



# Artificial Intelligence and the Future of Banking & Finance

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Contemporary issues

Finance and banking management

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01

# Introduction



# INTRODUCTION

(AI) is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. While AI is an interdisciplinary science with multiple approaches, advancements in machine learning and deep learning,



# INTRODUCTION

Artificial intelligence was first found in 1950 it was firstly found to mimic human intelligence in problem solving until its fully upgraded to a next a level nowadays. it helps most industries in predicting any future crisis/risks and provide useful recommendations for most problems



## Martials & methods

The method used in the data collection is mostly qualitative, mainly based on previous studies and literature review in which a summary of findings that is drawn by 15 journal articles. Most of these articles were written by leading theorists in the field of technology and economic. The methods were used In this study include qualitative (interviews) quantitative (questionnaires).

# 02

## **Concept of artificial intelligence in banking**



# Concept of artificial intelligence in banking

Artificial intelligence is mainly used in multicorporate companies to improve their strategies, process and customer satisfaction by collecting a vast amount of data analyzes it and shape it in a way that head managers can take decisions based on the outcome.



“its not only about the quantum of  
data it s also about quality of data”

“Deon Newman”

## Literature review summarized

Regarding the application of AI and ML in the management of operational risks and a group of related risks, significant results have been achieved worldwide in the following areas: cyber security, fraud prevention, and anti-money laundering. For example, AI and ML, i.e. their segment of unsupervised learning algorithms can provide an input to operational risk models such as the institution vulnerability to cyber-attacks.

AI and ML could be used for anticipating and detecting fraud, suspicious transactions, default, and the risk of cyber-attacks, which could result in improved risk management.

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## Literature review summarized

In this paper it shows that Workers would need to expand their skill to qualify into job market in future. Demand for social and emotional skills will grow as well as many technological skills. People with cognitive skills, critical thinking, creativity will be in demand. Jobs requiring physical and manual abilities will decline over the years.

Also work environment might change for example cashier could go from handling merchandise to answering questions.

## Literature review summarized

according to this paper the Credit rating is one of technical factor in credit risk evaluation (Khashman, 2010). The aim of credit rating is to categorize the applicants into two groups; applicants with good credit and applicants with bad credit (Ghodselahi & Amirmadhi, 2011).

This means that the networks are capable of adapting to arbitrary and unknown functional forms, with an arbitrarily specified degree of precision.

## Literature review summarized

The relationship between BDA's expertise and business performance was further interpreted by Fossa Wamba and others in 2017, indicating that the impact was specifically and implicitly observed. They recognized that BDA's capacity affected the enterprise's productivity positively and that process-oriented dynamics play a crucial role as mediator in this regard and also observed that the capacity of BDA was correlated positively with the performance of an organization, with a crucial moderating impact on the coordination of analysis capacities in the market strategies.

## Literature review summarized

A closer analysis by Giancaspro (2017) postulates that a smart contract might be programmed to purchase a particular item at a certain price. This contract should include the product warranties. The novel application of smart contracts is said to be an important element rather than the vendor being connected to the purchaser's personal and financial information via a trusted intermediary, as the system is commonly connected directly to the purchaser's digital wallet.

even expressed that this smart contract could lead to identifying parties in the contract, the deadline for reference to the exchange price of stock,

## Literature review summarized

Dirican (2015) clarifies that not only artificial intelligence but also considers, semantic studies, robotics and mechatronics developments, big data, data mining, cloud computing and neural networks as the main trends that leads to future directions of banking and financial services.

A research done by Dirican (2015) acknowledged that robots use huge amounts of information called big data from many databases or connected to cloud computing and are managed by artificial intelligence. The suggestion could be for production lines and the human resource agenda.

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# Reflection

AI has the potential to revolutionize banking by enabling personalized customer experiences, smarter lending and investment decisions, and more efficient operations. AI-powered chatbots and virtual assistants can provide customers with 24/7 support, helping to improve engagement and satisfaction. AI-powered analytics can help banks identify customers' financial needs and preferences, creating opportunities for targeted marketing and sales. AI can also help banks optimize risk management by scanning vast amounts of data to detect fraud and automate compliance.



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## Reflection cont..

