ROLE OF ARTIFICIAL INTELLIGENCE IN FINANCIAL MANAGEMENT PROCESS

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ABSTRACT
Financial institutions nowadays are feeling more and more pressure to adopt the societal expectations that are now a part of their business plan. This factor has expanded the idea of corporate sustainability because all of these organizations seek to give stakeholders and employees the freedom to investigate other alternatives in order to realize competitive advantage. Promoting sustainable practices and development within the financial industry requires careful financial management. To assure that an economic administration is appropriately implemented in observing, assessing as well as issuing the development completed within the selected time, institutions have encompassed the usage of AI or Artificial Intelligence in chief monetary administration activities. Certain economic procedures like the monetary meticulousness implemented to renovate as well as improve credit choices, have improved because of various AI methodologies. The financial managers have had success using this strategy to oversee and control all administrative activities and transactions within organizations.
Keywords: Artificial Intelligence, Financial management, decision-making, technology, Algorithms

Introduction

The persistent implementation of Artificial Intelligence has ignited the formation of the patterns of business, which have meaningfully transformed the sector of finance. In the finance industry, AI has also been a significant technological achievement because it has allowed financial firms to reduce costs and increase value faster. The vast majority of the world's financial sectors employ AI in their daily activities to give customers superior functional assistance. These functional support elements include Chat bot's for fraud detection, recheck testing, robotic instruction, simulated customer subordinates, market exploration, supervisory and trial evaluation testing (Babel et al., 2019; Johnson et al., 2019). Some of the features include algorithm trade-offs, the configuration of a trading portfolio, and model authentication. These technical advancements have had a significant impact on the financial industry, boosting security and transparency while carrying out various financial transactions around the world. Consequently, the assessment of Artificial Intelligence' overall efficiency in advancing economic dealings internationally would help from the investigation of numerous collected works and even discussions on the implementation of Artificial Intelligence in economic administration. The fields of applied economics, econometrics and finance are using mathematical and statistical data and its analysis from very long time. Moreover, introduction and popularity of big data has also helped the understanding of Machine Learning. Economists developed many Econometric models (advance level & basic level) in last few decades. These models are still very useful. Some the models includes various techniques to help economists and financiers. The range of these operations are risk assessment, project generation and money management.

Previous technologies were unable to work on complicated projects. However, AI can help and generate various solutions for complicated projects. In finance field, AI can work on financial product suggestions, insurance premium calculations, stock price predictions, future gains and losses prediction etc. The list is unending. Based on the above information, it is clear that Financial Business Management has changed itself. It has become more adaptive for new methods of operations. Financial management field is very much into consumer data collection. It indicates that Financial Management is greatly dependent on data mining. Therefore, it has to define that the main use of artificial intelligence and machine learning in the finance sector. Many companies and governments are using Artificial intelligence and machine learning methods to safeguard the interests of consumers. With the help of AI & ML, financial frauds like bank fraud (mortgage fraud, credit card fraud and money laundering), Insurance fraud (healthcare insurance fraud & motor insurance fraud), Company fraud (alterations/fabrications in financial statements fraud, share market related fraud) are very much in control. To

detect these frauds many advanced technologies have been developed. These technologies are very helpful for institutions as well as customers and all other parties involved in transactions.
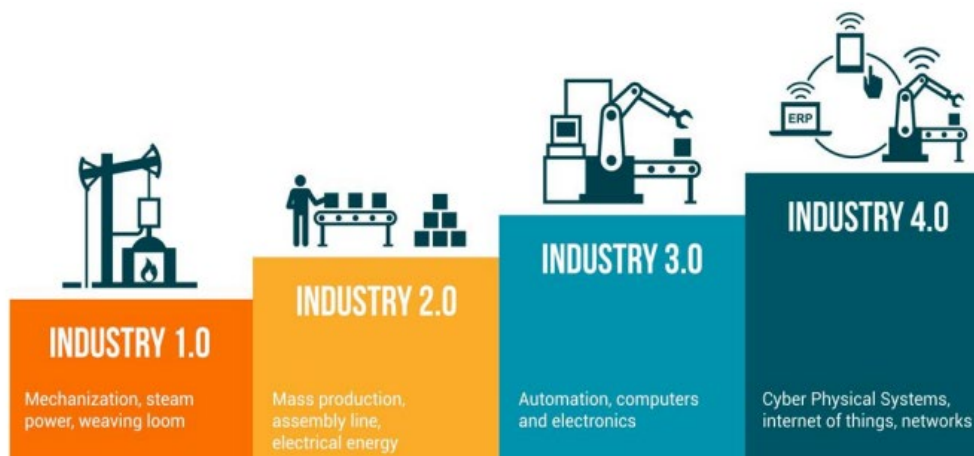

