IMPACT OF CLOUD-BASED SOFTWARE APPLICATIONS ON THE OVERALL AGILITY OF THE UK RETAIL BUSINESS SUPPLY CHAINS

Acknowledgement

First and foremost, I would like to thanks my professors for giving me this wonderful opportunity to work on this project. I would also acknowledge my principal for giving me adequate resources for completing the project.

I also thank my families and friends for their continuous support to complete the project within time.

Thanking You

Abstract

The study reflects on the use of cloud-based software applications in improving the effectiveness of supply chain (SC) activities in the UK retail industry. The main issue is associated with a significant increase in expenditures related to the use of cloud applications, which is adversely affecting business performance levels. The themes related to the current challenges faced by the retail businesses with higher transportation costs affected the operations. This research shows that cloud based software's helps in improving business agility of the UK retail businesses. It can allow the mentioned businesses in improving transparency, scalability as well as collaboration. Besides, the application of cloud platforms also helps foster transparency along with collaboration. However, due to knowledge gap businesses are facing challenges in adopting cloud platforms. Arranging training and development initiatives for the employees can be effective for better adoptions of the cloud computing platforms in the SC operations of the UK retail sector.

Table of Contents

List of Figures

Chapter 1: Introduction

1.1 Introduction

This section lays out the background, aim and objectives, research question, problem, and justification as well as different research methods followed by the structure of the study.

1.2 Background

Cloud-based applications are supported by cloud computing which significantly increases the flexibility of businesses (Almurisi and Tadisetty, 2022). As such, the use of such applications helps create a competitive advantage by allowing Supply Chain (SC) in United Kingdom (UK) retail businesses to react to changes in supply and demand.

1.3 Aims and Objectives

Aim

The study aimed to *"analyse the influence of cloud-based software adoption regarding agility of UK retail supply chains."*

Objectives

- To examine the effectiveness of cloud-based software applications regarding UK retail SC agility
- To recognise barriers faced by UK retail businesses in the context of managing SC operations
- To provide strategic recommendations for UK retailers to effectively adopt cloud-based applications in their SC operations

1.4 Research Question

- How does the adoption of cloud-based software affect the supply chain agility of UK retail businesses?

1.5 Research Problem

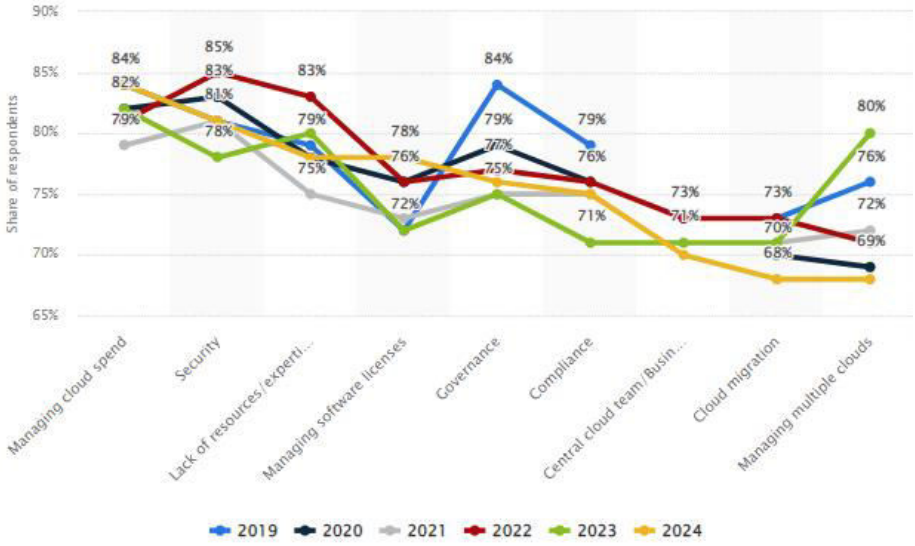

Figure 1.5.1: Major Cloud Computing Challenges

(Source: Statista, 2024)

It is evident that the applications of cloud software and computing have grown heavily expensive with 84% of cloud computing managers referring to such expenditures as a major challenge (Statista, 2024). Hence, the study is centred on addressing such cloud computing challenges in the context of the supply chains of the UK retail sector in the current scenario.

