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: TITLE :

**EXPLORING THE ROLE OF AI IN DETECTING FRAUDS IN
THE BANKING INDUSTRY IN THE UK**

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1. Introduction

UK banking industry is one of the largest and sophisticated industry in the world with a diverse range of banks operating in this industry. This industry has a rising revenue and is a mature sector because 100% of the UK population aged above 15 years has a bank account (Maddren , 2023). This industry has a change in revenue percentage by 14.8 in 2023 with a value of 110 billion pounds in 2023 from 96 billion pounds in 2022 (Maddren , 2023).

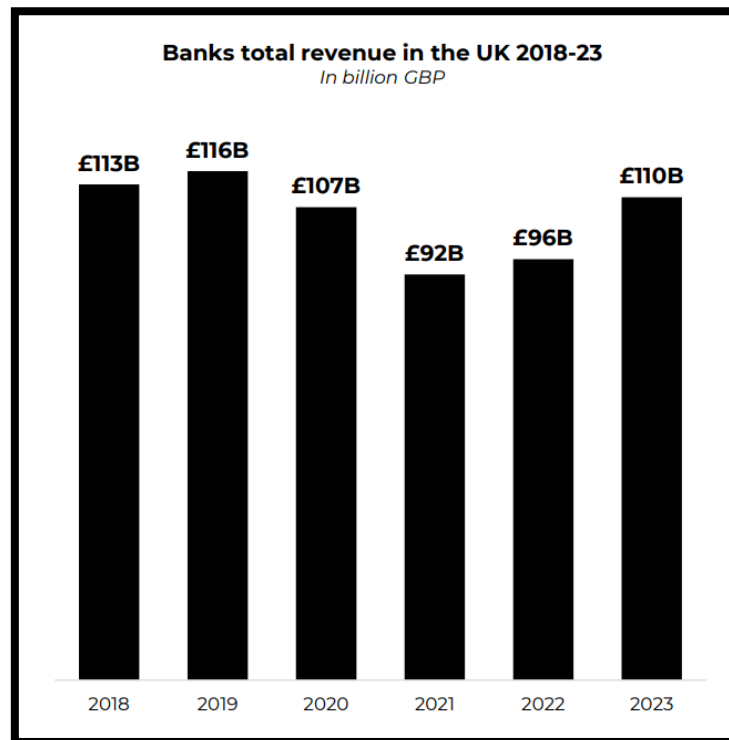


Figure 1: Revenue generated from UK banking industry from 2018-2023

(Source: Maddren, 2023)

This industry is home to several banks in entire Europe and the two best banks of UK are HSBC and Lloyds Banking Group which also ranks within 10 in Europe in terms of market capitalisation (Statista, 2023).

In this scenario the number of consumers is also exponentially growing which has triggered a further concerning problem of bank frauds. Cyberattacks and frauds has become one of the critical business cases in the UK because of massive transition of operations from offline to online, especially in post pandemic (Mytnyk et al., 2023). UK banking sector with a report of 1.2 billion pounds stolen through frauds in 2022 with 80% of cases for online bank frauds (UK Finance, 2023). People in UK lose 2300 pounds per minute for bank frauds. In this context

customers are demand safe accounts from banks and the application of artificial intelligence (AI) because AI based systems are effective to identify fraudulent activities in real time and provides a significant advantage over the traditional fraud detection methods (Mytnyk et al., 2023).

The study is motivated and logical to conduct because it shows the effectiveness of AI in detecting frauds that can save the banks from losing funds and ensure customers' loyalty. Moreover, losses of funds due to fraudulent activities triggers the crisis of the banking sector in UK and the performance decrease which is necessary to research and find potential solutions. This study aims to emphasises on exploring the role of AI in detecting frauds to save the banks from fraudulent activities. Therefore, it is important and logical to conduct and focus on the contributions of AI in detecting frauds.

2 Main body

2.1 Methodology

2.1.1 Research methods

The study will choose interpretivism research philosophy which focuses on subjective ontological assumptions and realistic epistemology. As opined by Bonache and Festing (2020) interpretivism is based on philosophical phenomenology and focuses on making sense and meanings of the concerned research context. This philosophy will be helpful to discuss the contribution of AI application for fraudulent banking operations. This study will consider inductive research approach which emphasises on using existing theories and drawing general observations and inferences from it (Casula, Rangarajan and Shields, 2020). It also derives the study to emphasise in logical descriptions of the topic. This approach will be supportive to discuss the role of AI in the UK banking industry and also discuss the revolutionary role of AI to unravel fraudulent activities.

