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**NEW REVOLUTIONIZING FINANCIAL MANAGEMENT THROUGH
ARTIFICIAL INTELLIGENCE****M. Subasini¹**¹ Assistant Professor of Commerce, V.V.Vanniaperumal College for Women, Virudhunagar, Tamil Nadu, India.*** Corresponding author email address:** subasini@vvvcollege.org**DOI: <https://doi.org/10.59415/mjacs.384>**

Abstract

In the monetary economy, banks and financial institutions were established for money creation. Both organised and unorganized sector have a mushroom growth of development in capital and money market. Apart from banks and financial institutions, stock markets were established in Metro-Politan cities. In the developing economy like India, shortage of finance is the major problem for the budding entrepreneurs. Traditionally, the work of finance managers is limited to maintain the accounts of the business only. Now, the function of finance manager is to acquire finance and utilization of finance. In the modern economy, Artificial Intelligence is a boon to finance managers to find out the new sources of finance and investment of finance in proper avenues. The objectives of the study are to know about the benefits of AI in financial management, to study the methods through which AI is used by financial institutions, to identify the stakeholders of AI in finance and to predict the future trends of AI in finance.

Keywords: : Generative AI, Quantum Algorithm, Critical Path Method, Programme Evaluation and Review Technique, Deep Learning

1. INTRODUCTION

Finance is the neural network of any business which pumps cash into different commercial activities. Before the evolution of monetary economy, barter system is in practice. Due to deficit finance, barter system is accepted by people in the economy. Economist stressed the significance of introduction of monetary system and pointed out the demerits of barter system. Finance refers to cash and some tradable securities. Finance helps to invest in fixed and working capital needs of the business. Fixed capital is used to acquire immovable properties such as land, building, machinery, equipment, etc. Working capital is used to meet day-to-day expenses of the business. Working capital is the difference between current assets and current liabilities. A positive working capital shows the good sign of the progress of the business

In the monetary economy, banks and financial institutions were established for money creation. Both organised and unorganized sector have a mushroom growth of development in capital and money market. Apart from banks and financial institutions, stock markets were established in Metro-Politan cities. People have a fear to access the trade in stock exchanges. New issue market is used for issue of new shares of the company. Secondary stock exchange is used for transfer the existing shares held by the stock traders. Reserve bank of India regulates the operations of the bank like that Securities Exchange Board of India regulates the stock market operations.

In the developing economy like India, shortage of finance is the major problem for the budding entrepreneurs. Sufficient amount of finance Search of finance at reasonable cost is a struggle faced by many business people. Even though both central and state government provided lot of incentives and subsidies, free flow of credit is drastic hurdle for many businessmen. Proper management of finance assists the businessmen to lead their business in the path of profitability. Traditionally, the work of finance managers is limited to maintain the accounts of the business only. Now, the function of finance manager is to acquire finance and utilization of finance. In the modern economy, Artificial Intelligence is a boon to finance managers to find out the new sources of finance and investment of finance in proper avenues.

The world is in the hands of Artificial Intelligence. The financial management under the stream of AI, automated business book keeping, avoids manual errors and mistakes, handling abstraction and data driven forecasting. AI-powered algorithms concentrate on television massive datasets in real-time, recognize doubtful irregularities and instable market conditions that shirk traditional methods. In capital and money markets, AI drives high-frequency algorithmic trading based on market data, implementing security transfer in milliseconds. For individuals and wealth management, future-forward specialized AI agents are emerging to separately manage personal finances and investments.

2. FINANCE AND ARTIFICIAL INTELLIGENCE

The term 'financial services' sector refers to the group of industries that offer financial resolutions to individuals and businesses. This sector is important for the effective operation of the global economy by simplifying financial dealings, moderate risk management and improve the value of financial investment.

