Exploring Artificial Intelligence Application And Implication: Evidence From The UK Retail Industry

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Abstract
The application of artificial intelligence (AI) technology in the retail sector in the United Kingdom has proven advantageous in enhancing customer satisfaction. The objective of this study is to examine the significance of artificial intelligence technology within the retail industry in the United Kingdom. Artificial intelligence (AI) technology is frequently employed within businesses to facilitate and demonstrate progress in the technological aspects of business operations. Artificial intelligence (AI) is playing a pivotal role in assisting retailers in comprehending and analysing client demands and preferences. The deployment of AI technology gives rise to a range of concerns, including those pertaining to privacy and the proliferation of ethical challenges. An additional approach to gathering data has been identified as advisable, as it has the potential to enhance the study's quality and convenience. To accomplish the intended objectives, a theme analysis was performed. The study aims to identify and analyse five distinct themes that have been carefully chosen in order to address the research topic. The appropriateness of discussing the implication of AI in the aforementioned areas, including Tesco, can be observed through a geometric analysis. This approach proves to be effective as it provides sufficient reasons. Based on the comprehensive analysis conducted in this study, it can be concluded that the integration of artificial intelligence (AI) holds potential for enhancing the operational and financial aspects of retail organisations in the United Kingdom. This use of AI technology has the capacity to foster sustainability within the retail sector. The utilisation of a longitudinal time frame is advised as it has considerable importance for the advancement of subsequent research due to the supplementary benefits it offers in terms of data acquisition.
Key words: *Artificial intelligence; innovation; Big data; UK retail sector, Marketing; Technology management*

I. Introduction

Artificial intelligence (AI) refers to the simulation of human intelligence processes by machines, primarily executed through computer systems. Oosthuizen et al. (2020) propose that artificial intelligence encompasses various particular applications, such as natural language processing, expert systems, machine vision, and speech recognition. The societal implications of artificial intelligence (AI) have been the subject of extensive scholarly discourse. Numerous authors contend that AI contributes to the enhancement of product and company standards through its capacity to perform routine inspections. Conversely, other authors have posited and contended that artificial intelligence (AI) is a complex phenomenon, advocating instead for the promotion of human agency in order to streamline, enhance productivity, and ensure safety in daily life. According to Cobanoglu and Corte (2021), within this particular framework, artificial intelligence (AI) technology presents a self-checkout innovation and a secure scanning mechanism that serves the purpose of deterring stealing. The utilisation of artificial intelligence (AI) in the retail sector inside the United Kingdom yields advantages, as it operates autonomously without human intervention. Moreover, it empowers clients by granting them increased agency in the purchasing experience. According to Oosthuizen et al. (2020), the utilisation of AI authentication is employed in the logging of data pertaining to individuals engaged in suspicious shoplifting activities within the context of this novel technology and system.

Conversely, it exemplifies the integration of artificial intelligence (AI) among prominent shops in the United Kingdom. It has been observed that merchants in the United Kingdom are employing artificial intelligence technologies to facilitate data analysis and enhance operational efficiency within their organisations. Moreover, according to Sabanoglu's (2019) analysis, there was a significant prevalence of AI implementation in the E-Commerce industry, with over 83% of businesses adopting this technology. Additionally, it was found that roughly 77% of retailers in the United Kingdom have integrated AI into their consumer services, namely utilising chatbots. According to Sabanoglu (2019), over 57% of merchants in the United Kingdom have incorporated

artificial intelligence (AI) into their supply chain operations. This adoption of AI technology has specifically yielded benefits in the field of warehousing stock management.

The primary objective of this study is to examine and address the obstacles associated with the implementation and use of artificial intelligence within the retail sector in the United Kingdom. Based on the perspective put forth by Oosthuizen et al. (2020), two primary obstacles have hindered the successful integration of artificial intelligence (AI): the financial implications associated with adopting AI solutions and the scarcity of proficient employees in this domain. Additionally, the constraints associated with the implementation of artificial intelligence (AI) give rise to issues concerning its reliability and the ambiguity surrounding its potential use in corporate contexts. According to Oosthuizen et al. (2020), the utilisation of artificial intelligence highlights a deficiency in trust. There are several challenges that arise in the field of computer power, restricted knowledge, the bias problem, data scarcity, data privacy, and security. Conversely, according to Cobanoglu and Corte (2021), the implementation of AI personalization in retail allows companies to gain authentic insights into their customers. However, this practise also poses challenges for the industry, leading to a potential decline in the future and difficulties in adapting to new technological advancements within the UK retail sector.