The study will focus on exploratory research design which has the nature of exploration. As opined by Casula, Rangarajan and Shields (2020) exploratory design is associated with discovery and gaining new insights and further focuses on developing questions for more extensive studies in the future. This design will be best fit for the study to explore the role of AI in detecting frauds in the UK banking industry. The study will consider qualitative methodological choice which emphasises on gaining insights of the research context in textual format.

2.1.2 Data collection and analysis techniques

The study will choose secondary data sources for collecting the data and will consider only relevant sources. It will access journals, websites, news articles, company reports and industry websites which are published in English language and after 2016. The study will access journals from the sources like MDPI, Frontiers, Sage Pub, Research Gate, Elsevier. It will access websites like Statista, UK Government, and company reports of UK banks, or Deloitte or PWC and news articles published by Forbes, Fortune, Bloomberg, BBC. The study will consider thematic analysis technique for interpreting the results and this will help in discussing the results thoroughly with examples in words instead of numbers.

2.2 Aims, Objectives and Questions

Aim

The study aims to explore the role of AI in detecting frauds in the UK banking industry.

Objectives

- To explore the role of AI in modern banking industry in UK
- To achieve a knowledge about the issues faced by banks for fraudulent banking operations
- To seek an in-depth knowledge about the role of AI in detecting frauds in the UK banking industry

Questions

RQ 1: What is the role of AI in modern banking industry in UK?

RQ 2: What issues faced by banks for fraudulent banking operations?

RQ 3: What is the role of AI in detecting frauds in the UK banking industry?

2.3 Literature review

2.3.1 Role of AI in modern banking industry in UK

The application of AI in banking sector has been a significant tool for serving banks in multiple ways. As cited by Noreen et al. (2023) AI application in banks makes the digital financial services more effective and competent and performs various computational tasks in banking operations. Moreover, opined by Femila Roseline et al. (2022) the inherent nature of AI has helped the banks to maintain their competitive nature. UK banks are helped by the application

of AI to improve reliability, operational efficiency, increase operations speed and hassle-free banking services (Noreen et al., 2023). On the other hand, as opined by Karim et al. (2021) usage of AI in banking industry has accelerated the financial data in the banking industry which simultaneously provides a broader customer base through the help of chatbots, digital payments and services.

The banking sector in UK is one of the largest sectors with a significant contribution to the GDP of the economy. The application of AI in banking sector has grown with promising performance in automation, FinTech, blockchain technologies. As reported by UK Finance (2022) UK banking and financial services show the promising part of AI application and 90% of respondents among 23 major financial institutions reported that they already use AI application. Furthermore, as cited by Ris, Stankovic and Avramovic (2020) A system is implemented by banks to monitor transactions and website traffic which can help in preventing frauds. AI based applications records the logs and in case of any mischievous activity or any blacklisted transaction is noticed, AI immediately notifies the fraud and prevents it (Ris, Stankovic and Avramovic, 2020).

Moreover, Sadok, Sakka and El Maknouzi (2022) opined that AI has now become essential for the tomorrow of bank. It has become a worth tool for analysing creditworthiness of credit applicants and the anticipating customer needs. Ai helps to focus on the core task of credit risk analysis and assessment because AI based credit models supports in prediction of credit default risks for granting loans or refusing loans (Sadok, Sakka and El Maknouzi, 2022). AI in banking industry has become a powerful tool and disrupted the sector by its multifaceted capabilities. IT has contributed to use banking services more and inclusion of different types of data through it yield better credit risk predictions. Furthermore, as stated by Schank (2016) AI uses real time data which guides the consumers to take immediate decisions and conducting multiple customers at a time AI also helps to increase credit which maintain profit of the organisations.

