5-2 Assignment:

Combined Impact of Artificial Intelligence and Machine Learning

Andrea Plunkett - Jackson

Southern New Hampshire University

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Dr. Francine Adams, EdD

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Artificial Intelligence (AI) and Machine Learning (ML) are powerful tools that hold the potential to bring about a significant transformation in the banking sector. They are currently being utilized to enhance operational efficiency, manage risk and regulatory requirements, prevent fraud, and improve customer service by offering more tailored experiences. These technologies are driving advanced automation in the banking industry, often surpassing human decision-making in terms of speed and accuracy (AI for Banking, n.d.). This is particularly evident when AI and ML are used to strengthen risk controls. According to the McKinsey Global Institute, these technologies could contribute an annual value of $200 to $340 billion to the global banking sector (The Future of AI in Banking: Choosing the Right Model | McKinsey, n.d.).

Moreover, AI technologies can guide strategic growth by enabling banks to uncover new and previously untapped opportunities. This is made possible by their superior ability to process and extract insights from large volumes of data, leading to significant advancements in the banking industry.

AI and ML are set to revolutionize the banking industry by challenging the status quo and introducing noticeable changes. They are bringing about a significant transformation in the banking sector by disrupting the existing norms and reducing the traditional dependence on human decision-making. These technologies have the capability to process and learn from enormous volumes of data, resulting in more precise predictions and decisions (SAS, 2023). This can bring about a substantial change in conventional banking services by facilitating more personalized and efficient offerings. For example, AI-enabled chatbots are beginning to provide customer service around the clock, providing instant responses to customer queries, and ML algorithms can deliver tailored financial advice based on a customer’s financial history and objectives. This is leading to visible changes in overall customer satisfaction based on engagement surveys within my previous banking role.

In addition, these technologies can challenge the traditional approaches to risk management in banking. By recognizing patterns in extensive datasets, they can predict potential risks and frauds with greater precision in real-time, thereby improving the overall security of banking operations. This transformative impact of AI and ML on the banking industry is set to redefine the future of banking. As they have the capability to automate routine tasks such as data entry, transaction processing, and customer service through chatbots. This level of automation can expedite service delivery and decrease operational costs, promoting greater efficiency with use. Furthermore, algorithms can scrutinize vast quantities of data to make precise predictions and decisions. This ability can enhance the efficiency of a range of banking processes, from credit scoring and risk assessment to fraud detection.

AI and ML can also assist banks in providing personalized services to their customers. By analyzing a customer’s behavior and preferences, these technologies can offer tailored financial advice and product recommendations, thereby improving the efficiency of marketing efforts and boosting customer satisfaction.

The increased efficiency resulting from the use of AI and ML can also lead to improvements in human conditions in several ways. By automating routine tasks, AI and ML can save time for both bank employees and customers, allowing employees to concentrate on more complex tasks and customers to enjoy quicker service. With personalized financial advice, customers can make better financial decisions, which can enhance their financial health overall. While AI and ML can automate certain tasks, they also create new job opportunities. There is a growing demand for professionals who can develop, implement, and maintain AI and ML technologies.

While the implementation of Artificial Intelligence (AI) and Machine Learning (ML) in the banking industry holds promise, it also presents several challenges. AI and ML models require substantial amounts of data for training. If the data is insufficient, the models may not perform optimally. Additionally, data from various sources may be in different formats, making it difficult to integrate and use for training models. Choosing the right model for a specific task can be challenging, and evaluating the performance of a model, especially complex ones, can be difficult.

In terms of safety and privacy threats, the banking industry could face several risks due to the implementation of AI and ML as they require access to sensitive customer data, and protecting this data from breaches is a significant concern. AI and ML systems themselves can be targets of cyber-attacks. For example, attackers could manipulate the data used to train these models, a threat known as “data poisoning” (U.S. Department of the Treasury, 2024).

As AI and ML become more prevalent in banking, regulatory bodies are expected to impose new rules and regulations like that of the executive order issued in October 2023 by President Biden (Turner, 2024). Complying with these new regulatory standards of safety testing and cybersecurity programs could be a challenge. There are also concerns about the potential for AI and ML models to be biased or unfair. For example, if the data used to train these models is biased, the models themselves could make biased decisions. These challenges highlight the need for careful consideration and management as the banking industry continues to adopt AI and ML technologies.

In conclusion, the integration of Artificial Intelligence (AI) and Machine Learning (ML) in the banking industry, while promising, is not without its challenges. The potential benefits, such as improved efficiency, personalized services, and enhanced decision-making capabilities, are significant. However, issues related to data sufficiency and standardization, model selection and evaluation pose considerable hurdles. Furthermore, the implementation of these technologies brings about safety and privacy threats, including data security, cybersecurity threats, regulatory compliance, and ethical concerns. Therefore, while AI and ML hold the potential to revolutionize the banking industry, careful consideration and management of these challenges are crucial for successful implementation and to ensure the benefits outweigh the risks

Resources

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‌Turner, A. (2024, March 1). AI Compliance and Regulation: What Financial Institutions Need to Know. ABA Banking Journal. <https://bankingjournal.aba.com/2024/03/ai-compliance-and-regulation-what-financial-institutions-need-to-know/>

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