The study has provided a rationale for the proposition that AI technology is fostering the advancement of self-checkout systems by providing a secure scanning mechanism that effectively mitigates the occurrence of shoplifting incidents. According to Ameen et al. (2021), artificial intelligence (AI) is employed within the United Kingdom's retail industry to provide assistance in retail operations, enhance business procedures, and bolster the profitability of retail businesses. The potential ramifications of artificial intelligence within the United Kingdom's retail sector are advantageous, encompassing automation, sustainability, and loss prevention. According to the research conducted by Ameen et al. (2021), artificial intelligence (AI) has been found to contribute to cost reduction, enhanced customer satisfaction, and improved optimisation of supply chain management within the retail sector. The rationalisation of applying artificial intelligence in UK retail firms has highlighted the increased importance of AI installation and the evaluation of its advantages and benefits in enhancing customer experience. Furthermore, the study provides a rationale for the primary obstacles encountered during the implementation of artificial intelligence (AI) and offers practical suggestions to address the concerns related to the utilisation of AI in the United Kingdom's retail sector.

The study explores the significance of implementing artificial intelligence in the UK retail sector, evaluating traditional and modern methods for customer service and product quality. It provides clear information on AI's application in the UK retail industry, focusing on real-time data evaluation and personalised recommendations. The study also explores the value drivers and future benefits of AI in the UK retail sector.

II. Literature discussion

Artificial intelligence (AI) encompasses the emulation of human cognitive processes using machinery, predominantly computer systems. Chen, Biswas, and Talukder (2022) conducted a study in which they examined the field of artificial intelligence (AI) within the realm of computer science. Their research focused on the development of mechanical systems capable of executing tasks that traditionally necessitate human involvement. Furthermore, artificial intelligence encompasses several methodologies, including the advancement of machine learning and deep learning, which contribute to transformative changes in the digital realm across diverse domains within the technology sector. Alternatively, according to the perspective put forth by Oosthuizen et al. (2020), it can be argued that artificial intelligence enables robots to simulate or enhance human cognitive abilities. A significant number of organisations are currently employing artificial intelligence technology to advance the development of autonomous vehicles, alongside the integration of intelligent virtual assistants such as Alexa and Siri into smartphones. The integration of many industries has progressively become a crucial component of daily life, contributing to the enhancement of organisational efficiency.

Organisations are using AI more frequently to enhance productivity and business operations. Weitzman (2022) highlights the benefits of AI in decision-making, reducing operational errors and human error. Companies are also using AI in marketing to increase sales, reduce costs, and improve employee productivity. This technology is crucial for enhancing consumer experiences and reducing employee stress. Artificial intelligence, including big data, data mining, cloud computing, and machine learning, is transforming industries by understanding customer preferences and involving employees in decision-making. This automation reduces human effort in business operations, transforming activities and internal operations. Artificial intelligence plays a key role in the development of retail businesses. Artificial intelligence (AI) is revolutionising the retail industry by helping retailers understand consumer needs and preferences. It provides insights into customer perceptions, enabling better decision-making and customer lifetime value. AI is also known to have provided businesses with useful and high-level information and data, which has resulted in retailers making an informed pricing decisions and optimise product placement through demand forecasting.
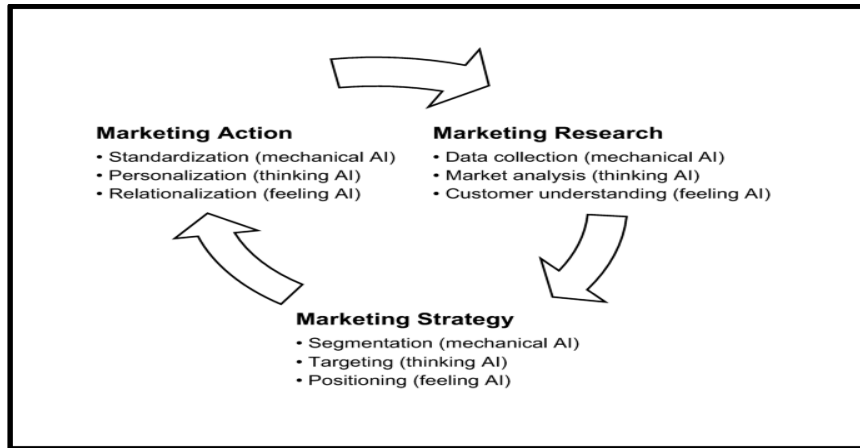
Figure 1: Role of AI in retail organisation
(Source; Huang and Rust, 2020)

