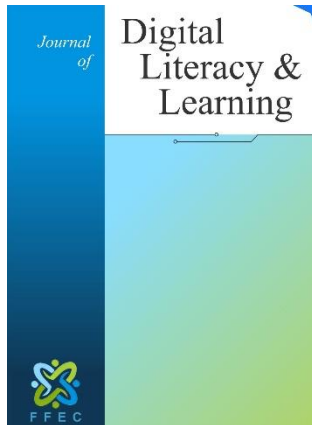




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The Impact of Digital Financial Literacy in the Banking Sector and E-commerce

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The Impact of Digital Financial Literacy in the Banking Sector and E-commerce

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Abstract

The research contrasts the UK, with the widespread use of AI in banking and e-commerce, with Pakistan, where its adoption is still beginning. In the UK, it improves productivity, customer experiences, and risk management, supported by a backbone of strong and developed infrastructure and regulatory frameworks. In Pakistan, this happens because of deficient infrastructure, regulatory barriers, and poor digital literacy. This research uses secondary data as a qualitative methodology to evaluate current trends, key drivers, and obstacles to AI implementation in the two countries. The results vary greatly, ranging from how the UK applies AI to operational efficiency and customer satisfaction, At the same time, Pakistan applies it to overcome infrastructural and regulatory challenges. Finally, it concludes with recommendations for better AI adoption in Pakistan, which can strengthen the digital ecosystem, regulatory frameworks, and international cooperation with the UK. As a result, these are essential steps to bridge the gap in AI adoption between both nations for deriving economic growth and enhanced operational efficiency. Most significantly, the research underlines that for AI to reach its full potential, strategic investments in banking and e-commerce require urgent policy intervention.

Keywords: AI Adoption, Banking and E-commerce, Regulatory Frameworks, Digital Infrastructure, Operational Efficiency, Economic Growth.

Introduction

Artificial Intelligence (AI) has developed an influential strength in the fast-developing realm of economics and the e-commerce sector, redesigning past performances. This investigation considers the acceptance and influence of AI in the e-commerce and banking sites of the United Kingdom and Pakistan. In the banking sector, AI technologies such as neural networks, Natural language processing (NLP), and data analytics are transforming numerous purposes. AI-driven chatbots, for example, recover clients' connections, mechanism knowledge processes improve hazard supervision, and data-driven choices enhance monetary processes. A survey exposed that 77% of people trust that the aptitude of banks to bind AI's complete perspective is crucial for their existence. In the field of e-commerce, AI assists in forecasting business customer performance and provides modified spending involvements. AI-powered chatbots grip client investigations continuously, refining client gratification and working competence. The UK's controlling outline and technological substructure have eased speedy AI acceptance in the e-commerce and banking section (Mustafa, et al., 2022).

Using simulated assistants and predictive analytics in UK banks underlines the tactical rank of AI in sustaining competitive benefit and functioning brilliance. AI acceptance is still in its initial phases in Pakistan. While some banks have started testing with AI machinery, general incorporation remains incomplete due to monitoring and infrastructural challenges. However, there is a rising gratitude for AI's potential to drive modernization and evolution in the e-commerce and banking segments. AI can perceive deceitful actions, improve recognition risk valuation, and bid-tailored client facilities, thus refining economic flexibility and monetary enclosure. This study aims to deliver a tactical outline of AI implementation in the e-commerce and banking segments of the UK and Pakistan, classifying the main opportunities and challenges. By examining the experiences of a developing country like Pakistan and an established country like the UK, the study bids actionable visions for politicians and industries. In both regions, these visions will aid express policies to overcome blockades to AI implementation, improve financial consequences, and improve productivity (Tanveer, 2021).

Significance of the Study

The significance of this research lies in its application: It delivers practical guidance to Pakistani and UK businesses and policymakers that support AI integration to promote economic growth. This study provides advice on how to minimize technological differences by comparing countries at different development stages to achieve optimized artificial intelligence (AI) benefits for financial and retail approaches.

In the UK, an established state with a progressive technical substructure, AI incorporation is a healthy proceeding. E-commerce businesses and monetary organizations in the UK influence AI for numerous applications, such as scam recognition, adapted client facilities, prognostic analytics, and risk management. The worldwide AI marketplace in banking is predicted to rise at a compound annual growth rate (CAGR) of 32.1%, from \$6.82 billion in 2022 to \$9.00 billion in 2023 (Saeed, 2023). AI is projected to produce around \$99 billion in Asia Pacific by 2030, reflecting its increasing impact internationally. In contrast, Pakistan, a developing country, faces numerous challenges in AI acceptance, including incomplete technical substructure, regulatory hurdles, and lesser stages of digital knowledge. Contempt these problems, the latent aids of AI for e-commerce businesses and Pakistani banks are considerable. AI can advance capability, decline charges, and improve client experiences via data-driven executive and mechanization. Understanding these differences and their fundamental reasons is vital for emerging actual policies to increase AI implementation in emerging areas like Pakistan (Saeed, 2023).