1.6 Justification

It can be denoted that expenditure is the current primary challenge faced by UK retail businesses regarding the use of cloud-based applications in SC processes. Alam (2022) argues that high dependence on resources rather than technical knowledge can increase cloud implementation expenses. Therefore, it can be said that the use of such aspects has adversely affected the overall effectiveness of the SC process in the UK retail sector. Thus, it also adversely affected SC efficiency aspects in the current scenario.

1.7 Research Framework

The study referred to the use of a secondary qualitative framework, which is derived from Saunders' Research Onion.

1.8 Methodology

An interpretivism philosophy was used for gaining subjective underpinnings in the study followed by an inductive approach for supporting qualitative

datasets. Subsequently, an exploratory design was employed to provide rich information and a qualitative approach followed by secondary data collection methods was applied.

1.9 Structure of the study

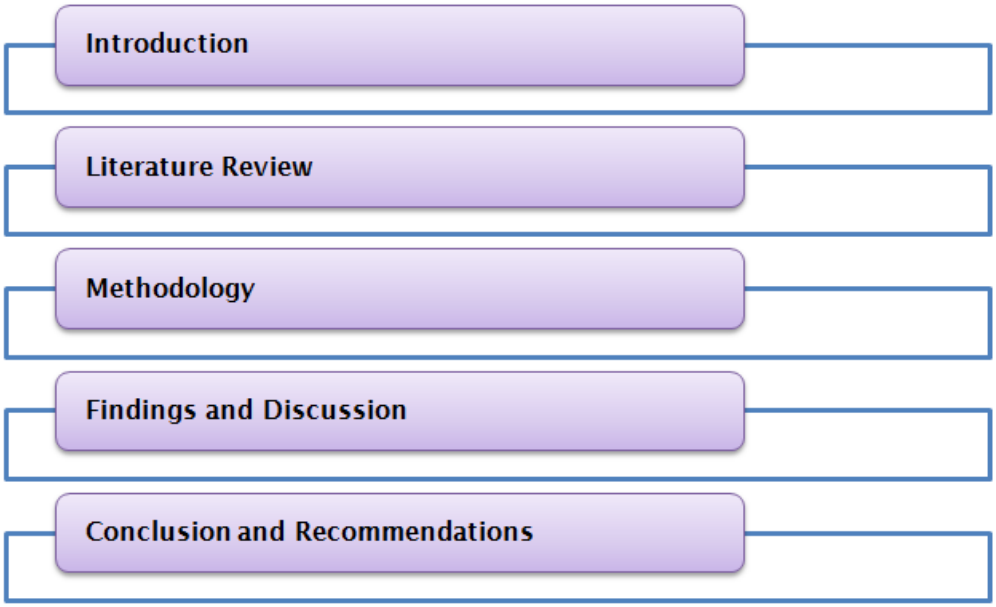

Figure 1.9.1: Research Structure

(Source: Self-Developed)

Chapter 1 examines the background, sets out aims and objectives and provides a brief methodology.

Chapter 2 highlighted prior articles and identifies a knowledge gap.

Chapter 3 details the research methods used to satisfy objectives.

Chapter 4 demonstrates the results of the analysis and its findings.

Chapter 5 summarises key research areas and provides future directions and strategic recommendations.

1.10 Summary

It can be derived that cloud-based applications can enhance SC data security and contribute towards improving the business agility of UK retail supply chains. Thus, the next section has focused on reviewing prior literature sources for deriving more contextual information.

Chapter 2: Literature Review

2.1 Introduction

In the context of the current topic, cloud-based software is identified as the independent variable of the study and the supply chains of the UK retail businesses are identified as the dependent variable of the research.

2.2 Relationship between cloud-based software applications and business agility

Cloud-based software applications can allow UK retail businesses to become more agile. Wang *et al.* (2023) stated that cloud computing allows the mentioned businesses in scaling their resources up or down as needed, without large upfront investment. As an example, if a website shows a sudden increase in traffic, the cloud software can allocate more resources in order to handle the load. On the other hand, cloud software platforms also hold a significant influence in streamlining the software development processes of the mentioned business. Besides, cloud-based software also helps enhance business agility by integrating automation into logistics along with supply chain (SC) processes (Al-Radaideh *et al.* 2023). Therefore, it can be evaluated that the application of cloud software can allow UK retail businesses to enhance transparency, scalability as well as collaboration.