AI in retail is transforming marketing strategies, enabling retailers to provide personalised services, analyse market data, and target potential consumers. This helps maintain market position and increase profit margins by improving customer experiences. AI-driven self-checkout and check-in innovations have also helped prevent shoplifting in stores. The utilisation of high-level data derived from product placement and customer experiences offers a higher degree of accuracy compared to relying solely on actual in-person workers. This enhanced accuracy facilitates the tracking of client details, hence simplifying the process. Nevertheless, the potential consequences of client data leakage originating from AI devices can be immensely detrimental. Intelligent and automated processes enable retail establishments to get vital customer information, so allowing them to retain control over shopping experiences without the need for human intervention.

Different types of AI based devices used in the retail sectors.

Organisations across several industries are employing artificial intelligence (AI)-based technologies to augment their profitability. Chatbots have emerged as a prominent application of artificial intelligence (AI) in the retail sector, effectively enhancing customer service and contributing to the substantial growth of the chatbot industry, which is projected to reach a valuation of $1250 million by the year 2025. Burberry Plc, a British company, has recently introduced a chatbot as a means to assist clients in navigating their many collections. In-store help is a prevalent AI-driven solution that effectively minimises the use of paper price tags while offering video commercials and promotions in several languages. AI technology also prioritises inventory management through the utilisation of real-time monitoring capabilities.
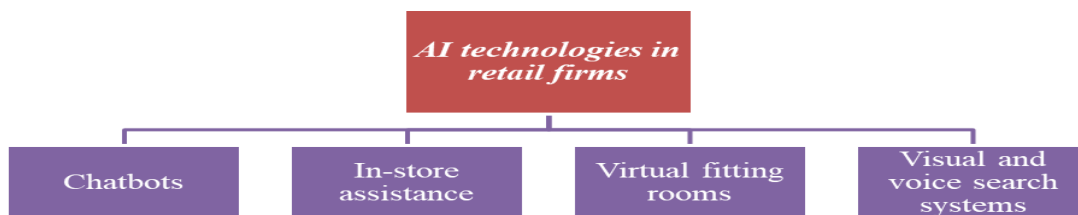

Figure 2: Various types of AI technology in retail firms

Another retail application that lets clients maintain social distance is a virtual fitting room, which is an example of which is shown in Figure 2 below. According to Lee, Xu, and Porterfield (2022), virtual fitting rooms are an excellent way for customers to save time and digitally find the perfect combination of items while shopping in a physical establishment. In addition, as a result of the COVID-19 epidemic, the vast majority of companies are making an effort to keep a social distance from their consumers as a demonstration of their care for the protection of their customers' health. According to Canziani and MacSween (2021), both the visual and voice search systems are powered by artificial intelligence. This enables users to upload photographs and find similar

products based on shape, colour, and pattern by using the visual search system. Additionally, consumers can locate the things they want without having to fill in any information, which saves them time. For instance, the artificial intelligence technology developed by Amazon enables voice searches to be conducted through Alexa in the mobile applications used by Amazon's customers (Amazon, 2019). This technology is very easy to use and contributes to an increase in visitors to Amazon's website.

The Many Advantages That Come with Integrating AI Into the Workings of Retail Businesses

The application of AI technology has shown to be beneficial for the retail company because of its ability to assist in the concurrent completion of various jobs. According to Anica-Popa et al. (2021), AI in retail organisations is decreasing workload from current resources by developing the multitasking capability. This is happening as a result of AI's ability to perform multiple tasks at once. In addition, it is running twenty-four hours a day, seven days a week without any disruptions or breaks, which is reflected in its business skills. In addition to this, it is cutting operating costs for retail enterprises, which in turn is increasing their profit margins and the rate at which they are investing in the organisation. According to Bondarouk and Olivas-Luján (2022), artificial intelligence in retail businesses is considered to be an example of a self-checkout innovation because it provides a safe means of scanning products and discourages stealing. In addition, retail businesses are improving customer happiness by making available human support facilities and by giving customers increased influence over the prices of their purchases.

