DHARANA
Bhavan's International Journal of Business

https://doi.org/10.18311/DBIJB/2023/33967

AI and Machine Learning in Fintech Companies

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Abstract

The vast amount of data technology in organizations causes the need to understand the factors of how to use this data and for understanding. To make the most of the company's data there is a need to be an awareness of the latest trends and technology in the business analytics space. These predictions will help organizations prepare for the future of business analytics and stay agile. Technology disruption and dramatic shifts in consumer banking lay the basis for new banking S- curve business models, Further COVID-19 pandemic has accelerated these trends. This paper examines the Applications of Artificial Intelligence and Machine Learning, which are two related technologies that are playing a paramount role in Fintech companies in the present-day scenario. This paper explores the operational efficiency of Artificial Intelligence and Machine Learning capabilities and their future opportunities in Fintech Services. The present study adopts a conceptual Model. The study attempts to discover patterns in the usage and effectiveness of Artificial Intelligence and Machine Learning capabilities in FinTech Companies. The major implication of the research is fraud detection where data and machine learning an analytical solution can be embedded in the operational process and automatically isolate or minimize financial fraud. Artificial Intelligence and Machine learning help FinTech companies to detect sub spinous incidents instantaneously and expedite the time to respond. In addition, the applications of Artificial Intelligence and Machine Learning lead to operational efficiency in Fintech companies.

Keywords: **Artificial Intelligence, FinTech Companies, Fraud Detection, Machine Learning, Operational Efficiency**

JEL Classification Code: O30

1. Introduction

Artificial Intelligence originated from the 1955 Dartmouse Summer Research Project Proposal. (McCarthy *et al.*, 2006). Artificial Intelligence and Machine Learning are often interchangeable inaddressing tasks requiring human sophistication.

AI is integrated into financial services by its ability to perform specific tasks subtly beyond humans especially handling unstructured raw data. The machine learning part of AI deals with the study and construction of techniques that learn automatically from data to solve data (Stojanovic *et al.*, 2021) Machine Learning is a data-driven subcategory of Artificial Intelligence, using statistical tools to analyze historical data and predict patterns, accelerating business changes in Fintech Companies.

AI has the potential to automate tasks, engage with ustomers, generate insights, make decisions,and support invocation in Fintech companies. AI's uniqueness is it essentially identifies the actionable objectives to realize its worth. (Hamm & Klesel, 2021). AI enhances fintech supervision, customer service, and business experiences. (Geddes & Schmidt, 2020). AI/ML systems in the financial sector forecast macroeconomic variables, meet customer demands, provide capacity and monitor business conditions, offering flexibility and outperforming linear regression-based methods in forecast accuracy and robustness. (Bolhuis and Rayner 2020). AI advances across various fields including finance, Marketing and Finance, impacting various industries.

2. Methodology

This paper is descriptive and conceptual. A conceptual framework linking up AI/ML capabilities like fraud

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detection, credit scoring algorithmic trading constructs with independent variable operational efficiency is shown in Figure 1, where the improved operational efficiency of fintech companies elevates the business results in terms of Companies revenues.

2.1 Research Gap

The raw data used in AI/ML applications may not yield conclusive evidence. Moreover, in the literature review it is evident that most of the research was on the advantages and applications of AI/ML in fintech companies in general. There are very few studies on operational efficiency derived from AI/ML capabilities leading to business benefits. Future directions of some research papers also have given avenues for carrying out research on AI/ML capabilities, which emerges with new business benefits.

2.2 Problem Statement

AI/ML adoption in Fintech Companies presents risks and challenges, including potential bias, cyber-addressed risks, privacy concerns and structural shifts. Data privacy and cybersecurity are crucial, as AI/ML algorithms may uncover unknown correlations in data sets, making it essential to ensure financial stability.

3. Objectives of the Study

1. To examine the application of AI/ML in Fintech Companies.
2. To identify AI/ML capabilities leading to operational efficiency in Fintech Companies.
3. To develop a conceptual model that provides a linkage between AI/ML capabilities andoperational efficiency.