Research Aims and Objective

The study looks to compare AI implementations in the banking industry of both Pakistan and the United Kingdom as well as the e-commerce industry of the United Kingdom. The aims are establishing the temporal directions in the use and application of AI in these sectors, and the main drivers as well as the barriers. Therefore, it is necessary to reveal all the critical issues and the best practices through the analysis of successful and failed cases of AI integration. Making recommendations for the improvement of AI plans and programs in the two countries to the policymakers and businesses engaged in the operation of sectors can also be helpful.

Research Objectives:

1. The study focuses on discovering British AI adoption facilitators and Pakistani AI adoption obstacles.
2. The research focuses on assessing how AI technologies affect user support services alongside operational performance in British and Pakistani marketplaces.
3. The research develops guidelines that establishment leaders and policymakers should follow to advance AI adoption in Pakistan.

Research Questions

The research questions for this study are outlined below; This research analyzes existing secondary data to bring together findings from published reports scholarly work and case study documentation. The use of secondary research provides expanded knowledge regarding AI adoption patterns beyond the information limits of primary data availability. The analysis relies on already available data to examine how success indicators barriers and temporal patterns developed between these areas.

Secondary Research

1. What has been the impact of various forms of Artificial Intelligence technology on loan processing and customer service roles in Pakistan and how do these compare to the UK's banking sector?
2. What has been the impact of various forms of AI technology on inventory management and customer service roles in Pakistan and how do these compare to the UK's e-commerce sector?
3. Based on the investigation of AI in both the banking and e-commerce sectors what major lessons can be learned?

Literature Review

The literature review analyses the impact of social change through the introduction of AI in the banking and e-commerce sectors of the UK and Pakistan (Mustafa, et al., 2022). This section establishes the current trend factors that would push or pull AI adoption from developed and developing countries. UK has the world's best regulatory environment and technical facilities for AI development, especially in natural language processing, data analysis, and neural networks. All these technologies have greatly shaken and transformed customer service, risk management, and operations in the banking and e-commerce sectors. On the other hand, AI has a very low level of prevalence in Pakistan as it faces numerous barriers a lack of proper technical provisions and stringent policies (Khalid & Qureshi, 2024). But recently, there have been signs that people are starting to understand how AI can be a force for progress and lead to the creation of jobs. The goal of this review is to present both the successes and the difficulties of AI implementation in these fields and to establish the benchmarks and the goals that can be accumulated for both regions in the future. Hence, in detail, this comparative analysis intends to offer a broad perspective of the applicability and opportunity for AI in varied economies and permissive conditions.

Current Trends in the Adoption of AI in Banking and E-commerce

The study conducted by Xue and his followers demonstrated the integration of cloud computing for the applications of banking and e-commerce centres. Knowledge of banking in cloud computing is the better option for the users; the user never gets the whole thing before completing their job. Contemporary cloud calculation, collective artificial intelligence, influences conversational data to rush the delivery of insights into Business Intelligence (BI). This approach intensifies the cost of BI programs compared to traditional BI within Enterprise Content (EC) applications. However, it suggests to customers the benefit of quicker deployment and greater elasticity in integrating research to increase performance, accuracy, and competence (Xue, et al., 2020). According to Orzol (2023), the e-commerce market is developing dynamically because of customer behaviour and the development of digitalization. Acting according to the latest trends means focusing on the customer and their needs in the activities of e-sellers. This can be accomplished by using chatbots for customer support, sending personalized newsletters, providing modern payment options, and adopting eco-friendly practices. Factors Deriving Artificial Intelligence in Banking and E-commerce (Orzol & Szopik-Depczyńska, 2023).

The study conducted by (Qin & Qin, 2021) demonstrated the financial budget as an important part of accounting management as well as business management. Manual receiving, filling, and submitting are included in the traditional budget management and it depends on the human and requires some mechanisms of artificial intelligence to mitigate the time of the process. In today's life, the business satisfaction of the state has become multifaceted, and the rise of modern budget management systems has replaced outdated and inefficient budgeting methods. The company integrates other applications, like direct connections to banks, so that its financial transactions are automatically turned into financial documents or vouchers. When these transactions happen, a budgeting module manages and controls them. By using advanced knowledge such as contraption learning, data removal, and artificial intelligence, the company deeply integrates these tools with its accounting activities.

