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Artificial Intelligence (AI) in Financial Sectors: Blessings or Threats?

Rakib Ahmed
Assistant Professor, Eastern University, Dhaka, Bangladesh

Abstract:
The current world is gradually shifting to an automated and technology-driven global society. The Artificial Intelligence (AI) is increasingly being considered as important in banking as well as financial services sector leading to the addition of new technologies to the sector. This study is focused on the uses, potential benefits and threats of AI especially in the financial sectors. For the study data have been collected mainly from the secondary sources including recent articles, newspapers' highlighting the AI applications, various banks' and financial institutions' website etc.

The study explores the AI applications in the financial sectors of Bangladesh and global as well. It is found that AI is being applied to acquire the advantages of time consumptions, cutting off cost and furthermore bringing in added in values with faster assistance. AI can increase efficiency and productivity through automation; minimize mistakes induced by psychological or emotional factors; and strengthen management information's accuracy or conciseness by detecting patterns or longer-term developments that are not easily identified by existing monitoring methods etc. On the other hand, it is also imperative for the firms to recognize the possible pitfalls and employ sound controls over the technologies like AI to prevent and mitigate possible future problems. In the financial sector, AI is omnipresent and there are more obstacles, including legal, political, economic and social barriers. The global financial ecosystem is also continuing to be subject to new complexities. With increasing availability of data and increasing computer power, AI programs get more complicated. Finally it is observed and found that AI is going to take enormous role as the blessings over the threats to the business functions of the financial sectors.

Keywords: *Artificial Intelligence (AI), Financial sector, Blessings, Threats*

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I. Introduction

The Artificial Intelligence (AI) technology gives businesses a competitive edge. Artificial Intelligence (AI) is such kind of intelligence which is demonstrated by machines. It is basically replicate the human intelligence into machines just like a human mind, a true AI system can learn on its own. The current world is gradually shifting to an automated and technology-driven global society. Most developed nations of the world, including USA and China, are investing in research and development projects focused at Artificial Intelligence and the ways it can influence education system, healthcare, business and financial infrastructure and other systems.

In Bangladesh, AI is already playing an effective role in traffic monitoring and management system, national security system, healthcare system, manufacturing and service sectors. The government under its 'Digital Bangladesh' slogan is adopting steps and ways in the government and private institutions, corporations and in research body to implement such a system that would accelerate the development of the economy. Globally, AI is increasingly being considered as important in banking as well as financial services sector leading to the addition of new technologies to the sector. JPMorgan Chase, the top commercial bank in the USA, is investing more than US$9.5 billion annually in technology and innovation (Habib A., Islam R., 2019).

Traditional banking has been transformed within the financial services over time due to great innovations and like the rest the way business functions, besides the nature of professions (Bagheri et. al., 2014). The financial services diligence has an antiquity of expending computable approaches and a set of rules to support assessment making. These are the basis of AI coordination, and the trade is consequently well-informed for AI implementation, placing it at the lead of employing and promoting since AI knowledge (Chan, Nayler, Raman, & Baker, 2019).

Artificial Intelligence (AI), in the financial sector, is renovating the procedures for dealing with finance. In most of the daily aspects of the financial industry, AI is being applied to acquire the advantages of time consumptions, cutting off cost and furthermore bringing in added in values with faster assistance (Fathi Eletter et. al. 2010).

II. Objectives of the Study

The main objective of the study is to explore the artificial intelligence (AI) with its advantages/blessings and threats in the financial sector.

III. Methodology/ Approach

This is a qualitative based research and data have been collected from the secondary sources including recent journal articles, publications, newspapers and relevant organizations' websites.

IV. Review of the Literatures

AI may be used to detect and send warnings to money laundering, security threats, irregular financial arrangements, and illegal transactions. It is used to build maximum investment strategies (Chan, Nayler, Raman, & Baker, 2019). There are now more and more robot consulting services that automate portfolio management recommendations for individual investors.

AI's other use is in finance algorithmic commerce, systems that integrate information on changing market conditions and price levels through the use of proprietary algorithms, allowing automatic trades quite quickly. Trades are often conducted so fast that the word 'high-frequency trading' has been taken up (Kraus, Sascha and Palmer et. al., 2018).

The use of AI technologies by the previous methodology, Text mining, is often viewed as a sub-set in a market sentiment analysis. Market sentiment has recently grown with the extensive development of social media platforms and the creation of large data sweatshops (Fathi Eletter et. al. 2010).

Credit card companies are considering uses of AI such as for detecting potential fraud. Investment bank UBS uses AI to assess the risk appetite of potential customers with a low minimum investment; other investment bankers hope AI will help them make more accurate forecasts and estimates.

