and experts and an evolving survey using qualitative and quantitative analysis. It enables to get perfect views on the current situational analysis and the future expectations of AI in finance and, more precisely, in corporate finance.

IV. APPLICATION OF ARTIFICIAL INTELLIGENCE IN FINANCE

Regulatory compliance – detection and prevention fraud: With the increasing trend in ecommerce or online transaction the possibilities of fraud also increases exponentially. AI is based on the anti-fraud system which detects fraudulent activities, reports, and blocked such transactions. Banking and finance institutions have a Fraud Detection Software that patterns can be spotted by using predictive analytics without any knowledge to the human analysts and applying machine learning algorithms to detect the fraudulent transaction & minimizing fake decline.

Prediction of Stock Market and Trading system: Several issues can cause obstacles in the trading system. AI systems provide a faster analysis of data not only the cause of failure be known, but also provided the solution related to that. A Computer system has been trained to forecast when trade shares to maximize the returns & to reduce the losses during the uncertainties & help the investors, institutions, companies to take quick decisions.

Increasing security: In AI, Machine learning algorithms need a split minute to access fraudulent transactions in real-time not spot them after the crime is committed. Many of the organization are trying to implement the Artificial Intelligence to enhance the security in online transactions & related services.

Risk Management: Many organizations led to the subprime mortgage crisis due to a lack of risk management. Traditional software applications focused only on the selected loan application and financial reports. But new machine learning technology focused on every fact related to the current market trend to prevent financial crime and financial crisis prediction by its credit-scoring tasks in real life environment. It also helps to minimize underwriting risks. In the field of loan, health, mortgage, or life insurance, it can help handle every risk. It also fits perfectly with the underwriting tasks that are so common in finance and insurance.

Credit Card and Loan Decisions: In process of credit card and loan decisions, AI automatically assessing the profile which reduces the cost and efforts involved significantly and making the whole process fair and transparent.

Protect Client by Spending Pattern Prediction: At present whole country is dependent on online transactions. In case if their card/Mobile is stolen or the account is hacked AI is useful for client spending detection to prevent fraud or theft. It identifies the user & allows the transaction to happen.

Personalized Banking: In banking, AI plays an important role to do all transactions online like payments, deposits where clients no need to rush banks. Even handle a majority of a client complaint and provide the clients with an efficient self-help interface. AI-based virtual supporters like Alexa, Google Assistant, Echo, etc. are already gaining popularity in the consumer markets. It presents true guidance to the prospective client and so that they can get accurate information and fast solutions to their problems.

Process Automation: Process automation is central to boosting one's productivity and minimizing operational costs by doing its job in just a few minutes. AI reduce more than 50% repetitive task perform by human and minimize cost. Process automation effectively interpreted documentation, identify issue need human attention by its services like call center automation, chatbox (Robots do chatting and give instruction), paperwork automation, etc.

Security to World financial data – Cyberattack and virus-like worms, Trojan are the main challenges in the modern era. Machine learning security solutions are capable of securing the world's financial data by providing the power of intelligent pattern analysis, combined with big data capabilities through security technology an edge over traditional and non-AI tools.

Marketing: AI also shows its significance in finance domain people by predictive marketing analytics based on past behavior easily. It assists in accurately forecast sales by analyzing customer expectations. Web action can be properly supervised and cell phone app usage can be understood to discover trends and patterns.

V. IMPACT OF AI IN FINANCE SECTOR

AI provides huge benefits to a large number of concerns. Every factor has their positive and negative impact: Similarly AI also have some as under:

IMPACT OF AI IN FINANCE SECTOR	
PROS	CONS
Efficient in handling a large volume of information.	Complex in nature need high production and maintenance cost.
More efficient in forecasting assist business relationship strong and do advisory work as well.	High-end fintech technology is too costly so each organization could not afford the premium application of AI.
Eliminate bias from metrics.	Due to rapid technology changes many experts issue warnings about the dangerous nature of AI.
Better informative charts and graphs help to make a safe decision.	Lack of regulatory scrutiny may present a problem in the upcoming period.
Provide 24/7 hours service as compare to human resources.	Possibility of misuse of data cause serious losses like delivered to wrong hand can cause serious threats to humankind.
Quickly perform the task related to finance like Insurance, Trading, accounting, etc. Financial users get transaction records online and offline which saves time, money, and effort.	Wide-reaching unemployment as replaces workforce with machines and computers. Also, block the human mind and increase dependency on the machine.
Fraud detection is a smart card-based system with the use of AI.	Lack of creativity mind.

VI. FUTURE OF AI IN INDIA WITH SOME RECOMMENDATION

Today, the world is shifting towards artificial intelligence technology. Google, Amazon, Flipkart some tech giant has using AI to build predictive models of consumer behaviour. In the field of education, most universities have offered

various coursework in AI. Bitcoin gets its popularity has made the use of AI in finance by providing robotic advisory services. Insurance companies already dominated to AI for big data which provide personalized recommendation replaces personal financial assistance. Huge investment is made by companies, firms, investors on basis of data of AI which saves their money and avoiding human errors. These BFSI (Banking, financial services & insurance) industries adopting AI-based fintech

solutions at a very large scale. The speed at which AL adopted by finance industry we can't deny saying that very soon this progressive steps replace human resource and provide quick and efficient solution to users and it is the future of Finance industry as below diagram shows:

Key fintech trends (Areas emerging as new norms in banking)

Source: Panorama by McKinsey

By 2035, there is the possibility that the use of AI increases massively in the Indian economy. Recently, the US and China are the top countries making the adoption of AI technology, India is in progressive ways but positively it opens the door for jobs approximately 2 lakh for AI experts and others in many sectors like education, healthcare, retail, etc. Right skilling is regarded as the crucial factor for achievement in technology adoption. In the year 2018, when the start-up scheme started it shows tremendous growth in the financial sectors. Recently, more than 400 startups working in AI and machine learning areas. Many start-up cities in India like Bangalore, Hyderabad, Mumbai, and New Delhi work on AI and deliver better customer services.

VII. RECOMMENDATIONS

AI is used in every field and probability to reduce human job opportunities, need deep learning of AI. The business will achieve great success if the machine and human staff work together.

AI must be adopted according to the needs of sectors for that skilled managers are required.

AI needs specific talents, so students need to gain extraordinary training in learning and creating machine learning and algorithm language. Such courses should cheer up by universities and institutions.

Government support to encourage AI, so we are not backward by other countries in the field of technology.

VIII. CONCLUSION

Experts believed that AI soon becomes the part and parcel of human life. It completely changes the way we see our world. It solves many problems in minutes. There is a possibility that AI reduces human needs, so we need to balance by updating ourselves according to the changes. We must be kept in mind that we made machines, machines not made us. We get benefits by making its proper utilization.

REFERENCES

[1]. M, Kunwar (2019). Artificial Intelligence in Finance Understanding: How Automation and Machine Learning is Transforming the Financial Industry. Centria University of Applied Sciences Business Management.

[2]. C, Wallon. (2019). Artificial intelligence applications in corporate finance.

[3]. Tom C. W. Lin. 2019. Artificial Intelligence, Finance, and the Law. Fordham L. Rev., 88, Pp. 531.

[4]. Patel, K. (2018). Artificial Intelligence in Finance. IJSART, 4(4), 2787-2788

[5]. Xie, M. (2019). Development of Artificial Intelligence and Effects on Financial System. Journal of Physics: Conference Series, 1187(3), 032084.