Noreen et, al. (2023) researched the role of artificial intelligence in the current banking era. In Asian countries, the consumer perspective plays an important role in the banking sector. Knowledge of artificial technology is crucial for its implementation in the financial era. The possible risks show the important but negative relationship to adopting artificial intelligence. Digital technology eases transactions and enhances customer services along with generating a huge amount of revenue. The evolution of the banking sector started from the \$ Banking 1.0 and the current time, industry 4.0 has been working till 2017. AI can generate up to 1 trillion every year for the global banking industry. Concerning global financial services, the industry is expected to generate almost \$28.529 trillion in the next 6 years (Noreen, et al., 2023). Gopalakrishnan (2024) explained one of the current trends of AI known as generative AI. It examines the profound influence of banking activities like customer service enhancement, fraud detection, product innovation, and risk management. Gen AI leverages the semi-supervised and unsupervised methods of learning. Various models of it include variational autoencoders (VAEs), Autoregressive models, and Generative Adversarial networks (GANs). Collaboration with the regulatory standards not only protects the data of customers but also enforces the commitment of the bank to ethical considerations (Gopalakrishnan, 2024).

Research Methodology

This section explains the method used in the research when assessing the effects of adopting artificial intelligence in the banking industry in the UK and the e-commerce segment in Pakistan (Ahmed, et al., 2024). The research methodology adopted in this study is interpretivism because understanding these contextual and endogenous factors is essential for AI integration in these different contexts. An explanatory, mainly secondary data with the dominant form of data analysis is adopted to examine the multifaceted effects of AI (Houcheimi & Mezei, 2024). Secondary data sources are easy to obtain and accessible to the researcher. Secondary data sources provide effective insights into the primary research by collecting primary results to secondary results. Furthermore, the collection of secondary data sources is less time-consuming and cost-effective. This chapter outlines the research approach, design, procedures, and data collection techniques, with a particular focus on case studies and secondary data. The relevant ethical issues in the analysis are considered to make the information received rather truthful. This research seeks to give policymakers and players in the country and the world a snapshot of the divergent experiences and barriers faced in Artificial Intelligence implementation in two countries (Jamie, et al., 2024).

Research Philosophy

The research chooses an interpretive philosophy that supports contextual investigations of AI adoption practices within UK banking and Pakistani e-commerce domains. AI projects are examined primarily through interpretivism because researchers study how individual and environmental variables such as technology standards alongside economic forces as well as regulatory elements and cultural preferences influence the implementation of AI systems. The exploration of the multifaceted AI adoption effects matches the goals of furnishing useful recommendations to policymakers through this research approach.

Demarcating as a qualitative research approach the study integrates analysis of secondary materials from thematic perspectives that merge internal and external information with case studies and government numerical data. The study analyzes AI implementations to enhance banking services and improve retail security and operational efficiency by investigating dissimilar factors across both countries. This research approach uses interpretivism to create deeper insights into how context-specific conditions influence both technology adoption patterns and industry-level and stakeholder effects of AI implementations.

Research design

Through case study methodology this research assesses how AI adoption has evolved in banking and e-commerce sectors within the UK and Pakistan. Through case study analysis researchers uncover AI development along with banking and e-commerce achievements along with challenges while examining platforms such as eBay and Amazon. The analysis uses Deloitte report data together with PwC reports combined with official government publications and academic literature as primary sources. The collected evidence enables industries to identify valuable implementation strategies. Additional studies should include expert information collection to substantiate findings along with enhancing their value.

Data Collection

The flowchart outlines the process:

1. You must select dependable information sources which include academic journals alongside government databases and consultancy reports.
The research focuses on sorting studies according to their significance for implementing AI technologies in the banking and e-commerce sectors. The examined data produces a thematic analysis which reveals industry patterns together with hurdles alongside advantageous practices.