The role of AI in financial management deals with usage of innovative technologies using progressive algorithms, machine learning and natural language processing. AI insists the importance of taking correct finance decisions in the trading ventures. When correct decision is taken by the finance manager, it reduces the cost of the debt and improve the cash inflows. AI examines the finance data, systematize the finance process, personalize the finance functions and choose the correct decision. AI systems minimize the human involvement and automate the executive process. The evolution of Fintech enhances the efficiency of the financial institutions such as banks, insurance and non-banking finance companies, reduce the financial risks and provide unique services to their financial customers. The credit worthiness, borrowing and repayment capacity of the people can be measured with the help of AI technologies.

3. SIGNIFICANCE OF THE STUDY

Fintech is the combination of the financial management and Artificial Intelligence. The technologies of Fintech assist the financial institutions to identify the prospective customers in all aspects. It also helps the individuals to find out the opt financial organizations for all their finance needs such as deposit of money, lending of money, transfer of money and foreign currency exchange. In modern banks, fintech counters are established to satisfy the customers. The RBI direct the financial markets to install adequate infrastructure facilities to operate Fintech. Angel investors, lease financing and venture capital methods of financing also depends upon the tools of Fintech to predict the risk, handle the risk and recover from financial crisis. Hence, an attempt has been made to examine the requisites of AI in financial management.

4. OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

1. To identify the theories related to application of AI in financial services
2. To know about the benefits of AI in financial management.
3. To study the methods through which AI is used by financial institutions.
4. To identify the stakeholders of AI in finance
5. To predict the future trends of AI in finance

5. METHODOLOGY

The present study is descriptive one which describes the AI tools and techniques in the area of finance. The study is based on secondary sources such as published sources, AI books and financial records of the companies who are using AI concepts in their financial management.

Theories Relating to the Application of AI in Financial Services

The theories focused on the implementation of AI in financial services are as follows: machine learning theory, decision theory, constructivist learning theory, bayesian theory, socio-cultural learning theory, big data analytics theory, and automation and efficiency theory.

Machine Learning Theory

Most of the application of AI in financial services falls under this theory. The basic prerequisite of the theory focuses on the development of algorithms that study patterns from past data and recover their predictive accuracy over time (Goodfellow, Bengio, & Courville, 2016). In business finance sector, machine learning is broadly used for credit scoring, fraud detection and algorithmic trading.

Decision Theory

Decision theory offers a mathematical outline for making optimal choices under uncertainty (probabilities of occurring of an event is not known). It is mostly applicable in finance, where decisions often involve risk and incomplete information (Von Neumann & Morgenstern, 1944). AI systems leverage decision theory to elevate investment strategies, credit approvals and portfolio management.

Bayesian Theory

Bayesian theory depends on the principle of updating probabilities as new information becomes available (Gelman *et al.*, 2013). This approach is extremely relevant in financial environments categorized by uncertainty and uninterrupted data inflow. AI systems used Bayesian methods for dynamic risk assessment, fraud detection and market forecasting.

Socio-Cultural Learning Theory

Socio-Cultural theory, invented by Vygotsky, highlights the role of social interactions in cognitive development (Vygotsky, 1978). The application of AI in financial services has the potential to enhance social interactions

by providing intelligent agents that enable collaborative use of financial products and services (D'Mello & Graesser, 2014). AI-driven collaborative tools not only increase communication but also facilitate the exchange of diverse perspectives, leading to the invention of new financial products and services to meet the needs of the diverse users or consumers within the financial sector.

Big Data Analytics Theory

This theory underlines on the extraction of meaningful insights from large, complex, and diverse datasets (Mayer-Schönberger & Cukier, 2013). Institutions within the financial services sector generate vast amounts of structured and unstructured data, making this theory central to the applications of artificial intelligence.