4. Discussions and Implications of Application of AI and Machine Learning in FintechCompanies

Implementation of AI/ML in Fintech companies brings many benefits. It leads to faster response and enhanced customer satisfaction. (mtransfersHQ, 2018)

AI/ML capabilities enhance operational efficiency by automating repetitive tasks, streamlining processes, and providing insights that can help optimize business operations. FinTech Companies must ensure proper measures to make sure privacy, accuracy and compliance and most importantfocus on customer experience. The following points are discussed below:

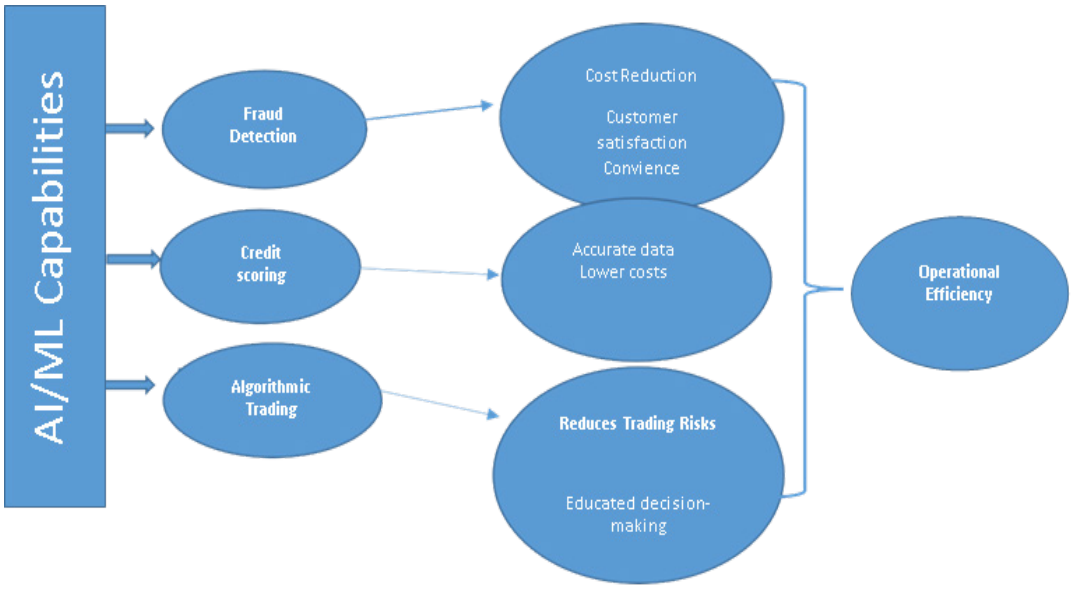

Figure 1. Artificial Intelligence and machine learning capabilities and operational efficiency conceptual model.
Source: Author

Fraud Detection

AI/ML's excellent computational capacity helps with fraud detection, interpreting large sets of data, which provides better insights into customer preferences, behaviour and fraud trends. AI/ML models analyse large datasets to understand customer preferences, behaviour, and fraud trends, ensuring 24/7 response and automatic transaction rejection. (Malaji & Gopalakrishnan, 2020) Advanced technologies enable efficient detection of complex fraudulent events, enhancing digital performance in e-commerce and banking sectors. Fraud examiners like KPMG, ACFE, and PWC show that AI-based technologies can detect fraud early.

Credit Scoring

Machine Learning algorithms develop credit-scoring models using historical data to predict default likelihood and assess new borrowers' creditworthiness. (Qin *et al.*, 2021). Machine learning can be applied in credit scoring assessing, a customer's ability to pay and debt repayment likelihood. It uses dimensions like work experience, income, transaction analysis and credit history to generate accurate, sensitive and tailored assessments. Combining AI and ML, improves enterprise identity, accelerates KYC, prompts credit scores manages risk, and reduces costs.

Desai *et al.* (1996), this study investigates the effectiveness of neural networks linear discriminant analysis, and logistic regression in evaluating credit scores for small loans, revealing promising avenues for identifying bad loans.

Cost Reduction

AI/ML capabilities can be a powerful tool in reducing costs and improving operational efficiency in Fintech. These technologies help fintech companies to achieve significant cost savings and enhance customer experience and business outcomes. Machine Learning algorithms offer analytical capabilities and significantly reduce time-consuming tasks. They offer an affordable way to process data in real-time and find patterns for making decisions. AI in Fintech streamlines business processes reduces operational costs, increases accuracy and enables employees to focus on strategic tasks. (Tatsat *et al.*, 2020) Asset wealth management organizations are exploring AI technologies for better investment decisions and historical data utilization, including robo-advisors and automated financial advice.

Customer Satisfaction

Fintech companies enhance operational efficiency and customer satisfaction using AI/ML. By providing personalized experiences and deriving fast and accurate services, these technologies can help fintech companies provide a better customer experience. AI/ML chatbots and virtual assistants enhance customer experience by providing 24/7 support, reducing wait times and offering personalized recommendations for financial products and services. (Blackrock, 2019) Technology continues to impact asset management, with AI and ML applications improving efficiency, accuracy, performance, profits, and customer satisfaction.