Figure No. 1: Industrial Revolution
(Source: https://core.ac.uk/download/pdf/288306886.pdf)

The definition of Industrial revolutions is also changing because of AI. Recently, many frauds have been detected by these advanced technologies. Another important area of AI and ML is product cost planning (including advertisement expenses) and increasing the brand value of product. This can be done with the help of predictive analysis. Financial advisors can advise customers on the basis of reports generated by AI & ML. The machine algorithms are guiding source for enhancing the situation. For example, a chat bot can be used on website to communicate with customer. This will also save the cost and reduce the human interaction. The most important function in any business is customer relationship management.
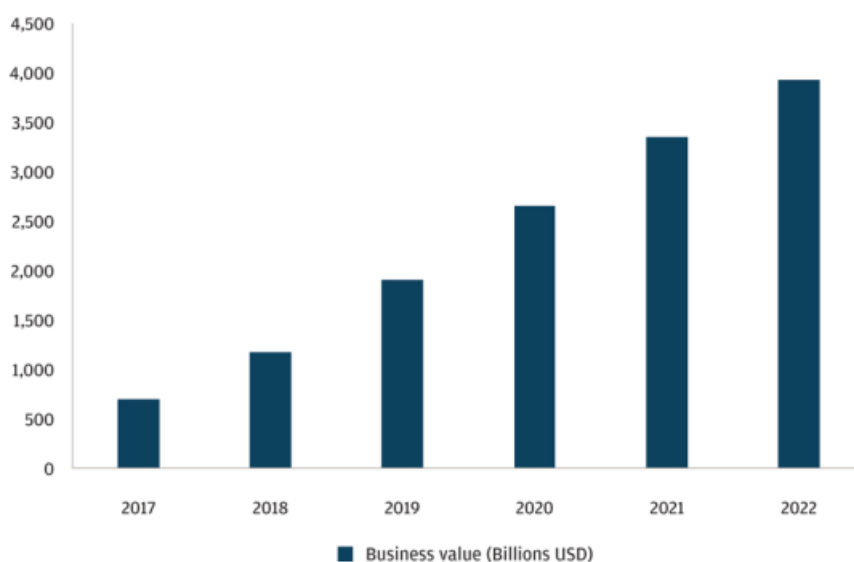

Figure No. 2: Forecast of global AI driven business value.
(Source: https://core.ac.uk/download/pdf/288306886.pdf)

Looking at the chart, we can certainly say that AI has gained importance in various business. In today's world, Sentiment analysis in the finance field is gaining lot of attention. This is used in market behaviour analysis and anticipation as well as to predict the future potential trends. Sometimes, it is used in behavioural finance too. The analysis of various traits observed in consumers based on risk appetite is easy to calculate with AI & ML. Overall, the role of artificial intelligence is gaining momentum every day in all fields.

Literature Review
AI or Artificial intelligence is the usage of algorithms and computers to develop as well as reproduce the intelligence of human beings. With the assistance of recent arithmetical procedures as well as enormous information sets, Artificial Intelligence permits extrapolative identification of patterns to provide the apt

solution to definite questions. In reality, it is a mechanism of optimization. The information provided to a program of computer governed this study rather than the intrinsic aptitude of apparatuses (Chan, Nayler, Raman, & Baker, 2019). AI or Artificial intelligence has made abundant advances in current times, which have made it conceivable to generate applications for economic experts. These apps possess the prospective to shake the economic business. Accordingly, it is estimated that Artificial Intelligence will supplant human resources partly or completely, simultaneously surpassing humans in their performances (Fethi , Pasiouras, 2009).