2.3 Impact of cloud-based software on retail supply chains in the UK

Cloud software helps in providing seamless integration across all facets of the UK retail businesses. Puica (2020) stated that the application of the mentioned software can help in enhancing SC visibility. Apart from improving SC visibility, the adoption of cloud platforms also holds a significant influence in preventing stock-outs or high inventories. Therefore, it can be evaluated that cloud computing in the context of the UK supply chain helps in taking communication to another level.

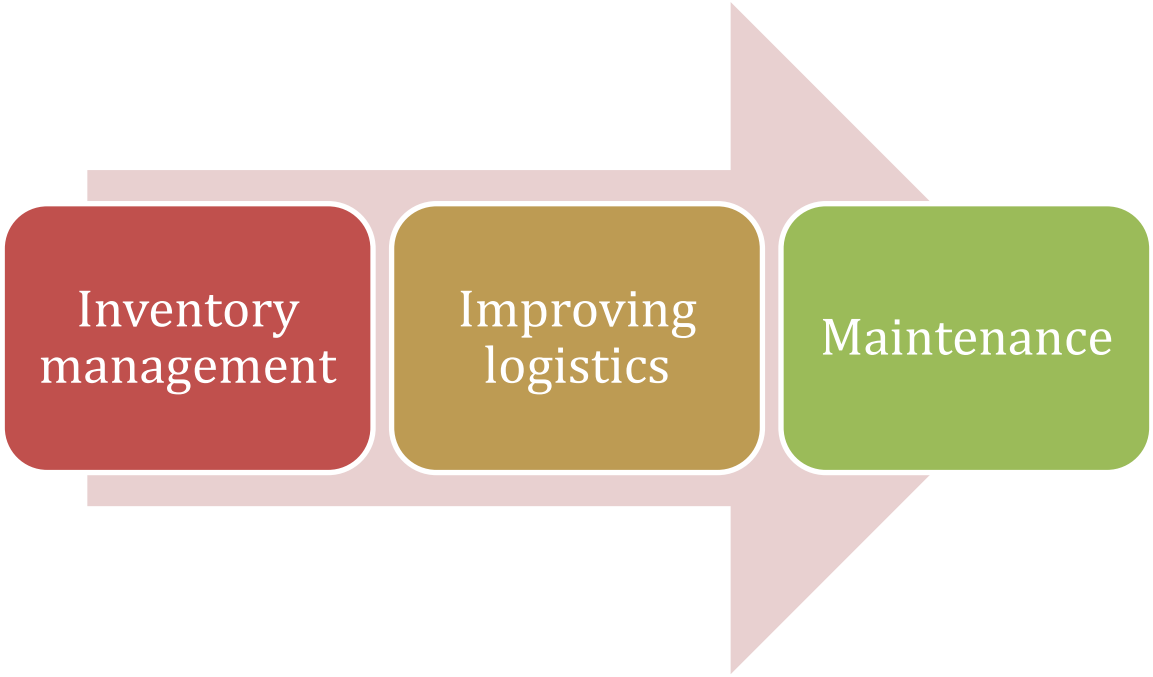

Figure 2.3: Impact of Cloud-based software

(Source: MacCarthy and Ivanov, 2022)

The illustration helps in evaluating the contact of cloud platforms in improving the SC agility of the UK retail sector. It has been identified that cloud platforms hold a significant influence in improving inventory management. Cloud storage helps the mentioned businesses in integrating automation into SC. MacCarthy and Ivanov (2022) stated that automation in SC management can help in improving logistics, inventory, sales, predictions as well as maintenance. On the other hand, the application of cloud platforms also helps foster transparency along with collaboration. Dong and Salwana (2022) argued that cloud platforms help in gathering data as well as sharing data on sales, replenishment along product improvements. This eventually allowed the UK retail businesses to achieve competitive edges. The diagram also shows that the mentioned software helps in improving forecasting accuracy. Therefore, cloud-based platforms hold a significant impact in improving the agility of SC.