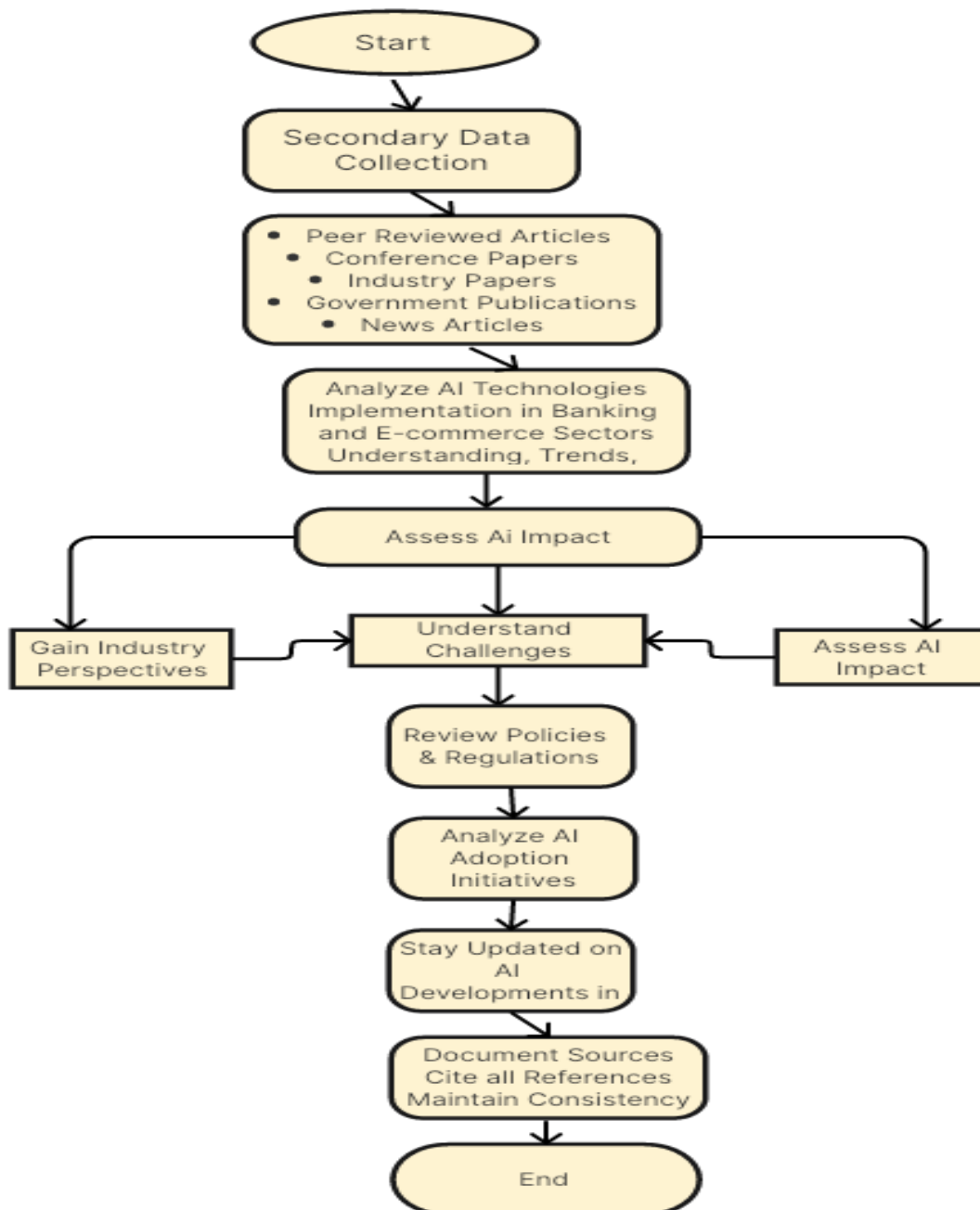


Figure 3.1 Flow-chart of Data Collection Methods

This research analyzes trends regarding artificial intelligence and its driving forces vs barriers to adoption and resulting benefits in the banking sector along with e-commerce sector operations within both the UK and Pakistan using reliable secondary data sources. This study draws its information primarily from studies exploring artificial intelligence techniques such as neural networks data analytics and NLP and from analyses in reports published by Deloitte, PwC, government agencies and regulatory bodies. The research draws findings from peer-reviewed articles as well as conference papers in combination with media reports and company case studies to examine AI implementation partnerships and innovations.

Research data reveals the essential function of AI to boost banking sector decision processes and enhance e-commerce operational efficiency while improving risk assessment capabilities. With its capability to optimize stock market timing together with bankruptcy risk identification AI delivers recommendation systems as a tool for enhanced business operations. The integration of artificial intelligence brings employment risks into focus with 20 per cent of UK positions at risk while adoption problems involve cultural adaptation along with concerns about fear and implementation barriers (Dwivedi et al., 2021). This thorough examination creates future projections about how AI technology will develop across developed and developing operational environments.

Data Analysis

As stipulated for data collection, it would be best to present this as a process where you could present the steps used to analyze the secondary in a flow chart and then discuss each step in turn in the secondary analysis, the research uses the data that was collected by someone else for some specific purposes. A careful review of the collected data including the policies of government regarding AI, with the industry reports and publications of government in both countries, is crucial to get a useful conclusion. The research presents a thematic analysis that follows the processes articulated by Braun and Clarke (2006). This technique has several prominent steps to give an in-depth insight into the relevant data regarding AI trends in the banking and e-commerce industries between the UK and Pakistan.

Getting to Know the Data: The first step was to read all the data obtained from different secondary sources.

Identifying and Coding of Data Features: Once data that raised concern with diagnosis was output, the next step was adding some code for significant features. We did this systematically so no data item was left behind, and the end coding was wide-ranging.

Theme Identification: The content of the codes was reviewed to identify patterns or emergent themes that best summarized the data.

Theme Reviewing: The candidate themes were examined to see if they manifested that data well and responded to the study's objectives. They also checked the coherence and differentiation of every theme.

Defining and Naming the Themes: Finally, the themes were defined and named, reaching a point of greater clarity regarding fulfilling their purpose.

Research questions receive specific organizational divisions while study findings get placed accordingly throughout the research. For example:

- Impact of AI on banking in the UK and Pakistan → Theme: The analysis includes Risk assessment credit scoring and customer service elements.
- Lessons learned from AI in e-commerce → Theme: Inventory management, customer engagement.