The identification of phenomena has been done using AI. The ability to recognize patterns makes it easier to spot behaviors that deviate from the norm. AI can be used, for instance, to identify security risks, money laundering, irregular financial arrangements, and unlawful activities and alert users to them. It is employed in the development of comprehensive investment strategies (Chan, Nayler, Raman, & Baker, 2019). The robot consulting services are automated by portfolio managing recommendations. This is becoming quite predominant for singular shareholders. The additional Artificial Intelligence applications are in the commerce of financial algorithms where the system, which assimilates information on fluctuating, conditions of the market as well as levels of price via the usage of custom algorithms, permits trades that are prompt as well as programmed. The term "high-frequency trading" is in use since trades are frequently completed so quickly (Kraus, Palmer, 2018).

There are many benefits of the usage of Artificial Intelligence in services related to finance. Process automation helps to enhance the Effectivity as well as creativity. Moreover, it can also reduce blunders created by emotional or mental aspects. It can improvise the precision or terseness of managing data by understanding and recognizing long-term advancements as well as tendencies, which present methods cannot detect easily. Such necessities are particularly significant where principles, such as Financial Instrument Directive II for MiFID II or the markets of the European Union, increase the analysis-related responsibilities of senior management and incorporate more business-related data (Ho, Ip, Wu, & Tse, 2012). The usage of artificial intelligence can be done in semantic syntax, news, and text. Textual discourses such as articles, books, posts on social media, and other written discourses can be interpreted and evaluated automatically with the help of AI. It will be vital for the forthcoming expansion of economic structures since AI computers can quickly assimilate all pertinent news and information, whereas people would need several hours to manage all the nuances that could affect inventory performance. Data mining makes it easier to estimate, anticipate, and analyze price levels in market data. Legislative and institutional changes may also take into account predictions and findings (Kraus, Palmer, 2018).

Large information produced from social networking activities and other sources of the internet offers exciting new tools to examine how market participants behave. First, it has been discovered that thorough sentiment analysis of social media content improves the forecasting of future results for a variety of elections. Credit assessments, comprising of analysis of credit risk, bond rates as well as scoring and rating rates might initiate the fruitful implementation of Artificial Intelligence in fresh ways. Several studies have demonstrated improved credit judgment and default prediction accuracy when artificial neural networks are used (Zavadskaya, 2017). Zest Finance, a company founded by former Google CIO Douglas Merrill, has established a portal of software, which permits enhanced and effectual communication between lenders and borrowers. In spite of possessing scarcer data points, fewer than 50 are still used, as well as frequently biased judgments made; conventional banking systems have not altered in the past 50 years. Millions of new clients have been found by Zest Finance's ZAML utilizing a multiplicity of huge data, and points, and the indemnity quest shall be superseded. They contend that despite years of study, the loan analysis has not advanced in any way. Therefore, ZAML can aid in better identifying better borrowers by utilizing thousands of data points. Additionally, it helps to eliminate bias. The Founder asserts that a person is not always a poor borrower when he is tardy and takes longer to pay back a loan. He was astonished by analyzing the other factors that contributed to the likelihood of a human default. This is specifically relevant to youngsters who have less or nil credit history. These are the people, which are kept away by customary industries. Nevertheless, methods suggested by them with reference to ZAML in order to expose the machine learning's black box that describes the creation of tests and it offers law-related data to the candidate when negative consequences arise.

Objectives of the Study:
1. To understand the challenges & opportunities of Artificial Intelligence in Financial Management Process.
2. To evaluate AI solutions for smooth functioning of financial management.