The development of investment services in the future is important. The approach of data mining facilitates the study of market data, the forecast behavior and price level. It can also provide for the forecasts and model performance of legislative and structural development. In the market feeling analysis, AI's use steams out of previous applications, text mining and is often considered as its sub-set. Recent times have seen the extensive development of social networking platforms and the processing of numerous data. The increasing array of "big data"

that results from individual internet experiences and various social networking creates fascinating new ways of behavior research. For example, a quantitative analysis of the content of social media has shown that the outcome of several elections in the forthcoming elections is more predictable. Additionally, several additional studies related to the number of online inquiries to a certain subject with a new business.

It is also used to build effective investment strategies. The other application of AI in finance is algorithmic trading systems that incorporate knowledge about changing market conditions and price levels using proprietary algorithms to make automated trades very rapid.

Banks, financial institutions, corporate conglomerates, power stations, telecommunications services and large industrial units are using automatic responding systems that have improved and upgraded business standards and protecting market shares of any entity or company (Ahmed, E.S., 2019).

The growing pool of Big Data from the web and social networking interactions provides fascinating new ways to study the conduct of market participants. First of all, the comprehensive sentiment analysis of social media content has been found to increase the predictability of future outcomes for a range of elections. Likewise, several other studies linked the number of online searches for a specific topic to early economic activity (Krollner, Bjoern and Vanstone et. al., 2010).

Further efficient AI deployment could be given by financial indicators such as credit risk calculation, credit rating and efficiency, bond rating, etc. Some reports suggest that the use of artificial neural networks increases the funding of businesses as the risk appraisal of ANN and forecasts of bankruptcy are more reliable. Founded by former Google CIO Douglas Merrill, Zest Finance is an advanced machine learning system that enables a better and more efficient borrower-lender relationship.

AI platform of the bank is deploying, can answer questions on a range of customer service issues from account balances to finding the nearest ATM, and Maxitech is going to introduce other functionality such as using it to make money transfers and cancel lost cards and order replacements. A voice on the end of the app gives you the answers, but customer can also text a question and receive a text back. Banks can use to save on call centres, but also to give customers a better experience. The system can be deployed in a number of platforms, in mobile apps, at call centres, or even at branches. The deployments are dependent on use cases. It can change the human-in-the-room experience. It understands what we are saying, and it integrates very easily.

V. Current Situation of AI Practices and Applications in Financial Sectors

There are diverse practices and applications of artificial intelligence (AI) in the financial sector specially in Banking sector around the globe.

5.1 AI practices in financial sectors

JPMorgan and other American banks like Wells Fargo, Bank of America, Citi Bank, US Bank, PNC Bank, Bank of NY Mellon as well as India's top four banks like State Bank of India, HDFC Bank, ICICI Bank and Axis Bank are working to integrate AI with their existing systems so as to improve customer services, shrink expenditure and improve efficiency.

Chatbots (artificial conversational entity) and conversational interfaces are now the trend as they can inspire enthusiasm and excitement in the banking world. AI's role in the banking or financial sector more or less revolves around conversations between a human (customer) and a machine-learning agent or artificial assistant. Simply put, the user can chat with an artificial agent through facebook messenger or preferred chatting platforms.

JPMorgan Chase has recently introduced a platform named Contract Intelligence (COiN). This platform can manually review legal documents and contracts by using image recognition software. So, the manual process of analyzing 12,000 commercial credit agreements that once took 360,000 hours, can now be completed in seconds thus saving time and efforts (Habib A., Islam R., 2019). Similarly, Wells Fargo has developed a new AI platform that they are calling an "AI-driven chatbot through the Facebook Messenger". Bank of America also introduced an intelligent virtual assistant named Eric. Due to such investments in AI, according to PwC (Pricewater house Coopers) FinTech Trends Report India, 2017, global investment in AI applications reached $5.1 billion from $4.0 billion in 2015.

In India, the State Bank of India (SBI) and the HDFC Bank have developed AI-based chatbots for customers named SIA (SBI Intelligent Assistant) and EVA (Electronic Virtual Assistant) respectively.

Recently, a commercial bank (Eastern Bank Ltd.) in Bangladesh has launched country's first AI-based banking chatbot (named EBL DIA). Anyone can interact with this chatbot through facebook messenger. It is a digitally interactive system that will respond to set questions from users regarding opening of accounts, credit cards and prepaid cards along with general service information through facebook messenger. Some other banks including Mutual Trust Bank ltd. and other financial institutions are also trying to launch AI in their respective service areas.