Automation and Efficiency Theory

This stresses out the role of technology in reducing operating costs and improving productivity and profitability. AI-driven automation, including robotic process automation (RPA), has expressively improved operational efficiency in financial institutions. In banking, insurance and mortgage finance, AI automates repetitive tasks such as data entry, claims processing, and loan underwriting

6. BENEFITS OF THE AI IN FINANCIAL MANAGEMENT

The financial management requires data intensive process and on time decision making process. As the financial data is very large, AI uses peculiar tools and techniques to handle the complex financial transactions of the multinational companies. MNC are the pioneer in using AI technology in functional areas of the business. The multinational and corporate companies experienced operational efficiency, risk taking abilities, sublime customer services and regulatory such as legal compliances.

Kaplan (2016) describes AI as, "The essence of intelligence which can make suitable generalizations efficiently considering limited data. The broader the scope of application, the quicker the verdicts are drawn with rudimentary information, the more intelligent the behavior." In finance, artificial intelligence refers to the application of technological ensemble or arsenal, particularly machine learning algorithms in the finance industry. AI in finance also involves using algorithms and machine learning to automate processes, analyze data and make well-considered decisions in areas like fraud identification, creditworthiness assessment, and customer service.

AI technologies rule all the sectors in the world. Information Technology (IT) and Information Technology Enabled Services (ITES) companies adopted Natural Language Processing (NLP) methodologies to meet the needs of their clients. The deadline fixed by IT and ITES companies can be met only with possibilities of AI Jupiter, AI gemini and AI chat GPT. (Saravanan and Sukumar, 2020).

Cloud computing and hybrid cloud enables the stock markets to expand their operations without the role of intermediaries. The registration and trading process is done by the investors through the notifications stored in the cloud. The investors can see their previous day trading process and stock exchange movements viz., bull, bear and dock through index fluctuations. (Keerthana and Veenarani, 2022).

Figure 1 explains the benefits of AI enjoyed by top ten multinational companies in India.

Figure 1: Benefits of AI in Multinational Companies



Source: <https://aimnc.fintech.in>

Data analytical tools in Artificial Intelligence predict the income level and spending pattern of the public by monitoring their credit card swiping. The banks and financial institutions change their nature of banking business from traditional banking, core banking, mobile banking and e-banking. Chatbots are invented to meet the requirements of the customers

7. METHODS TO USE AI BY FINANCIAL INSTITUTIONS

AI based algorithms are the game changer in the financial market which helps in high frequency trading and manifest investment tactics. The historical data maintained in the company is the source for forecasting the future trends. Reinforcement learning in AI simulate the market situation and change the financial decisions as per the changing environment.

In the early stages, human beings prepare financial statements such as trading, profit and loss account and balance sheet with the help of trial balance, ledger and journal entries. After that Tally is a accounting software was introduced. When GST was launched, Tally ERP 9 with GST was invented. Now Tally prime was used. Apart from Tally, **automation of financial transactions** in AI engages the human employees in higher value tasks.

Financial institutions used some data such as income and expenses pattern of the borrower to determine their credit limit. AI used spending pattern of the people, social media engagement and geographical location movements to compute their CIBIL score. This shows the exact pattern of their finance history. The **credit scoring and risk assessment activities** are done with alternative methods of AI.

Banks implemented chatbots for unique customer services. Help desk, customer service counters provided limited amount of services to their customers. Chatbots provide 360-degree services to their customers to a large extent. **Conversational AI systems** understand the queries of the customers and via Natural Language Processing, they satisfy the customer needs. Bank of America used chatbots and handled over 2 billion customer interactions.

Finance fraud is the dangerous one for financial institutions. Deep learning in AI predict the transaction history to identify the suspicious activity. Predictive analysis helps to **prevent the risks** to be faced by the financial institutions in the future. Present value of the property, future value on the basis of cost of capital and leverage methodologies determine the safety enhancement of the financial institutions. While allocating the credit card to the customers, AI spot out the abnormal spending pattern of the customers.

Insurance companies also used Artificial Intelligence to secure their business by scanning the insured value and their health records and premium payment capacity. It helps to avoid surrender of policies. Reinsurance and double insurance concepts under valuation balance sheets determine the net liability of the business. Fastest claim settlement and quick premium payments are possible via **AI based automation**.