Research Methodology:
This research is solely based on secondary data. Data collection was done through various research papers, published reports and other material available online as well as offline. The secondary data was analysed with proper understanding.
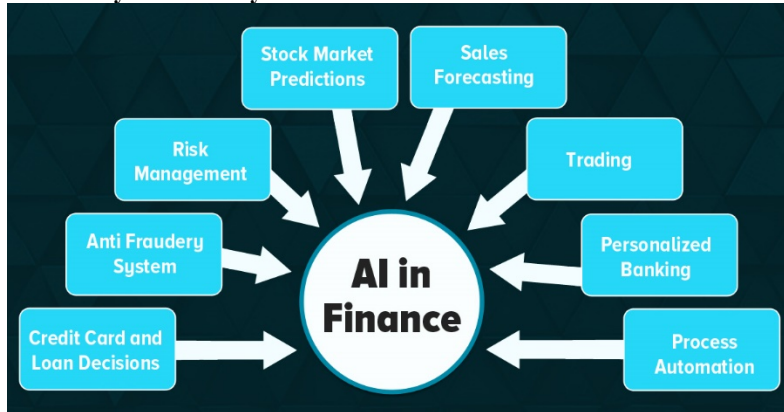
Secondary Data Analysis:

Figure No.3: AI in Finance (Source: https://www.aismartz.com/blog/use-cases-of-ai-in-the-finance-sector/**)**
Application of Artificial Intelligence in Finance:

 i. **Regulatory compliance – detection and prevention fraud:** With the increasing trend in e-commerce 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 Fraud Detection Software that configurations can be detected by implementing prognostic analytics devoid of any awareness of the human predictors and by using machine learning algorithms in order to identify the duplicitous transaction & minimizing fake decline.

 ii. **The Prediction of the Stock Market and Trading System**: Several issues can cause obstacles in the trading system. AI systems provide a faster analysis of data in order to know the reason for failure, they also offer answers to the same. A system of computers is programmed to estimate when to optimize the earnings in relation to trade shares & when to decrease damages at the time of the crisis & help the investors, institutions, and companies to take quick decisions.

 iii. **Increasing security**: In Artificial Intelligence, on an instant basis, machine-learning algorithms are quick in knowing deceitful dealings. They do not wait to detect the crime after it is committed. Many of organizations are trying to implement Artificial Intelligence to enhance the security of online transactions & related services.

 iv. **Risk Management**: Because of the lack of risk management, various industries diverted to the crunch of the subprime mortgage. The earlier app of software emphasized just reports of finance and chosen loan applications. However, the novel technology of a machine learning emphasizes all the data relevant to the present market tendencies, in order to stop crimes related to finance. It also predicts the crisis related to finance by its credit scoring tasks in the actual milieu. Underwriting risk can be reduced by this. All dangers related to health, loan, life insurance, and mortgages can be managed. It even suits the tasks related to underwriting, which are collectively found in insurance and finance. In order to evaluate the financial health of people and even companies, the institutions of finance should continuously predict challenges related to finance. For the sake of creating models of financial prediction and for assessing their efficacy in two prime fields of economic problem avoidance, various academicians and writers have used ML or machine learning as well as statistical methods. (Khandini, Kim, and Lo, 2010) said that a predicting system that is non-parametric and nonlinear was produced by implementing ML methods. This study propagates that the customer credit-risk analytics information might be very relevant in foreseeing systematic dangers such as the financial crisis of 2007 to 2009.

v. **Credit Card and Loan Decisions**: While processing credit card and loan decisions, AI automatically assesses the profile which reduces the cost and efforts involved significantly and making the whole process fair and transparent.

 vi. **Protect Client by Spending Pattern Prediction**: At present, the whole country is dependent on online transactions. In case 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.

 vii. **Personalized Banking**: In banking, AI plays an important role to do all transactions online like payments, and deposits where clients do not need to rush banks. It also handles a majority of client complaints and provides 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 offers a real direction to the forthcoming customer and thus, they can attain truthful facts and quick explanations for their difficulties.

viii. Portfolio Management and Robot-Advisory: Technology will continue to be crucial to many aspects of asset management, as it has been for many years. In the management of portfolio, the usage of ML and AI, has the strength to surge exactitude and efficacy of operative workflow as well as presentation, remuneration, and consumer gratification. (Antoncic, 2020) provided an example of the competitive advantage that firms can acquire by integrating big data analytics services into their company plan.