5.2 Areas of Applications or uses of AI

AI based systems area taking place in identifying risks, its management, marketing and providing as supportive tools to the clients. AI promises to do much more, and businesses are looking at all sorts of ways they can benefit from the technology. Therefore, AI was found to be used for the identification of phenomena. In companies around the world, there are a number of its applications.

Documents Processing: In the back office, robo-accounting systems enable completely autonomous accounting documents processing. AI-based systems can also review contracts, sifting through thousands of commercial loans that would take humans hours.

Scam Recognition: With the emergence of E-commerce deception or fraud online has greater than before and it is not so much possible to avoid. One of the best uses of artificial intelligence applications we can observe is with the credit card e.g. VISA, Master Card. If the fraudsters are trying to use some else's Card by stealing information and data the Artificial Decision Intelligence technology will analyze the actual data and send immediate notifications in the genuine holders' email or smart phones and all related communicating Mediums associated with personalized wallets (Buchanan, 2019).

Privacy/ Security Protection: Many of the administrations are attempting to gadget the Artificial Intellect in order to raise the safekeeping for operational dealings and associated services. It is possible if there is processer access which can forecast the unlawful databases precisely (Dirican, Cuneyt, 2015).

Expenditure Configuration Forecast: Artificial Intelligence is beneficial for shopper expenditure recognition used by numerous companies and financial service sectors. It will be obliging when the cars are stolen or the account is hacked in order to avoid the deception or shoplifting (Giudici, Paolo, 2018).

Stock Dealer scheme: A computer system has been trained to predict when to buy or sell shares in order to buy or sell shares in order to maximize the profits when to minimize the losses during the uncertainties and

meltdown. Client-side user validation: This can again authenticate or recognize the user and permit the deal to come to pass (Fethi & Pasiouras, 2009).

Text and Data Processing: The syntax study of text processing, news and semantics is further significant use of AI. AI is used for the intelligent reading and interpretation of data, including papers, articles, social media and material. This is extremely significant if the AI system reads in a matter of seconds when it requires several hours to do so and still cannot provide all details that might influence the specific performance of the product.

Forecasting and Estimation for Investment Decision: Financial institutions including Banks can consider AI-powered robo-advisers, image recognition, and AI forecasting and estimation software for investment decision. So, AI financial forecasting is a primary focus and it has the potential to be both a critical and very powerful tool for finance organizations.

VI. Blessings/advantages/potentials of AI in Financial Sectors

Artificial Intelligence (AI) is already a powerful tool widely used in financial services. If companies use it with sufficient care, caution, and care, it will have an immense potential for positive impact (Fathi Eletter et. al. 2010). The use of AI in financial services has many advantages.

The study addresses a number of specific technologies such as risk management, alpha generation, and asset management stewardship, chatbots and automated helpers, underwriting, raise of the connection boss, identification of fraud and banking algorithms (Fathi Eletter et. al. 2010).

AI can increase efficiency and productivity through automation; minimize mistakes induced by psychological or emotional factors; and strengthen management information's accuracy or conciseness by detecting patterns or longer-term developments that are not easily identified by existing monitoring methods (Buchanan, 2019). Such requirements are particularly valid where legislation, like the Financial Instrument Directive II for the European Union Markets (MiFID II), expands senior management's obligations for analysis and takes greater data from the business into account (Ho, Ip, Wu, & Tse, 2012).

Data mining facilitates estimation, predictive activity and price level analysis in market data. Predictions and findings can also be included in legislative and structural adjustments (Kraus, Sascha and Palmer et. al., 2018).

In recent years, Artificial Intelligence has made several advances that have allowed apps for financial professionals to be developed, which could, or is likely to, disrupt the financial sector. It is therefore believed that AI will substitute not only human capital in whole or in part but also improve performance beyond the human level (Fethi & Pasiouras, 2009).

AI is helping financial sectors including banking sector by providing digital support to customers, who can access these services through their smart phones and other devices. Such banking chatbots have been extremely effective at satisfying customers with required support and information and also bring in new clients for the banks through positive word-of-mouth. Banking chatbots like Kasisto AI (KAI), Personetics Assist, Finn AI, Clinc AI etc. are capable of conversing like a human being via text or voice messages. They can also extract and understand meaning of words or sentences being said or written to them.

It is also found that AI can also play an important role in fraud detection and prevention. If programmed properly, AI can identify suspicious activities in transaction history and behaviour of individual customers and accountholders. If red flags are detected, then the system can immediately deny such suspicious transactions until they are verified by a human being.