However, there are concerns regarding the ethical use of AI and its potential to disrupt employment in banking. The use of AI needs to be carefully managed to ensure that it does not discriminate against certain customer groups or reinforce biased decision-making. Moreover, the increasing use of AI in banking may lead to job displacement, requiring banks to develop new workforce strategies to accommodate this

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# Implications

AI can improve customer experience by providing personalized and responsive services. AI can help banks reduce costs by automating repetitive tasks such as data entry, processing, and compliance. AI can help banks mitigate risks by detecting fraud, cyber-attacks, and money laundering, and optimizing compliance. Driving innovation – AI can enable banks to drive innovation by discovering new business models and revenue streams.

# Limitations

There are also limitations to the adoption of AI in banking, including:

1. Data quality – AI relies on large volumes of high-quality data, which may be challenging for banks to access and manage.
2. Cybersecurity – The increasing use of AI in banking may increase the risk of cyber-attacks and data breaches, requiring banks to adopt robust security measures.
3. Ethical considerations – The use of AI raises ethical concerns such as bias, privacy, and transparency, which require careful management to minimize risks.
4. Talent shortage – The adoption of AI may require banks to invest in new talent, training, and reskilling initiatives to manage AI technologies effectively.

# 04

## Benefits from AI in finance



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## **Productivity**

Faster analysis/insights

Reduced time to produce narrative/statutory reports

Increased employee productivity

Reduced time to generate and audit financial statements

Reduced time to complete monthly financial close

## **Accuracy**

Reduced errors in automated tasks

Improved forecast, planning, and modeling accuracy (e.g., sales forecast)

Reduced risk/security events

## **Business value**

Improved understanding of why the business is performing at the level it is

Improved profitability by identifying more/less profitable areas of the organization

Improved workforce planning (e.g., assessing talent gaps, predicting salary costs, etc.)

Created a competitive advantage/differentiation

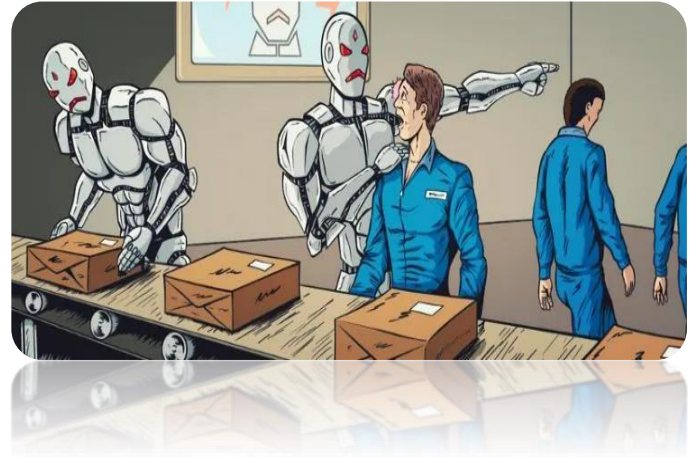
# 05

## **Disadvantages of artificial intelligence**



## Disadvantages of artificial intelligence

Most studies shows that Workers would need to expand their skill to qualify into job market in future  
People with cognitive skills, critical thinking, creativity will be in demand also work environment might change.



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## Artificial intelligence in Libya

As for Libya, late 1998 saw the first of internet connectivity in the country. Access was first restricted to officials then starting in the early 2000s, citizens were gradually given access. This rise was made possible by the thousands of seminars and training sessions that were held in universities, colleges, and other institutions to enable a smooth transfer to the online space, it still a long process to go.



# Recommendations

- Develop a comprehensive AI strategy: Banks and financial institutions should develop a comprehensive AI strategy that outlines the scope of AI implementation, identifies the use cases, defines the expected outcomes,
- Use AI for customer service: AI-powered chatbots and virtual assistants can provide 24/7 customer support, answering common queries, and resolving customer issues. This can improve customer satisfaction and engagement while reducing operational costs.
- Use AI for personalized services: AI can help banks provide personalized services to customers by analyzing their transaction history, behavior, and other data points.

# Recommendations

- Use AI in risk management: Banks can use AI for identifying potential risks, detecting fraud and money laundering, and optimizing compliance. AI-powered analytics can scan large volumes of data to detect potential risks and help banks make better risk management decisions.
- Use AI in lending and loan processing: AI can help banks automate lending processes and analyze large volumes of data to make better lending decisions. AI can also help banks reduce the time it takes to process loans.
- Use AI in trading and investments: AI-powered algorithms can analyze vast amounts of financial data and provide insights into future trends and financial opportunities. This can help financial institutions make better investment decisions.