Customers shopping in retail outlets can also take use of automatic checkout thanks to artificial intelligence. According to Wamba-Taguimdje et al. (2020), automated checkouts that give tailored discounts offer round-the-clock customer assistance utilising chatbots, which is promoting positive consumer happiness. This is a trend that is creating good customer satisfaction. It has been discovered that the implications of AI in the organisational process are visible in the business processes in terms of operation and finance. This was discovered through research that was conducted. According to Abrardi (2023), the use of AI-based technology is increasing both the level of customer satisfaction experienced by retail businesses and their overall competitiveness in the market. In addition to this, it assists the company in concentrating on social and environmental issues, which leads to improved performance regarding sustainability. As a consequence of this, it improves the reputation of the brand in the market and makes it easier to incorporate new features into products in order to fulfil the requirements of customers.

Artificial intelligence makes retail supply chain management more effective and contributes to more timely delivery of merchandise. In addition, Chen, Biswas, and Talukder (2022) indicate that the application of AI in the supply chain management of retail businesses is good for anticipating machine learning and discovering alternate pathways. This is according to the remark made by Chen, Biswas, and Talukder. In addition to this, it offers real-time updates on capacity, buffers for ensuring that deliveries are made on schedule, and data analysis to inform intelligent warehousing and logistics with AI Analytics. In this regard, Candeloro (2020) is of the opinion that the utilisation of advanced analytics and AI in one of the retail sectors, H&M, helps to align demand and supply, which, in turn, helps to avoid the wasteful use of resources and ultimately brings about a reduction in emissions.

Obstacles that the retail industry must overcome in order to successfully use AI-based gadgets.

Due to their incapacity to use technology, customers often oppose retail firms' AI. According to Anica-Popa and colleagues (2021), AI's economic benefits are limited for elderly customers who are more used to physical purchases and transactions. Older folks and elderly citizens utilise AI-based products less than younger people since they can't fully use automation in almost every field. AI-powered devices at brick-and-mortar stores may improve customers' buying experiences, but they also raise issues about the value of physicality in offline purchases. Autonomous retail devices often misrepresent product data and information, and customer-sensitive information devices may not perceive all product manufacturing dates and shelf-life sustainability information. Sephora's AI filter helps them choose makeup, but after buying, they may realise that the cosmetics they bought look different on their skin. This increases AI device trial and error and consumer dissatisfaction.

The requirement for consumers to physically engage with Taco Bell's autonomous robots while ordering builds connection and encourages experimentation with order customization. Lack of human connection and socialisation is the biggest challenge for retail AI systems. Some retail firms have apps that don't face the client in their delivery services, making it hard to identify customer wants and provide suggestions. In conclusion, brick-and-mortar businesses cannot succeed with AI and technology because customers want more involvement and their questions answered.

Retailers' AI mitigation strategies.

Some brick-and-mortar shops utilise chatbots on their websites to answer client questions during and after the sale when there is a higher risk of confusion or dissatisfaction. Huang and Rust (2020) discovered that demand forecasting of projected consumer choices is simpler after the initial purchase. Thus, managers handle future issues more carefully to avoid more complications. Tesco PLC and Walmart have published a lot of information about their intended improvements to address customers' lack of awareness about installing devices in their stores that require a basic understanding of technology. The firms' brand value and market reputation have increased, attracting clients who consider independence and modernisation as the finest and most relevant alternatives. According to Pillai, Sivathanu, and Dwivedi's 2020 research, Walgreens, Lowes, and Neiman all trained their staff on AI and how to help customers with technology. This boosted the company's customer-centric reputation.

The automated procedures in physical businesses hindered customers' shopping experience, even though operations and product accuracy had increased. According to Lee and Yoon (2021), traditional brick-and-mortar stores without an online presence can compete more effectively by investing in digital marketing and technology to attract customers and adjust their business flow using artificial intelligence. Physical retail establishments in San Francisco, New York, Washington, D.C., and Chicago notify customers of any customer experience modifications to prevent conflict and maintain data privacy and protection transparency (Pantano et al., 2020). Physical retail establishments in San Francisco, New York, Washington, D.C., and Chicago notify customers of customer experience adjustments. Artificial intelligence (AI) devices make selling garments, fashion, and fast-moving commodities at retail stores easier. If they understand the benefits, customers can trust the robots to meet their needs. This helps shops sell fast-moving items and other things.

Theoretical underpinning

The conflict theory of retailing, a non-cyclic theory, suggests that progress in retail requires a conflict between older and new practises, leading to a hybrid format. Shiu and Dawson (2022) argue that blending traditional and modern retail practises can lead to better ideas and better shopping experiences. This principle is particularly relevant for online stores transitioning from physical retail to online purchases. The conflict theory is applicable in the context of artificial intelligence implementation in retail stores, where traditional formats are challenged by technological processes (Lee, Kim, and Rha, 2017). The integration of advanced real-time technology has the potential to facilitate a hybridised approach that combines traditional and modern elements, hence enhancing customer happiness and elevating the overall quality of shopping experiences. The integration of conceptual synthesis and tangible retail engagement with contemporary technology facilitates the implementation of more effective strategies and compels the market to embrace progressive innovations. This enables supermarkets to engage in competition with online retail outlets by enhancing customer service.