As per (Tatsat Puri, Lookabaugh, 2020), management of wealth and asset institutions are studying the systems of Artificial Intelligence to help in enhancing their aptitude to implement their huge past information and make good judgments related to investments. For instance, the usage of robotic advisors, which are actually algorithms that mould the financial portfolio of the user as per their objective and risk tolerance. They provide mechanised mentoring and help in relation to finance. (Chandani, Chhateja, 2020) undertook quality research and related to the Indian market in order to produce an exclusive discourse about robotic ability devices. It also focused on reducing prejudices of behaviour from the judgment of professionals related to the Indian companies of finance.

ix. Financial Fraud Detection and Anti-money laundering: In the report on financial crimes from 2010 to 2011, the Federal Bureau of Investigation categorized three types of fraud related to finance. First is bank fraud. It incorporates money laundering, mortgage, and credit card fraud. The second is corporate fraud. This incorporates commodities, securities, and financial statement fraud. Third is insurance fraud. This incorporates auto insurance and health insurance fraud. Complicated detection systems related to financial statement fraud have been developed to help stakeholders and companies for making choices. Current researchers have found a flawed financial statement alteration in management statements. (Omar, Johari, and Smith, 2017), focused on ML models' importance in detecting fake companies. As well as many researchers have used models of data mining to focus their study on structured data.

x. Sentiment Analysis and Investor Behaviour: To establish the sentiment of the market, sentiment experts scrutinize large information, which is unstructured like business papers, social media posts, videos, transcriptions, photos, and audio recordings. For example, chat bots assist as computer-generated workforces for companies. They use exclusive algorithms to simplify consumer cooperation with the minimum help of humans. Machine algorithms and predictive analytics may act as customers' personal financial advisors, giving them advice on how to make their position better. In their 2016 article, (Kumar, Ravi, 2016) gave a detailed inspection of the numerous usages of text mining.
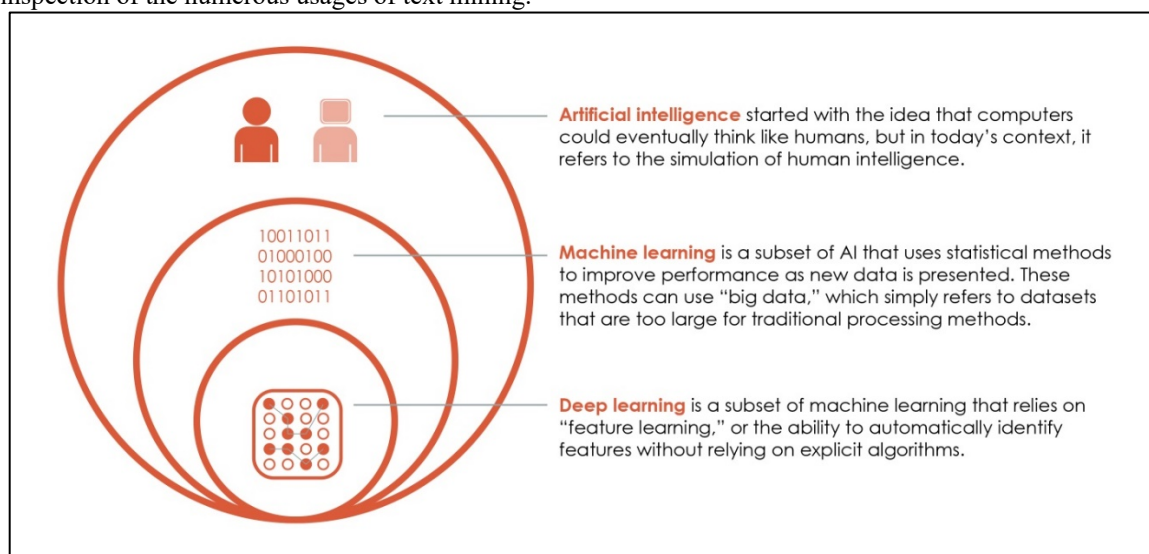

Artificial intelligence started with the idea that computers could eventually think like humans, but in today's context, it refers to the simulation of human intelligence.

Machine learning is a subset of AI that uses statistical methods to improve performance as new data is presented. These methods can use "big data," which simply refers to datasets that are too large for traditional processing methods.