This iterative approach identified themes that may guide predictions of future developments in areas such as AI impact, challenges, and cultural considerations for both the banking and retail e-commerce sectors. The data can be analyzed easily if the codes are generated for the research. The codes include various aspects like risk management, customer services, or regulatory challenges in banking and e-commerce regarding AI in both developing and developed countries. Comparative analysis of data can be very helpful for AI adoption. Compare the most advanced and; least advanced banking and e-commerce sectors in both countries and then compare the main sectors of the countries to get the results that which country is performing better in the relevant sector. It involves examining the technical advances due to AI, cultural differences, and failures due to the adoption of AI. Interpretation of the findings is also crucial for the unique culture and environment of every country. This can help both countries to learn different new strategies of AI and implement them in banking and e-commerce.

Research Findings

RQ1: What has been the impact of various forms of Artificial Intelligence technology on loan processing and customer service roles in Pakistan and how do these compare to the UK's banking sector?	
RQ1-A: Impact of AI on Loan Processing and Customer Service Roles in UK Banking and E-commerce Sectors	RQ1-B: Impact of AI on Loan Processing and Customer Service Roles in Pakistan Banking and E-commerce Sectors
• Advanced AI algorithms for risk assessment and credit scoring. • AI-driven chatbots and virtual assistants widely deployed for customer inquiries. • AI integrated deeply into risk management and loan decision-making.	• Early stages of AI adoption in loan processing, with limited automation. • Basic AI tools like chatbots are being introduced for simple customer services. • Infrastructure challenges hinder widespread AI adoption.

Table 4.1 Sub-Research Question (Titles) and Sub-Themes Identified from the Thematic Analysis for Research Question One (RQ1)

The table outlines the key themes and sub-themes related to AI's impact on loan processing and customer service roles in the UK and Pakistan banking sectors. The sub-research questions are stipulated in this manner to provide further insight into Research Question 3.

RQ1-A: Impact of AI on Loan Processing and Customer Service Roles in UK Banking and E-commerce Sectors

There were found 8 papers, 97% or 8 of 12 papers dedicated to this topic area where such subtopics as “AI Algorithms for Risk Assessment and Credit Scoring,” as well as “AI-Chatbots and Virtual Assistants in Customer Interactions” fall into.

Advanced AI Algorithms for Risk Assessment and Credit Scoring

The adoption of artificial intelligence in the banking sector of the United Kingdom has brought a revolutionary change in risk assessment and credit scoring, coupled with the feature and speech recognition brought about by algorithms that mine large data sets to determine loan default risks. For example, Baskerville, Capriglione, and Casalino (2021) explain how AI is even embedded in risk management and the accuracy it lends to credit scoring. Furthermore, in their article, Thisarani and Fernando (2021) explain how AI improves the financial sector's performance by minimizing the risk evaluation procedures, hence eradicating the potency of human mistakes and prejudice.

AI-driven Chatbots and Virtual Assistants in Customer Inquiries

Advancements such as artificial intelligence, or AI, are now standard, at least among UK banking institutions, in that they predominantly utilize chatbots and virtual assistants in the customer service department. These tools aim to deal with virtually all forms of customer inquiries and support and are available round the clock to improve customer satisfaction levels. According to Mogaji and Nguyen (2022), it is crucial to point out that the mentioned AI tools enhance response rates and simultaneously cut operational expenses. Similarly, in a study by Ris, Stankovic, and Avramovic (2020), the use of AI chatbots as a means of self-service support for straightforward problems is revealed to be highly efficient. It helps human operators focus on more complicated issues (Ris, et al., 2020).

RQ1-B: Impact of AI on Loan Processing and Customer Service Roles in Pakistan Banking and E-commerce Sectors

For this topic, area, 10 papers were found, with the sub-themes of “Early Stage of AI Implementation in Loan Processing” (5 papers) and “Infrastructure Issues in Large Scale AI Implementation” (5 papers).

Early Stages of AI Adoption in Loan Processing

The use of AI in loan processing is still in its early stages in Pakistan as more and more financial organizations start to implement it in their processes. In their work, Naeem, Siraj, Abdali, and Mehboob (2024) have highlighted the kind of evidence that is available about the use of AI tools to scale up just the initial stages of loan processing. This is in line with Khan and Jamshaid's (2023) observation that although the value of AI is understood, it has not been

fully implemented because of factors symbolized by limited AI knowledge and opponent's bureaucracy inherent in conventional banking systems.

Infrastructure Challenges in Widespread AI Adoption

The application of AI is not vast in Pakistan, especially in banks, due to various factors, which include but are not limited to: The following are some of the infrastructural implications that hinder the widespread use of AI. According to Sajid, Ayub, and Ellahi (2023), aside from stunting AI progress, several of these challenges also diminish the capability of the current AI applications that are being applied. Similarly, (Mandala et al. 2022) maintain that unless such infrastructural challenges are solved, the role of AI in reshaping the banking operation in Pakistan can go up to the sky only.