A gap exists in the literature such that the literature review provides insights into the implications of artificial intelligence in retail organisations, but it lacks specific information on its benefits and country-specific benefits. Challenges identified include insufficient data on effective strategies to mitigate AI's impact on retail organisations, limiting the development of smoother business operations.

III.   Methods

This research employs an inductive research approach to understand the significance of AI implementation in the UK retail sector. Azungah (2018) highlights the influence of inductive research on detailed observations and its effectiveness in understanding AI applications. The inductive approach offers a new perspective on the importance of AI technology in the UK retail sector. The secondary qualitative research strategy is chosen to collect information to meet research objectives. Ruggiano and Perry (2017) argue that this method effectively uses existing data to answer research questions and gathers data on AI implementation in the UK retail industry. The strategy also identifies potential challenges in incorporating AI in the UK retail sector. This study uses a monomethod qualitative research approach to analyse the effectiveness of AI technology in the UK retail industry. The research collects qualitative data using a single technique, focusing on the importance of AI in the retail sector's operational processes.

Data Collection and analysis

The selection of an appropriate data collection method is of paramount importance in the realm of research, as it facilitates the acquisition of pertinent information necessary for making well-informed decisions. The researchers opted for a secondary qualitative data gathering strategy in order to objectively assess the subjective phase of the topic. The data was obtained from several external sources, including scholarly journal publications, government papers, reputable websites, news pieces, and reputable periodicals. The journal articles utilised in this study underwent a rigorous process of peer review. Additionally, reputable databases such as Science Direct, Sagepub, and MDPI were consulted for the purpose of data collection and analysis. The sources

deemed accurate for this study encompass newspaper stories published subsequent to the year 2020, business reports, corporation reports, and government records. Blogs, websites, and articles lacking authenticity, as well as those that have not undergone peer review, were omitted. Thematic data analysis is employed in the present study to assess qualitative data through the identification and examination of recurring patterns. The research process involves seven primary stages for the examination of secondary qualitative data, hence fulfilling the study objectives. Despite its flexibility, the approach has been found to exhibit inconsistency and a lack of coherence in extracting themes from the data. However, it is beneficial in this study, as the data on AIs' role in the UK retail sector is qualitative and contains recurring themes. The analysis involved seven steps: searching relevant keywords, quality assessment, data extraction, text coding, and theme generation. The first step involved searching for keywords related to AI, the UK, and retail business in various sources. The second step focused on determining data relevance, categorising information, and separating data themes based on the study's theme. The third step focused on generating five relevant themes for the case study.

IV.   Results and Findings

This paper analyses data collected from authentic DOI articles and research papers to understand the application of artificial intelligence in the UK retail sector. Five themes are constructed to meet research objectives and answer questions. Thematic analysis highlights potential findings and provides a discussion on the implications of AI in the UK retail sector. AI is a powerful tool in the digital era, and the UK retail sector is increasingly incorporating AI into its operations to maintain market value and reduce work pressure. AI systems increase operational skills and productivity by making accrued decisions and reducing functional and human error. These systems help retailers understand customer requirements and develop marketing strategies to attract customers. In the UK retail sector, AI systems analyse consumer perceptions of products and create databases of crucial information. They also help make marketing strategies by calculating factors like market position, product demand, and customer behaviour.

However, the application of AI in the UK retail sector is a complicated task due to financial issues and the need for modern infrastructure. Additionally, AI systems require skilled and efficient employees to operate, which can be challenging for the sector. To overcome these challenges, retailers have hired more efficient people to operate AI systems and started training programmes for employees. Tesco, for example, has installed Trigo software in its shops to manage buyer information and analyse customer behaviour to understand customer demands. This automated system has helped create an effortless shopping environment for Tesco, highlighting the importance of AI in the UK retail sector's growth and success.