2.4 Challenges in addressing business agility through cloud integration on UK retail supply chains

Cost accounting is identified as the major challenge that the retail businesses of the UK are encountering while improving business agility

through the help of cloud computing. Attaran (2020) stated that the application of cloud computing can be expensive if not managed properly. In this context, businesses are facing challenges in managing multi-cloud environments. However, cost accounting can vary depending on the usage, performance, location, availability as well as features. Data security as well as privacy challenges is considered as another important conflict that the mentioned businesses are facing while addressing business agility. Tabrizchi and Kuchaki Rafsanjani (2020) argued that data security is considered an important concern when switching to cloud computing. Lack of awareness regarding data security can result in creating a negative impact on the overall SC efficiency of the retail businesses.

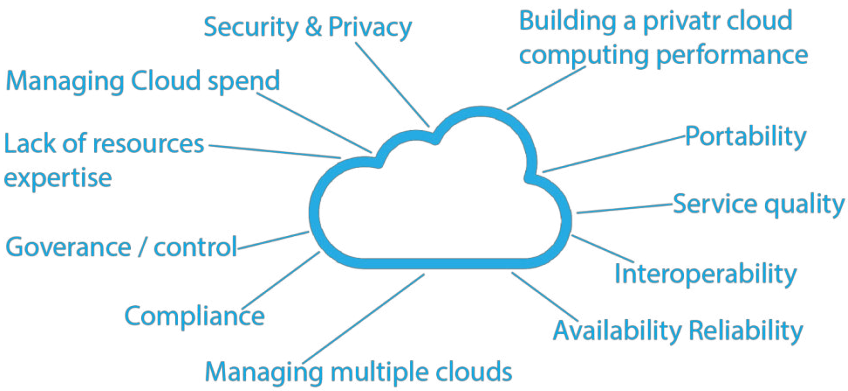

Figure 2.4: Cloud-computing challenges

(Source: Tabrizchi and Kuchaki Rafsanjani, 2020)

The diagram helps in understanding the key challenges of cloud computing. It has been identified that Security, lack of resources, portability, and service quality are the major challenges of implementing cloud computing. However, Alouffi *et al.* (2021) stated that due to the lack of knowledge as well as expertise, the retail sector is facing challenges in implementing cloud computing to foster SC agility. Therefore, hiring proper talent is considered a common challenge in cloud computing. Lack of expertise in cloud computing can result in affecting the inventory management practices of the UK retail sector.

2.5 Strategies to enhance the applicability of cloud software to foster business agility across UK retail supply chains

The previous discussion shows that there are numerous conflicts that the retail sector of the UK is encountering using cloud software for fostering business agility. Mallaboyev *et al.* (2022) stated that installing as well as implementing the latest software can help a business in preventing data security vulnerabilities. Hence, the retail sector can implement cybersecurity software to prevent conflicts regarding data security. The application of training and development (T&D) programs can allow the mentioned businesses to minimise the issue regarding the knowledge gap. Hence, the UK retail sector can focus on hiring cloud professionals who have a specialisation in automation. This can also allow businesses to improve SC management practices. Ouchaou *et al.* (2022) argued that the implementation of a multi-cloud data management platform helps the mentioned businesses in managing cloud environments. Moreover, the implementation of resource utilisation monitoring tools along with auditing systems can help the mentioned businesses in improving cost-management practices regarding cloud computing. Therefore, it can be demonstrated that the application of these strategies can allow UK retail businesses to enhance the applicability of cloud computing for fostering business agility across SC.

2.6 Theoretical Discussion

Diffusion of innovation theory

The theory refers to the length of adoption related to new technological innovations (Min, So and Jeong, 2021). In terms of cloud applications, it is essential for UK retail businesses to integrate cloud-computing systems to enhance the response rate of their SC activities. This can also help them to streamline the maintenance of demand and supply contexts enabling better growth trends in the long-term.