Research Question (RQ2)

The table below outlines key themes and sub-themes related to the impact of AI on inventory management and customer service roles within the e-commerce sectors of the UK and Pakistan. The sub-research themes are presented to provide further insight into Research Question 4.

RQ2: What has been the impact of various forms of AI technology on inventory management and customer service roles in Pakistan and how do these compare to the UK's e-commerce sector?	
RQ2-A: Lessons from AI in UK Banking and E-commerce	RQ2-B: Lessons from AI in Pakistan Banking and E-commerce
• Adoption of sophisticated AI systems for risk management, loan processing, and customer service. • AI-driven predictive analytics and real-time data integration optimize inventory and improve operational efficiency. • AI-driven chatbots and virtual assistants handle a high volume of customer interactions, enhancing service quality.	• Basic AI implementations are in the early stages, with a focus on fundamental functionalities. • Limited advanced AI capabilities for comprehensive risk management and customer service. • AI tools are primarily used for improving operational efficiency at a basic level. • Limited impact on customer experiences due to basic AI implementations.

Enhanced customer satisfaction through personalized interactions and efficient service delivery.	
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Table 1.2 Sub-Research Question (Titles) and Sub-Themes Identified from the Thematic Analysis for Research Question One (RQ4)

RQ2-A: Lessons from AI in UK Banking and E-commerce Sectors

Advanced AI Systems in Inventory Management and Customer Service

The e-commerce companies in the UK have integrated highly advanced AI systems that improve the movement of stocks and services to customers (Ullah, 2023). Technologies like AI-based advanced analytics, and real-time data integration in elements of replenishment are used to enhance inventory management (Mariani & Wamba, 2020), and that has done changes in the operation effectiveness (Rahman, et al., 2022). In addition, it is prominent for organizations to employ artificial intelligence chatbots and virtual assistants to address a large number of customers with increased and improved levels of services (Sofia, 2023). The adoption of these superior AI systems means that customers are attended to one-on-one hence the great provision of services and the loyalty of the customers (Eyieyien, et al., 2024) (NKAMENI, 2023).

RQ2-B: Lessons from AI in Pakistan Banking and E-commerce Sectors

Basic AI Implementations in Early Stages

However, Pakistan's e-commerce industry is still in its infancy and primarily includes only basic AI applications. The existing AI applications in Pakistan are thus more focused on handling core logistical processes with basic and quite generic possibilities in terms of inventory and customer relations management (Sadia, et al., 2020). The above-stated basic AI tools are useful but they have yet to trigger the rhetorical change evidenced in the UK. Customer experience also does not significantly transform because these applications are simple in AI (Idrees, 2023). Despite such slow uptake, there is a prospect for growth because the sector is continuously expanding the use of additional sophisticated AI technologies to deal with existing problems and optimize service delivery (Bhatti & Bauirzhanovna, 2023).

Research Question (RQ3)

The table outlines the main themes and sub-themes regarding the impact of AI on loan processing and customer service roles in the banking and e-commerce sectors of the UK and Pakistan. The sub-research questions are presented to provide further insight into Research Question 3. They are stipulated in the manner shown to give more insight into Research Question 3.

RQ3: Based on the investigation of AI in both the banking and e-commerce sectors what major lessons can be learned?	
RQ3-A: Impact of AI on Loan Processing and Customer Service Roles in UK Banking and E-commerce Sectors	RQ3-B: Impact of AI on Loan Processing and Customer Service Roles in Pakistan Banking and E-commerce Sectors
• Advanced AI algorithms for risk assessment and credit scoring. • AI-driven chatbots and virtual assistants are widely deployed for customer inquiries. • AI integrated deeply into risk management and loan decision-making. • Integration with CRM systems for enhanced service and customer experience.	• Early stages of AI adoption in loan processing, with limited automation. • Basic AI tools like chatbots are being introduced for simple customer services. • Infrastructure challenges hinder widespread AI adoption. • Slow adoption with a focus on improving operational efficiency.

Table 4.3 Sub-Research Question (Titles) and Sub-Themes Identified from the Thematic Analysis for Research Question One (RQ3)

RQ5-A: Impact of AI on Loan Processing and Customer Service Roles in UK Banking and E-commerce Sectors

Advanced AI Implementations in the UK

Banking and e-commerce in the UK benefited from integrating artificial intelligence technology as it has improved. Machine learning algorithms in risk assessments and credit scoring have become the core of banking procedures, increasing the effectiveness of credit evaluation (Khrais, 2020). To facilitate customer services, most organizations have integrated artificial intelligence-based chatbots and virtual assistants to address customer queries within cutting-edge convenient measures and enhance customer satisfaction (He & Liu, 2024) (Subramanian, et al., 2022). Furthermore, risk management and decision-making on loans incorporate AI to improve decision-making by being more countless and faster (Veerla, 2021). The combination of AI with the Customer Relationship Management (CRM) system has also improved the service delivery and the customer experience, hence cementing the place of AI in the change of these sectors (Gigante & Zago, 2023).