## conclusion

- To sum up Artificial intelligence is an inevitable outcome of the development of science and technology, but at the same time, there are corresponding challenges in applying artificial intelligence. Therefore, the financial system should completely understand artificial intelligence and make its application system in the financial field more consummate.
- AI has the potential to transform banking by providing new ways to enhance customer experiences, optimize operations, and mitigate risks. However, the adoption of AI also requires careful consideration of ethical, social, and employment implications and limitations. Addressing these implications and limitations will be crucial in realizing the full benefits of AI in banking.

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# Reference

- Alabdullah, T.T.Y., & Abushammala, S. (2020). Growth of Companies: Empirical Study of the Companies Listed in Developing Economies. *Journal of Accounting Science*. 4(2), 1-10.
- Ahmed, E.R., Thottoli, M.M., & Maryanti, E. (2020). Does Corporate Governance Predict Firm Profitability? An Empirical Study in Oman. *The International Journal of Accounting and Business Society*, 28(1), 127-143.
- Bauguess, Scott W., The Role of Big Data, Machine Learning, and A.I. in Assessing Risks: A Regulatory Perspective (June 21, 2017). SEC Keynote Address: OpRisk North America 2017.

---

# Reference

- Donepudi, P. K. (2019). Automation and Machine Learning in Transforming the Financial Industry. *Asian Business Review*.
- Conley, S. (2008). Using the PDF file format to share complex documents. *NASNewsletter*, 23(3), 11-11.
- Ghazi M Qasaimeh, & Hussam Eddin Jaradeh. (2022). The impact of artificial intelligence on the effective applying of cyber governance in Jordanian commercial banks. *International Journal of Technology, Innovation and Management (IJTIM)*, 2(1).

---

# Reference

- Han, J., Huang, Y., Liu, S., & Towey, K. (2020). Artificial Intelligence for anti-money laundering: A review and extension. *Digital Finance*, 2(3-4), 211-239.
- KAUR, N., SAHDEV, S. L., SHARMA, M., & SIDDIQUI, L. (2020). Banking 4.0: "The influence of artificial intelligence on the Banking Industry & How Ai is changing the face of modern-day banks." *INTERNATIONAL JOURNAL OF MANAGEMENT*, 11(6).
- Karina Kasztelnik. (2020). See attached PDF File. Innovative Empirical Model for Predicting National Banks' Financial Failure with Artificial Intelligence Subset Data Analysis in the United States.

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# Reference

- K. Kankaew, S. Phalaunnapat, T. Ekachat and B. Sitikarn, "Service Attributes Attracting the Choice of Passenger: A Comparative Study of Low-Cost Carriers in Thailand," *Linguistica Antverpiensia*, vol. 2021, no. 1, 2021.
- Kakadiya, R., Lemos, R., Mangalan, S., Pillai, M., & Nikam, S. (2019). AI Based Automatic Robbery/Theft Detection using Smart Surveillance in Banks. In 2019 3rd International conference on Electronics, Communication and Aerospace Technology (ICECA).
- LY Shue, CW Chen, W Shiue. The development of an ontology-based expert system for corporate financial rating [J]. *Expert Systems with Applications*, 2009, 36(2): 2130-2142.

---

# Reference

- Milojević, N., & Redzepagic, S. (2021). Prospects of Artificial Intelligence and machine learning application in Banking Risk Management. *Journal of Central Banking Theory and Practice*, 10(3), 41-57.
- Mehrotra, A. (2019). Artificial Intelligence in Financial Services – Need to Blend Automation with Human Touch. In 2019 International Conference on Automation, Computational and Technology Management (ICACTM).
- Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, 2(1), 21-33.



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# Reference

- Milojević, N., & Redzepagic, S. (2021). Prospects of Artificial Intelligence and machine learning application in Banking Risk Management. *Journal of Central Banking Theory and Practice*, 10(3), 41-57.
- Mehrotra, A. (2019). Artificial Intelligence in Financial Services – Need to Blend Automation with Human Touch. In 2019 International Conference on Automation, Computational and Technology Management (ICACTM).
- Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, 2(1), 21-33.

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Thank you!