2.3.2 Knowledge regarding the role of AI in detecting frauds in the UK banking industry

The development of AI application to detect frauds and preventing fraudulent activities has received significant attention in the recent past. As reported by BBC (2023) UK banks lose 2300 dollars per minute due to frauds and thus application of AI to detect frauds has become important. As cited by Mytnyk et al. (2023) detection of fraudulent banking operations involves using of AI because AI application analyses huge amount of data from multiple sources which includes transaction records, customer information and network logs. Moreover, as stated by

Buchanan and Wright (2021) AI has a considerable impact in UK banking landscape in the areas of fraud and compliance, credit scoring and in financial distress. In a study conducted by Arnold (2018) AI technology helps in personalised financial planning, detects frauds and money laundering activities that helps the banks to focus on a new office and digital settings to prevent fraud and ensure anti money laundering activities. It is evident from the study conducted by that UK banks spend 5 billion pounds in a year for combating financial crimes (Arnold, 2018). In this context, AI produces more efficient and rules-based approach that detects frauds and compliance. Many financial institutions in UK uses fraud prevention alternatives by through AI application. NatWest is a corporate financial house in UK adopted a machine learning solution named Corporate Fraud Insights for detection and redirection of frauds (Buchanan and Wright, 2021). Redirection of fraud occurs when a business is tricked in paying of money to a fraudster's account rather than their intended supplier (Finextra, 2016).

AI application includes fraud detection technologies, enhances customer verification process and increase regulatory oversights through which fraudulent activities like phishing, malware, account takeover, fake cheques and money mules can be detected and prevented (Buchanan and Wright, 2021). AI detects when malicious software is used in the datasets and information of the banks to steal login credentials and detection by AI supports to prevent the frauds (Mytnyk et al., 2023). AI also detects when attackers install devices on ATMs or the card readers from which they steal information about cards. AI application prevents to make unauthorised transactions or stops in creating counterfeit cards (Mytnyk et al., 2023).

2.3.3 Literature Gap

Over the time there has been research related to AI application in banking industry; however there remains a gap in practical academic research regarding the application of this technique for fraud detection in the UK banking industry (Fares, Butt and Lee, 2022). In terms of the study conducted by Buchanan and Wright (2021) there is deep insights about processing machine learning and AI for UK financial services, however there exists a gap regarding the potential of AI application to detect frauds and prevents the banks from failures regarding loss of funds. This study aims to address both the gaps by understanding the role of AI in UK banking industry for detecting frauds and application of AI for fraudulent banking operations.

2.4 Limitations

The study expects limitations in regard with expansion of scope and pitfall of methodological choice. This study will choose secondary qualitative data sources and this limits in expanding

knowledge and including first hand observation from primary sources. The study also anticipates a limitation in terms of time shortage and word count issues and for these issues the study could not be able to expand scope on further research. It is also expected that this research will not be able to generalise its findings because the findings are confined to the UK banking industry.

2.5 Ethical considerations

The study will maintain all the ethical dimensions that are required to be followed in secondary research. As cited by Cheong et al. (2023) secondary research is difficult because it chooses detests from already published articles and which are not directly related to the aim and objectives of the present study. The main ethical issue arises for secondary data are data quality, fitness and limited clarity of entire data collection process (Cheong et al., 2023). In this regard, the study ensures to collect data from authentic and relevant sources and also not include any identifiable information. This research will not include sensitive and plagiarised contents and will not harm any animal or human for earlier completion of research. It will include the data available in the already published sources without falsification and misinterpretation.