RQ5-B: Impact of AI on Loan Processing and Customer Service Roles in Pakistan Banking and E-commerce Sectors

Challenges and Early Adoption of AI in Pakistan

However, Pakistani banking and e-commerce Sectors are relatively at a nascent stage when it comes to the implementation of AI. AI in loan processing is relatively restricted and can be gradually increased with loan process automation (Zaman, et al., 2023). Some simple services such as customer services are being provided using basic forms of AI, particularly chatbots, while these are not as sophisticated or adopted as those found in the UK (Franklin, 2020). Lack of advanced technologies and a shortage of skilled AI professionals are the two important barriers that hamper AI adoption at a larger level (Bokhari & Myeong, 2022). The slow integration of AI in Pakistan is however mainly concerned with the optimization of business processes instead of innovation (Rawindaran, et al., 2021) (Rahman, et al., 2023).

Impact of AI on Loan Processing and Customer Service Roles

The discussion of findings aims at the differences in the effects AI has particularly in loan processing avocations and customer care positions between the UK and Pakistan, the areas majoring in banking and e-commerce sectors. The application of AI in the UK has been productive by increasing the production rate and reducing the risks associated with the tasks (Abioye, et al., 2021). Optimization, credit scoring, and risk assessment come from applying modern AI algorithms to the work of banks. The increased use of artificial intelligence will enhance this; chatbots and virtual assistants handle customers' concerns within the time, enhancing customer satisfaction and operating efficiency (Wang, et al., 2022). Such technological advances have been embraced in the UK since there is sound infrastructure that supports implementation, a well-developed regulation framework, and high technological competence.

However, Pakistan is still at a relatively early stage of implementing AI in the banking and e-commerce sectors (Barrech, et al., 2023). Though recently there has been an increased awareness of AI, it is mainly used only for call centre services and the preliminary step of loan application. This has often been due to factors such as poor infrastructure, low technology adoption, and a poor supply of skilled professionals. (Misra, et al., 2023). However, there are signs of hope as some of the financial institutions have started integrating Artificial Intelligence tools to improve their operations and customer relations. These discrepancies in AI use in the UK and Pakistan are due to technical infrastructure, market, and regulatory environments.

Pakistan needs action to boost AI adoption in suitable instances, whereas the UK has a robust innovation environment (Nazir, 2023). To realize AI deployment, financial services, and economic development in Pakistan, the previously mentioned infrastructural and legal barriers must be addressed. It shows that particular measures, legislation, and money to improve digital skills are needed to close the AI use gap between the two nations (Fazal, et al., 2023).

Impact of AI on Inventory Management and Customer Service in E-Commerce

Differences between UK and Pakistan strategies of e-commerce sectors regarding the effects of Artificial Intelligence on inventories and customer service (Malik, et al., 2024). In the UK, AI is very important in management especially in controlling the stock and minimizing wastage through analytical prediction of the demand. Such systems help businesses to predict

customers' demands better hence avoiding situations where stockouts or overstock occur frequently. Real-time data processing along with complex algorithms makes it possible for UK e-commerce platforms to ensure the constant flow of products, which improves overall efficiency (Zineb, et al., 2021). On the contrary, basic inventory control systems are being used in the e-commerce sector of Pakistan which can't predict as well as integrate in real-time as the AI systems. These essential tools assist in controlling logistics' fundamental operations; however, they lack sophistication and precision when compared to the latter. The applied AI solutions for inventory management in Pakistan have shown significant improvement however due to technological and infrastructural development and hence unable to implement more enhanced forms of AI in the organizations (Channa, et al., 2024).

In terms of implementing AI tools for customer service, the UK tops the list by incorporating the use of AI for improving customer experiences by providing customized recommendations and automating customer support through chatbots and virtual customers (Reddy, 2022). These technologies allow a large number of communications with customers guaranteeing quick replies and individual approaches, which, consequently, increases the level of customer satisfaction and loyalty. Employing AI for customer segmentation experience was found to be prevalent in the UK, which indicates a high recognition of e-commerce. On the other hand, customer service in Pakistan is only beginning to incorporate AI and at the current stage, most of the changes are aimed to decrease costs related to customer service and streamline customer interactions with simple forms of AI. Team-oriented approaches to customer service and the sparing application of artificial intelligence to increase its individuality result in the preservation of the customer's experience (Mohanty, et al., 2023). Some of the challenges include the technological restraints and high implementation costs with restricted access to better & advanced AI technologies which restrain Pakistan from implementing it in a way that can increase customer satisfaction in e-commerce businesses. These problems will therefore have to be solved if Pakistan is to be on par with the developed markets in the use of artificial intelligence in e-commerce (Sohail, et al., 2023).