Portfolio is nothing but list of shares and securities hold by the investor with the help of security and portfolio techniques. E-investment tools and techniques help the investor to predict the share market trend such as bull trend, bear trend and lame duck trend. The **Treynor's model** in AI technology is a boon to new investors too. These methodologies offer actionable insights for both individual investors and institutional asset managers.

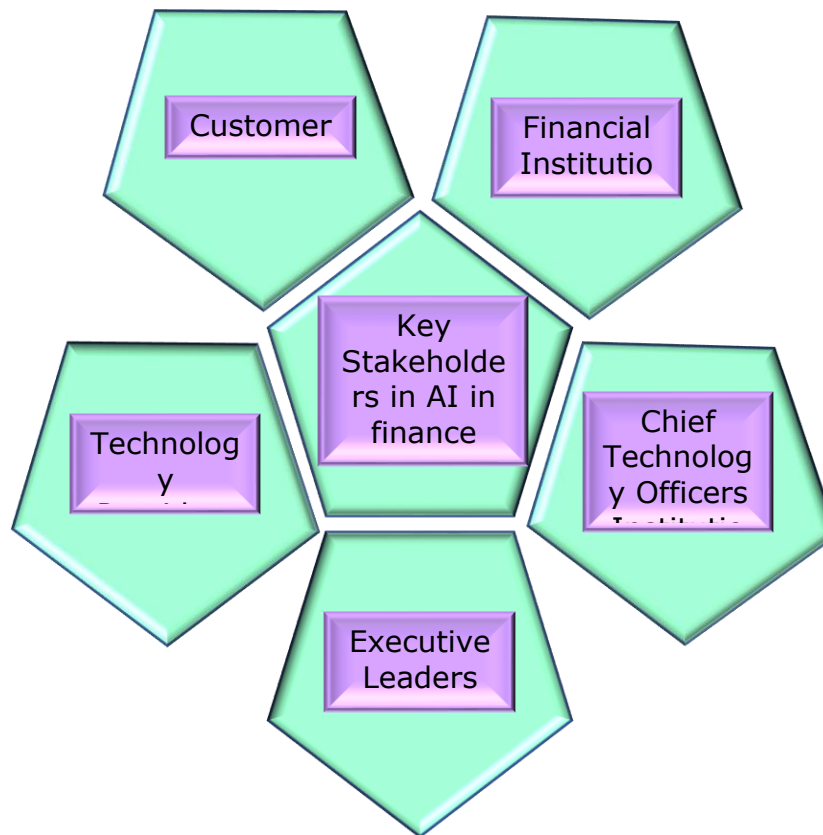
Our forefathers believe a proverb 'Prevention is better than cure'. Prevention is possible via prediction. By monitoring the past and historical data, the prediction is possible. Due to the invention of AI, past data along with present market trend, **prediction** can be done. This will yield fruitful predictions. The changes of deviation are less in this sector. AI systems examine the global level economic parameters to predict the international trends to take proactive decision for resource management.

The financial services industry operates under stringent regulatory requirements. AI systems help with compliance by automating the monitoring of transactions and detecting suspicious activities. They also help institutions stay up to date on evolving regulations. Black money, tax evasion and tax avoidance are solved with the help of AI tools.

Stakeholders of AI in Finance

The stakeholders of AI in finance is presented in Figure 2.

Figure 2: Stakeholders of AI in Finance



8. FUTURE TRENDS FOR AI IN FINANCE

Many AI applications are already well established in the financial services field. However, advancements and emerging technologies are dignified to shape the future of finance and the finance industry's digital transformation in new ways.

Advanced generative AI applications

AI plays an important role in collecting, processing and analyzing enormous datasets. AI models can sift through an ocean of data to extract notable insights and trends which enable banks to make evidence-based decisions. The advanced generative AI applications are as follows:

Generative AI

Generative AI has gained attention for its ability to create realistic content. Going forward, its future applications in finance might include more sophisticated use cases, such as scenario modeling for risk management, synthetic data generation for training machine learning models and advanced fraud simulations. These gen AI capabilities could enhance decision-making by providing financial institutions with more insights into potential challenges and opportunities.