Convenience

AI/ML capabilities can be used in fintech to improve convenience for customers. By providing fast and easy access to financial products and services, automating tasks and delivering personalized experiences these technologies can help fintech companies provide a more convenient and seamless customer experience. These technologies can help fintech companies provide a more convenient, seamless customer experience like AI/ML powered mobile banking apps, process automation repetitive tasks such as data entry, reconciliation and reporting reducingthe time to complete these tasks, and voice-activated banking (Konigstorfer & Thalmann, 2020). Banks and Financial institutions are utilizing AI chatbots to enhance the experience, eliminating personnel and allowing mobile banking apps for account creation, transfers, and bill payments.

Accurate Data

AI revolutionizes trading by analyzing real-time data and providing insights beyond static models.Consumers can trade stocks and shares using user-friendly mobile apps and AI-powered Fintech decision-making apps. Algorithmic trading AI/ML capabilities improve operational efficientcy automate receptive tasks and optimize business operations.

The major findings are FinTech provides techniques and processes to develop the financial sector. However, with the integration of cutting-edge technologies like AI and

machine learning the operating effectiveness is enhanced in FinTech (IMF Report). AI/ML deployment in fintech companies boosts efficiency, reduces costs, and improves customer-demanded financial services products.

5. Discussion and Conclusion

AI/ML-related technologies are reshaping the financial landscape. These cutting-edge technologies are increasing financial Deeping increasing the operational efficiency of FinTech companies. Innovative AI/ML capabilities enable product customization, improved client interface (chatbots), and cost reduction through automated processes. Fintech companies pioneered AI/MLinnovation for budget awareness and human development. AI/ML collaboration in fintech companies is crucial for business success, requiring human-intelligent algorithms and machine learning. This research focuses on developing a conceptual model aligning AI/ML capability with operational efficiency. Empirical research can be conducted using this conceptual model.

References

Blackrock. (2019). *Artificial Intelligence and machine learning in asset management Background.*Available from: https://www.blackrock.com/corporate/literature/whitepaper/viewpoint- artificial-intelligence-machine-learning-asset-management-october-2019.pdf

Bolhuis, M. A., & Rayer, B. (2020). Deus ex machina? A framework for macro forecasting with machine learning. *International Monetary Fund.* https://doi.org/10.2139/ssrn.3579665

Desai, V. S., Crook, J. N., & Overstreet, G. A. (1996). A comparison of neural networks and linear scoring models in the credit union environment. *European Journal of Operational Research,95*(1), 24-37. https://doi.org/10.1016/0377-2217(95)00246-4

Geddes, A., & Schmidt, T. S. (2020). Integrating finance in to the multi-level perspective: Technology niche-finance regime interactions and financial policy interventions. *Research Policy, 49*(6), Article 103985. https://doi.org/10.1016/j.respol.2020.103985

Hamm, P., & Klesel, M. (2021). *Success factors for the adoption of artificial intelligence in organizations.* Conference: 27th Americas Conference on Information Systems (AMCIS), Montreal, Canada. Retrieved 2022.

Konigstorfer, F., & Thalmann, S. (2020). Applications of Artificial Intelligence in commercial banks – A research agenda for behavioral finance. *Journal of Behavioral and Experimental Finance, 27*, Article 100352. https://doi.org/10.1016/j.jbef.2020.100352

Malaji, A. B., & Gopalakrishnan, S. (2020) Applications of Artificial Intelligence and its poweredtechnologies in the Indian Banking and Financial Industry: An overview. *IOSR Journal of Humanities and Social Science*, *25*(4), 55-66. Retrieved 2022.

McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (2006). A proposal for the dartmouth summer research project on Artificial Intelligence, August 31, 1955. *AI Magazine*, *27*(4), 12-12. Retrieved 2022.

mtransfersHQ. (2018). *Banking Chatbots in Nigeria*. https://medium.com/mtransfers/banking- bots-in-nigeria-21a3e6c8600e

Qin, C., Zhang, Y., Bao, F., Zhang, C. & Liu, P. (2021). XGBoost optimized by adaptative particle swarm optimization for credit scoring. *Hindawi Mathematical Problems in Engineering, 2021*. https://doi.org/10.1155/2021/6655510

Stojanovic, B., Bozic, J., Hofer-Schmitz, K., Nahrgang, K., Weber, A., Badii, A., & Runevic, J. (2021). Follow the trail: Machine learning for fraud detection in Fintech applications. *Sensors*, *21*(5), 1594. https://doi.org/10.3390/s21051594

Tatsat, H., Puri, S., & Lookabaugh, B. (2020). *Machine Learning and Data science Blueprints forFinance.* O'Reilly Media, Inc. Retrieved 2022.