Benefits of implementing AI in the retail sector of the UK

AI has a technology has been utilised by numerous organisations for rapid expansion. To remain competitive in the market, the retail industry must modify its structure in order to boost profits and productivity. Artificial intelligence is an effective technology because, according to the World Economic Forum (2023), the retail industry in the United Kingdom requires rapid and effective success to remain in business. AI makes retail businesses intelligent, optimises labour, and reduces costs while increasing efficiency. According to Rossi (2017), Tesco is conducting research on the implementation of technology that will help the grocery industry become more competitive. Tesco consistently retains data on client purchasing trends and endeavours to modify its marketing strategy in order to align with consumer demands. At now, their objective is to gather crucial data in order to facilitate the analysis of prevailing consumer trends.

Effectiveness of AI in the UK retail sector

Due to the alteration in lifestyle, there has been a significant transformation in customers' expectations. The advent of artificial intelligence (AI) has brought about substantial changes to the configuration of the retail industry in the United Kingdom throughout the current digital age. As stated by Moore, Bulmer, and Elms (2022), AI technology has emerged as a powerful instrument for achieving sustainable development and competitiveness in the UK retail industry. This technology enables work to be performed with efficiency, accuracy, and speed, which are essential in the retail industry. The retail industry has implemented AI to analyse consumer data and make business-improving decisions. According to a report by Supply Chain Britain (2017), Tesco utilises artificial intelligence technologies to establish a connection between the digital and physical domains. In order to preserve its market worth within the contemporary landscape characterised by a growing prevalence of digitalization, the retail business is compelled to use digital platforms.

Implementation of different types of AI within the UK retail sector

Various artificial intelligence (AI) technologies, including digital identity systems, facial age detection algorithms, and intelligent applications, have been employed to facilitate the establishment of smart retail stores within the British retail sector. Silverstein (2021) said that Tesco has recently introduced a frictionless store in

London by implementing Trigo, an artificial intelligence technology developed in Israel. The aforementioned firm employed an automated system for the purpose of storing data pertaining to all classifications of purchases. Tesco demonstrates a proclivity for implementing a meticulously structured data-driven system to monitor and analyse consumer demands. Tesco has implemented "wear and return" software, as reported by the World Economic Forum in 2023, in order to identify customers who engage in repetitive purchasing and subsequent returns of items.

Challenges of applying AI in UK retail.

The retail industry in the United Kingdom faces a number of obstacles when implementing AI into its daily business strategies. According to Perc, Ozer, and Hojnik (2019), the most difficult aspect of implementing AI technology is identifying the appropriate digital transformation technology. The selection of an efficient technology is determined by its storage capacity, rate of productivity, and consumer needs. It is a challenging undertaking for the retail industry to implement advanced technology and alter its business strategies abruptly. Implementing new AI requires skills and knowledge of how it can contribute to the expansion of businesses. Kelly et al. (2019) argue that the introduction of new artificial intelligence (AI) technologies may lead to significant financial setbacks as a consequence of inadequate worker expertise. The utilisation of innovative and advanced technology has resulted in substantial financial investments, posing a huge challenge for the retail industry in the United Kingdom. Rossi (2017) states that a comprehensive investigation has been carried out in the Tesco laboratory regarding the integration of suitable technology within their operations. This integration necessitates the presence of proficient staff and the utilisation of advanced analytical procedures. This technique necessitates financial resources, but, the efficacy and significance of this research remain uncertain. Consequently, the influence of artificial intelligence (AI) on the retail sector presents a formidable obstacle, as it has the potential to disrupt numerous aspects such as marketing methods, sales techniques, and productivity levels, among other things.

Possible solutions to UK retail AI challenges.

The retail industry in the United Kingdom employs a variety of strategies to surmount obstacles posed by AI's application. The primary requirement for the implementation of AI is the need for competent individuals who can operate cutting-edge technology. Numerous retailers in the United Kingdom have initiated AI-related training programmes for their employees in order to bring them up to date. The company has persuaded investors to invest in AI technology in order to increase profits (Cobanoglu and Corte, 2021). The installation of new technology has necessitated modifications at supermarkets and retailers. (Fu et al., 2023) Numerous international retailers have begun testing the new technology in a few stores and gathering consumer feedback.

V. Discussion and contributions

AI's influence on UK retail is a major commercial development. AI boosts corporate productivity and efficiency. Business competitiveness is the main driver of AI system adoption. Businesses now need accurate, fast, error-free work. (2023, Perifanis and Kitsios) AI is ideal for this task and boosts productivity. AI can organise and process data daily and produce information-based analytics. These findings help British retailers detect sales, manufacturing, and consumer demand challenges. UK retailers are experimenting with AI solutions to speed up check-in and check-out. In addition, the UK retail industry uses AI to analyse the market (Haleem et al., 2022). Due of AI's importance, UK retailers use interactive programming to engage customers.