Large Reasoning Models (LRMs)

Large language models (LLMs) are useful for task-oriented activities like customer service and document verification, but the new generation of AI systems - Large Reasoning Models (LRMs) take the finance sector to the next prominent level. LRMs are invented to perform difficult and complex analytical reasoning, which helps them simulate intricate financial situations, augment portfolios and measure credit risk with more accuracy. It could help financial institutions such as primary markets, secondary markets, banks, insurance companies and non-banking finance companies address challenges that need deeper contextual understanding and strategic planning.

Autonomous AI agents for Successful Workflows

The skilled AI agents qualified for administering whole workflows autonomously are expected to become more sophisticated. These agents could switch complex processes such as expense management, savings pattern, investment decisions, compliance monitoring and cash flow forecasting without requiring human intelligence. By focusing Natural Language Processing, decision-making algorithms and contextual awareness, autonomous AI agents can expressively minimize/reduce operational blockages and improve efficiency across financial institutions.

Decentralized AI for Privacy and Security

Among companies about data privacy and cybersecurity, decentralized AI systems is the one and only unique solution. The security systems execute data locally instead of relying on centralized servers, minimize the risk of breaches and ensuring agreement with stricter data protection regulations. In the future, decentralized AI would assist financial institutions to implement secure, privacy-preserving solutions for operations such as fraud detection and identity verification.

Real-time fraud detection at scale

While real-time fraud detection is already a critical application of AI, future efforts are going to focus on scaling these systems to handle increasingly complex and high-volume transaction environments. The world is considered as a small hub in the hands of internet. Accessing the data any where and every where is possible within the fraction of eye blinking seconds.

Edge Computing

Development in distributed AI architectures and edge computing strengthen fraud detection systems to process data closer to its source, reducing latency and improving response times. The systems are likely to incorporate more diverse data sources, such as biometric authentication and behavioral analytics, to enhance accuracy.

Embedded Finance

Now a days, the connection of financial products and services with non financial companies is done with the help of embedded finance. Non financial companies are the one which do not deal with financial products. Investment recommendations via digital media stimulate those institutions to choose profitable investments.

Quantum Algorithms

Quantum algorithms is a resource management technique which engage the financial institutions for linear programming, transportation and assignment problem, queueing model, Programme Evaluation Review Techniques (PERT) and Critical Path Methods (CPM) concepts and simulation techniques. Its main goal is optimization of resources.

Hybrid Cloud Modelling

Hybrid cloud modelling is a mixture of both public and private cloud system. Public cloud allows many users to unified domain whereas private cloud is a software codified and bought by some companies for their private use. It is beneficial to the companies to enhance diverse business strategies such as business strategy, corporate strategy and functional strategies.

Environmental, Social and Governance (ESG)

Environment protection is essential for leading a healthy life. The scanning method of natural resources is able for the social institutions to discover the resources and keep it safe. The environmental protection is done only for the welfare of the society. Green banking and green marketing are implemented by financial institutions for the reducing carbon pollution. The Central and State Government Water pollution, Air Pollution control boards perform tasks to save the nature for the future generation.

9. CONCLUSION

In India, AI is a new concept which is in the crawling stage but developed economies, AI rule their growth and progression of the nation. The access of e-financial services to all the people is a vision of Fintech. Mobile phone usage patterns is the base for accessing the financial services. The unbanked population of our country is minimized via financial inclusion. It is a seed through which online banking, mobile banking, NEFT, RTGS, EFT are spread over the people. Beyond this, Fintech with AI serve the financial customers to the large extent. No doubt, in the year 2050, every citizen of the country will have awareness about financial issues and financial institutions will reduce the risk of Non-Performing Assets.

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