AI also plays a vital role in risk management, marketing and support. AI or machine-learning algorithms can learn from their past actions and hence improve the quality of services. This is why the implementation and integration of AI in the banking sector is the demand of modern banking. Over the next five years, accountholders and customers of banks are going to see an improvement in the quality of conversation with chatbots as they will be able to answer more complex questions. Also, it will be possible for chatbots to converse in more languages other than English.

The further successful application of AI could result from credit assessments such as credit risk analysis, rating and score rates, bond rates. Various experiments have shown a greater degree of accuracy of credit judgments and estimation of defaults in the use of Artificial neural networks (Zavadskaya, AlexandrA, 2017).

VII. Threats/ challenges of AI in Financial Sectors

Perhaps one of the most important early lessons is that not all potential consequences are knowable now, financial institutions including banks should be continually vigilant for new issues in the rapidly evolving

area of AI. Throughout the history of financial institutions including banking, new products and processes have been an area where problems can arise.

Further, financial institutions including banks should not assume that AI approaches are less susceptible to problems because they are purported to be able to "learn" or less prone to human error. There are plenty of examples of AI approaches not functioning as expected, a reminder that things can go wrong. It is important for firms to recognize the possible pitfalls and employ sound controls now to prevent and mitigate possible future problems.

This implies that information security and data privacy would be even more critical in providing financial services. In this respect, the sincere efforts of stakeholders would be key to ensuring users' trust in innovative financial services utilizing new information technologies, and promoting the developments of such services.

However, in AI applications, if organizations do not exercise sufficient care and prudence, they face potential problems. These include prejudice in materials, procedures, and outcomes for consumer identification and credit score, as well as due diligence in the supply chain. AI analytics customers must be fully aware of the evidence used to prepare, check, retrain, update and use their AI programs. This is relevant where third party analytics are offered or if private analytics are based on data and services supported by third parties (Kou, Gang and Peng, et. al., 2014).

In the financial services industry, artificial intelligence persists in the early days. In banking, AI is omnipresent and there are more obstacles, including legal, political, economic and social barriers. The global financial ecosystem is also continuing to be subject to new complexities (Giudici, Paolo, 2018). With increasing availability of data and increasing computer power, AI programs get more complicated.

Currently Robots with using AI are coming for jobs which is a threat of our jobs that there is raised concern people will be unemployed but in true sense as human brain dominates everything so it is unlikely Robots despite taking human jobs would not be capable to dominate job market and people's intelligence would seek other avenues of higher intelligence. Regarding jobs occupancy by artificial intelligence based technology or systems it is needed for deeper understanding and analysis before to be scared and in the mean time we must think positively that how efficiency, quality would be ensured with digital machines and costs of doing business would be lowered with maintaining better services presently and in coming days.

Several companies in China's export-manufacturing provinces of Guangdong, Zhejiang and Jiangsu have cut 30-40% of their workforce as a result of automation over the past three years, it found from a report done by the Chinese government think-tank, China Development Research Foundation (Habib A., Islam R., 2019). Such information can fuel the fear that application of AI in any sector will lead to lay-off of human employees from some areas. This may not be the case with AI in financial sector e.g banking. Here, application of AI can make work convenient for the existing workforce.

VIII. Concluding Remarks

Bangladesh being a nation of growing economy is advancing in parallel with developing countries and it is always getting updated services from world economic powers of US, China and many others that along with global trend AI in Bangladesh is increasingly being considered as important in banking, insurance and in other financial sectors. Currently over fifty local and foreign banks operating in the country are using state of the art technologies in transferring money, keeping data and providing cash less series round the clock.

In consideration of the financial consequences, businesses can provide a sufficient understanding of AI and other technologies used in the industry by the senior management and the board to provide effective control. This is particularly important because the board members need to track significant issues that affect the long-term value of a company. Throughout compliance with the Corporate Governance Code, the Board is required to determine the nature and scale of the major risks that it intends to take throughout order to achieve its strategic objectives.

Although not all companies around the globe are ready, in asset management, banking, insurance and other areas Artificial Intelligence is a growing business priority in the financial services industry. This sector generally recognizes the strategic nature of AI and players are already investing heavily and channeling significant resources to the space to stay up to or be able to compete. AI enables the identification of adaptive trends across large data volumes and modern statistical methods to address a narrowly defined and permanent problem set. It is basically an optimizer.

IX. Future Research Directions

In future the researchers could do research on the employee perception on using artificial intelligence (AI); financial and/or socio-economic implications of artificial intelligence (AI) etc.

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