AI customises and personalises digital technology's interactive platforms, transforming the UK's digital retail sector, according to Dauvergne (2020). UK retailers have been impacted by self-checkout and security scanning advancements that prevent theft. AI has been applied at Tesco to cut operating expenses and boost productivity. UK shops can respond autonomously using AI's analytical ability to protect unprocessed data. AI helps merchants estimate demand, price products, and locate them based on consumer preferences and requirements, according to Weber and Schütte (2019). Trigo, an Israeli business, created artificial intelligence for Tesco's frictionless shop (Silverstein, 2021). Tesco also plans to use "wear and return" algorithms to identify repeat buyers. Wang et al. (2021) predict that customers will expect AI to streamline brand interactions. Because advanced technology requires current infrastructure, the UK retail business faced several challenges in deploying the AI system. Retailers can't choose the best technology to convert digital platforms. Chatterjee et al. (2021) suggest that organisations struggle to use technology because they must adjust their company plans to analyse retail industry growth and successes. Dwivedi et al. (2019; 2023) argue that a lack of trained and adept workers may cause significant financial losses when retail companies implement artificial intelligence (AI).

Therefore, UK retail sector-influencing groups' financial health declines. Before incorporating AI into operational protocols, Tesco should improve commercial strategy protocols. To solve AI implementation hurdles, the retail industry needs skilled and experienced business analysts. These analysts are key in finding retail-friendly IT systems and practises. Iyer (2021) stresses the need of AI system training and development to keep employees

up to speed on cutting-edge technology. Implementing a data-driven culture is vital for organisations to overcome retail AI concerns. Thus, the retail industry must integrate artificial intelligence (AI) into its operational framework to react to a dynamic market, increase profitability, and optimise business operations.

VI. Conclusion, and recommendations for further research

Conclusion

In conclusion, this investigation shed light on the problem. However, certain regions need further research. Thus, future research should address these information gaps and build on this study's findings. So, a deeper comprehension of the topic may be achieved. In conclusion, the evidence supports the supposition.

Based on the investigation, Artificial Intelligence (AI) technology has the potential to boost UK retail business profitability and growth. The research found that artificial intelligence (AI) is helping merchants understand consumer needs. The study found that retail business owners may use artificial intelligence (AI) to maintain market value in a competitive environment. Thus, UK retail firm owners benefit from AI technology's market insights. According to the survey, AI technology has helped businesses make educated decisions and optimise product placement depending on demand. Based on the above facts, the retail industry must change its infrastructure to leverage AI technology successfully. Thus, UK retailers have hurdles while using AI technology. However, it might improve their commercial operations.

The study found that artificial intelligence (AI) technology may help with diverse activities across temporal contexts. According to the survey, AI technology in UK retail has changed client expectations. This technology has also improved retail efficiency, accuracy, and speed, raising customer expectations. The study shows that AI technology has improved retail supply chain management, reducing product delivery time. According to the report, Tesco is using AI to bridge the virtual and physical worlds. Therefore, clients of such firm may access items online thanks to AI technology. AI might improve UK retail companies' finances and operations. It can also encourage these firms to adopt more sustainable practises. Thus, UK retail may benefit from AI integration.

The survey found various retail AI technologies. The retail business uses Chatbots, In-store help, Virtual fitting rooms, and Visual and voice search tools. In contrast, the study found that Tesco has deployed Trigo, an Israeli-developed AI technology, to save consumer purchase data. The paper shows that AI-powered virtual fitting room technology has helped retail enterprises maintain social distance throughout the COVID-19 epidemic. In contrast, Tesco uses Wear and Return artificial intelligence to identify clients who buy and return items quickly. Thus, this technology would help the retail company maintain social distance, determine consumer demographics, and maybe give other benefits. AI technology has also helped UK retailers avoid offensive situations.

Based on the above facts, AI technology adoption has faced problems such a lack of knowledge and understanding, poor funding allocation, and insufficient infrastructure. According to research, consumers' lack of information hinders the successful integration of artificial intelligence (AI) technology into UK retail establishments, resulting in significant customer backlash. Additionally, there is a rising need to incorporate AI technology into brick-and-mortar retail operations. Research shows that UK retailers are concerned about product features and information once AI technology was introduced. However, the study found that AI may threaten retail businesses' marketing, sales, and productivity. with retail, the lack of human interaction with artificial intelligence systems may make customer satisfaction difficult. The difficulties have been identified as the main concerns for implementing AI technology in UK retail.