Deep learning is a subset of machine learning that relies on "feature learning," or the ability to automatically identify features without relying on explicit algorithms.

Figure No. 4: AI in Financial / Risk Management (Source: https://www.kramerlevin.com/en/perspectives-search/artificial-intelligence-in-financial-services-tips-for-risk-management.html)

Challenges of Artificial Intelligence:
As know AI is used in every field but have some challenges are there:

i. **Difficult to understand** – Machine learning language is not easy to understand. It leads to some extent of risk and maximizes the level of governance. To reduce its complexities banks need to make clear about models and facts behind them in deep to their users so they can prevent bad business decision

ii. **Based on data availability and quality -** As we know that AI technology is based on big data. When sufficient and good quality of data is uploaded then only it provides reliable information. Even in quality sources, biases can be hidden in the data. Quality issues in the financial sector typically plague data referential. It is already difficult to reconcile the data from front to back. Any substantial artificial intelligence project needs to get off to a good start with a data-quality initiative. Lack of this causes dangerous losses to users.

iii. **Responsibility –** Another main challenge in AI is if something goes wrong who will be liable for responsibility and accountability**.** The absence of an explanation for why the algorithm responded positively or negatively to a certain inquiry can be disturbing for a banker's reasonable thinking. As a result, it becomes important to retain a human supervisor to confirm the machine's judgments for crucial tasks like releasing/blocking payments or authenticating deals, which partially defeats the original intent of utilizing a machine.

iv. **Fast-changing technology:** The correct AI technology may combine with active systems, automate labour-intensive manual procedures, provide the performance required to exploit cutting-edge technologies, and be reused for other purposes.

v. **Reliability of AI –** Due to security concerns The accuracy of AI depends on the data it uses and how much control it has over the system. A dependable system that can withstand the test of time requires the gradual but steady approach of Test Driven Development, which places evaluation and verification to construct the appropriate algorithm at its core.

vi. **Lack of emotional intelligence:** AI is intelligent in solving various specific problems; detects fraudulent activities but lacks emotional intelligence. For instance, chat boxes are smart, but lack empathy. They do what the program is loaded.

vii. **Regulatory barriers** – Transparency in AI is important to succeed in the well-regulated world of financial services. The domain expert is required who can explain the reasoning and main context related to data. Machine learning's capacity to explain its thinking will go a long way toward overcoming legal obstacles and winning consumers' acceptance.

viii. A **Tracking measure of success**: AI forecasting is based on the future prospectus, not providing a 100% guarantee whether your investment gives you profit or loss. It is a challenge to a tracking measure of success like how ML positively impacts on human behaviour, how to reduce cost, and how improved efficiencies. As AI grows the challenges in financial institutions too will vary.

Findings:
The use of AI and ML have increased in Financial Management sector. It is majorly seen in financial modelling, data storage capacity and big data. AI has played significant role in digital financial services and contactless banking. It is helpful in cost saving and increase in efficiency. This has resulted into customer satisfaction, time management and good regulation. It consists some risks like data breach and other cyber related attacks. But this risk can be mitigated by strengthening the security measures, recruiting the experts and enhancing the knowledge of customers.

Recommendations
- AI is used in every field and the probability to reduce human job opportunities, needs 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.

Conclusion
The proposed paradigm takes into account a substantial body of findings from other academics as well as the authors' own research interests. The investigative research's capability to offer a complete and clear process for charting fields of research is one of its key benefits. In contrast to a thorough systematic review, reviewers can

quickly identify the subject of interest based on the quantity, kind, and qualities of exploratory data. The following articles were chosen for our study's review out of a list of the top publications on AI and machine learning in the banking sector, which included 110 documents. The papers that have received the most citations, have the highest bibliometric scores, were in print most lately, and they form a portion of the chief track of analysis for the research of available discourses. If we did not understand the restrictions placed on investigations, we would be lying to ourselves. For example, in reports of primary research, due to the presentation of a huge volume of information; they refrain to assess the evidence's quality. The selection of small research is always helpful to understand the relevant breadth. Investigating research focuses on methodology and uses a variety of designs of study as compared to systematic assessments as they ultimately offer a narrative and expressive gist of earlier and current studies.

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