Major Lessons Learned from AI Implementation in Banking and E-Commerce

The insights on the adoption of Artificial Intelligence in the banking and e-commerce sectors of the UK and Pakistan are as follows (Sun, et al., 2022). This is especially true with the UK, for which superior AI algorithms have been proven to boost risk assessment, credit scoring, and customer services. Such practices could be used as a reference point to Pakistan, especially the need for an encouraging legal environment as well as appropriate structures that support the uptake of artificial intelligence. Studies show that the UK government has significantly supported the implementation of artificial intelligence; therefore, a similar approach in Pakistan can catalyze technological advancement (Saleem, et al., 2024). In future, there is a scope for the UK and Pakistan to join hands as well as benchmarking to maximize the full potential of AI. Through such partnerships, innovation could be promoted leading to a better growth of the economy as well as the performance of the business entities in the two regions. Also, the increased use of artificial intelligence will affect jobs and the demand for specific skills in the future, which will require retraining the workforce and promoting human capital to become ready for the changes in the future to have sustainable development of society.

Discussion

Objective Analysis:

AI-driven algorithms in UK financial services improve loan processing yet Pakistan's early AI implementations show priority in automated call center operations. European AI chatbots function in the UK market through cost-saving operations which also drive positive customer interactions according to Mogaji and Nguyen (2022). The infrastructure issues combined with regulatory hurdles prevent Pakistan from fully adopting AI systems.

Authenticity and Significance:

Systemic barriers in Pakistan must be resolved to extract the full potential of AI technology according to research findings. The study aims to develop practical recommendations for Pakistan's banking and e-commerce industries while embracing AI capabilities to enhance access and reduce operating expenses and service enhancement.

Conclusion

The research evaluates the artificial intelligence implementation patterns across British banking and e-commerce systems versus Pakistan's financial and e-commerce domains. The introduction of artificial intelligence technologies including neural networks, NLP and predictive analytics effectively manages risks and delivers better customer service while controlling inventory across UK platforms. Chatbots provide online retailers with a new method to increase personalized interactions with customers.

The expansion of AI technologies in Pakistan currently struggles against inadequate infrastructure and limited digital skills combined with deficient regulations. The financial sector and e-commerce have shown advancements yet security fears about data protection alongside limited digital knowledge restrict further development. The successful deployment of AI depends on system interoperability and active organizational backing together with a clear recognition of AI's value proposition.

The advancement of Pakistan as a nation depends on its investment in infrastructure development together with skilled digital talent recruitment and modernized laws implementation. Through public-private partnerships, organizations can solve issues that arise during implementation. Premier positions in AI assimilation belong to the UK which convinced strength from predictive analytics and NLP for producing more efficient operations while Pakistan demonstrates latent capabilities with current delay. The combination of UK-style practices funding increases partnership development and AI literacy education will create substantial economic potential along with global collaboration opportunities.

Recommendations

Government and private organizations should encourage more investment in AI technology, ensure that industries relate well in this industry, and ensure that workforce science their workforce to meet the ever-increasing standards. Further, enhancement of the Protection Act and ethical standards will be required to address risks emanating from superior AI implementations.

To enhance the use of AI, policymakers should focus on enhancing the digital ecosystem to support AI investment (Saba & Pretorius, 2024). Proper regulatory guidelines on the four key areas of data protection, ethics, and integration of artificial intelligence into decision-making processes will be significant for the adoption of AI.

By increasing cooperation and sharing information, both countries could improve their artificial intelligence systems and become a part of the efforts to create a fairer world economy (Mustafa, et al., 2022). Policy implementation of AI literacy promotion by governments will also play an essential role in effective AI integration.

Through AI literacy, people become aware of the use and effectiveness of AI technologies in business. Increasing awareness helps to boost AI integration in Pakistan. Innovation policies will also foster businesses to develop new technologies like artificial intelligence in their business operations. Hence, these policies will help Pakistan to overcome the challenges in the adoption of AI. Industry leaders by adopting these policies can fast their operations to a great extent (Mughari, et al., 2024).

Future trends and predictions

Future trends in AI adoption in both countries include technological advancements, shifts in the regulatory environment, and changes in consumer behaviour. AI promotes technological advancement through the use of machines and advanced techniques. This will enhance the operations of the workforce with AI-driven technologies. Advancements like scanning and face detection reduce the chances of mishaps and risks. AI also transforms the regulatory environment of the business by improving efficiency and reducing time consumption. Shifts in the regulatory environment due to AI help to relate the compliance procedure regularly. Consumer behaviour will be positively affected in the future through the integration of AI. AI will help businesses gain potential insights into the preferences of consumers and enable them to transform their products and services according to customer preferences. Therefore, the future trends of AI in both countries are wide and contribute positively to the growth of business (Zahid, 2024).

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