Staff must get extensive AI training to overcome the challenges faced by the retail business after adopting AI technology. This will help traders overcome misunderstandings. According to the poll, several UK retailers have introduced employee training courses to improve customer happiness. To overcome financial constraints in the UK retail industry, numerous firms have sought stakeholder investment to integrate AI technology and acquire a competitive edge. In addition, several UK retail companies have begun using artificial intelligence (AI) technologies to get real-time customer feedback. According to the statistics, Tesco and Walmart have used AI to boost brand equity and customer base. Thus, artificial intelligence (AI) technology has become incredibly efficient in the UK retail business, improving customer satisfaction and brand equity. Employee participation, process management, and strategy creation are preferred UK retail industry solutions.

Proposed Recommendation

In order to conduct this study, it is advisable to employ either the primary qualitative approach or the primary quantitative method in order to yield more favourable results. In contrast to alternative methods of data collecting, primary data collection has several advantages due to its direct sourcing from original sources. The utilisation of primary data collection methods, such as surveys, might yield more advantages due to their enhanced precision and reliability. Furthermore, the collection of primary data is characterised by its expediency and convenience, in contrast to the time-consuming nature of gathering secondary data, which may need many weeks or even months. This suggests that, in contrast to the broader market, the research is centred on the specific market

segment and its corresponding facets of discourse. Furthermore, conducting this type of research would afford researchers complete autonomy in determining the technique, the breadth and scale of representation, as well as the selection procedures for the data sources.

The utilisation of a longitudinal time frame, in contrast to a cross-sectional time horizon, can enhance the comprehensiveness of the investigation and expand the evaluative potential of the obtained data. A longitudinal study offers the added benefit of enabling researchers to monitor alterations or advancements in the attributes of the target populations, both collectively and individually, over an extended period of time. The primary consideration is that longitudinal studies encompass a greater temporal span compared to single-point observations, as they enable the tracking of participants in real-time over an extended duration. Furthermore, the utilisation of a longitudinal study enables the examination of dynamic concepts, in contrast to the static concepts that may be readily ascertained through the cross-sectional study methodology. The comprehension of individuals' transitions from one context to another is contingent upon the execution of a longitudinal study. Consequently, it may be more feasible to ascertain the chronological sequence of events and acquire a deeper understanding of the causal connections.

Areas for Future research

The study has been meticulously planned and executed, ensuring comprehensive and thorough deliberations on the various facets associated with the integration of artificial intelligence into company operations. The study has been conducted with meticulous attention to detail, specifically focusing on the retail sector of the United Kingdom. This emphasis on the UK retail industry underscores the need for UK business professionals to adopt artificial intelligence (AI) strategies, as it enhances the likelihood of successful implementation of AI in their business operations. The study has successfully identified both the direct and indirect components that contribute to the control of the same phenomenon. Furthermore, the study has provided insights into the extent and significance of these factors. Gaining a comprehensive understanding of the diverse array of impacting elements can yield significant advantages for aspiring entrepreneurs seeking to implement artificial intelligence (AI) in their enterprises, with the aim of enhancing its utilisation and effectiveness. Furthermore, this study has been contributing to the comprehension of the various issues that impede the integration and effectiveness of artificial intelligence (AI) in the corporate context. By utilising this research, prospective entrepreneurs and scholars can readily discern the potential challenges that could impede the optimal performance of artificial intelligence (AI) technology in both current and future business endeavours. In due course, through the adoption of this research, a range of methodologies can be developed to address and mitigate the adverse effects of AI functionality on an organization's business processes. Therefore, it is quite probable that the aforementioned contributions will be conferred upon future researchers and business professionals seeking to optimise the utilisation of AI advancements in their respective fields.

Study Limitation

This study used a secondary qualitative data collection approach to investigate the effects of artificial intelligence on the retail sector in the UK. However, the study faced limitations, including a lack of real-time data and updated information, which could compromise the reliability and relevance of secondary data. The absence of a primary quantitative approach, such as a survey, led to a limited and unreliable numerical data. This reliance on qualitative data resulted in inability to accurately delineate topics and hindered the integration of opinion-based data. The study's cross-sectional temporal frame may diminish the relevance of findings over time, as it only examines impacts, phenomenological changes, and variables within a constrained time frame. The establishment of causal relationships within this context has not been adequately elucidated, making these limitations significant impeding the research's usefulness and efficacy.

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