2.6 Timeframe

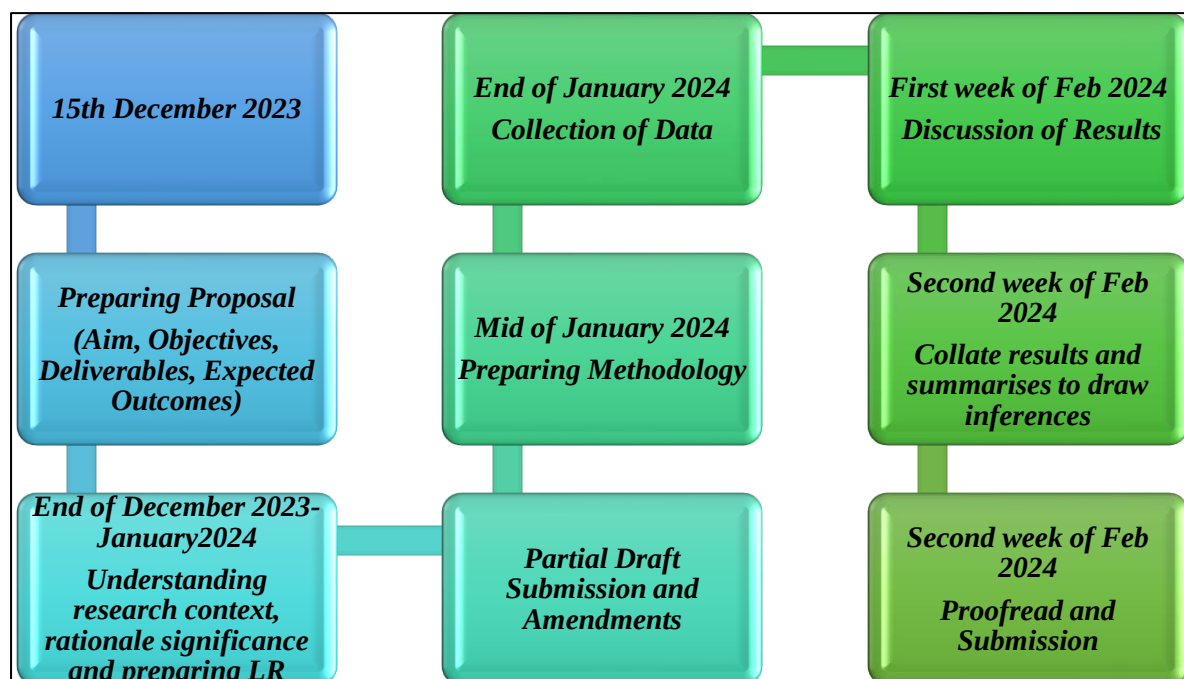


Figure 2: Project RoadMap

(Source: Self-created)

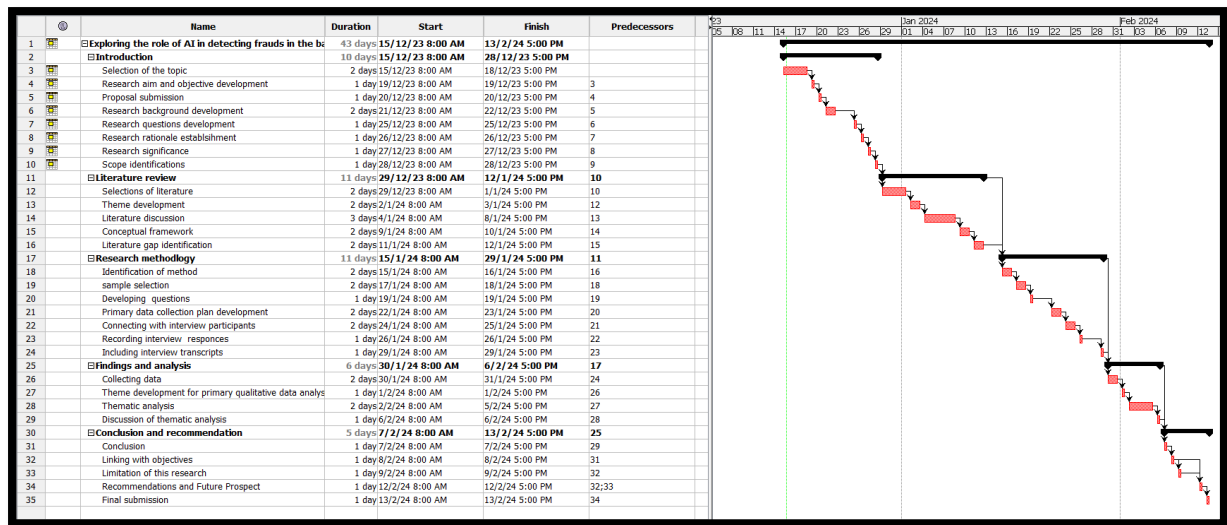


Figure 3: Research Plan

(Source: Self-created)

3. Mini-Conclusion

The study is expected to provide a roadmap for the policy makers and decision makers in the UK banking industry for understanding the role of AI to detect frauds. This research could provide deep insights and in-depth understanding about the role of AI applications for preventing fraudulent banking operations and save the banks from losing money.

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