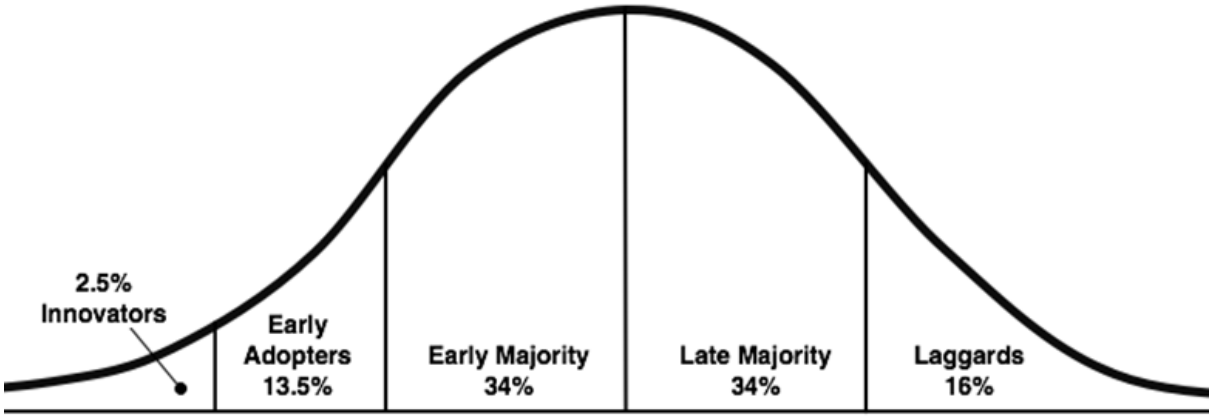

Figure 2.6.1: Stages of innovation theory

(Source: Goh and Sigala, 2020)

In terms of the aforementioned figure, it can be understood that designing and implementing innovations such as cloud-based software requires specific planning endeavours. Goh and Sigala (2020), argue that increasing costs related to heavy dependency on technologies must be mitigated for improving business sustainability. However, the constant shift in market demands, increasing business expenses and so on indicate a major requirement for cloud-based applications adoption in SC activities of UK retail businesses.

Such applications can assist in effectively forecasting demand and adjusting inventory management aspects of such businesses in terms of meeting market requirements and generating long-term growth prospects. Thus, in this manner, by mitigating the different barriers to innovation such as costs, lack of skills and other factors, UK retail businesses can capitalise on improving the effectiveness of their SC activities in the current scenario.

Resource-based view theory

This theory refers to the growth and diversification of a firm's specific resources with an emphasis on improving customer relationships and internal business capabilities (Chatterjee *et al.,* 2023). The application of this theory can assist UK retail businesses to understand the requirements of their customers more clearly and adjust their operations to meet such demands. Subsequently, this theory can also allow the company to efficiently organise its resources for better implementation of cloud-based software

applications. In such cases, this can also yield major growth tendencies for associated businesses in the contemporary scenario.

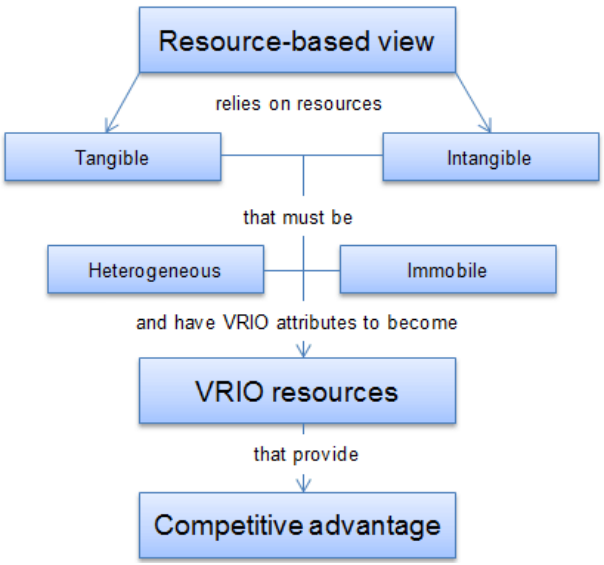

Figure 2.6.2: Components of RBV theory

(Source: Lubis, 2022)

The aforementioned figure states that the proper organisation of resources by organisations can provide them with a competitive advantage in the market (Lubis, 2022). This can also create favourable outcomes for UK retail businesses in terms of applying cloud-based software to their SC activities for streamlining value generation. Thus, it can be said that the use of such applications can also enhance SC sustainability and resiliency while refining the business approach towards meeting customer demands.

2.7 Conceptual framework

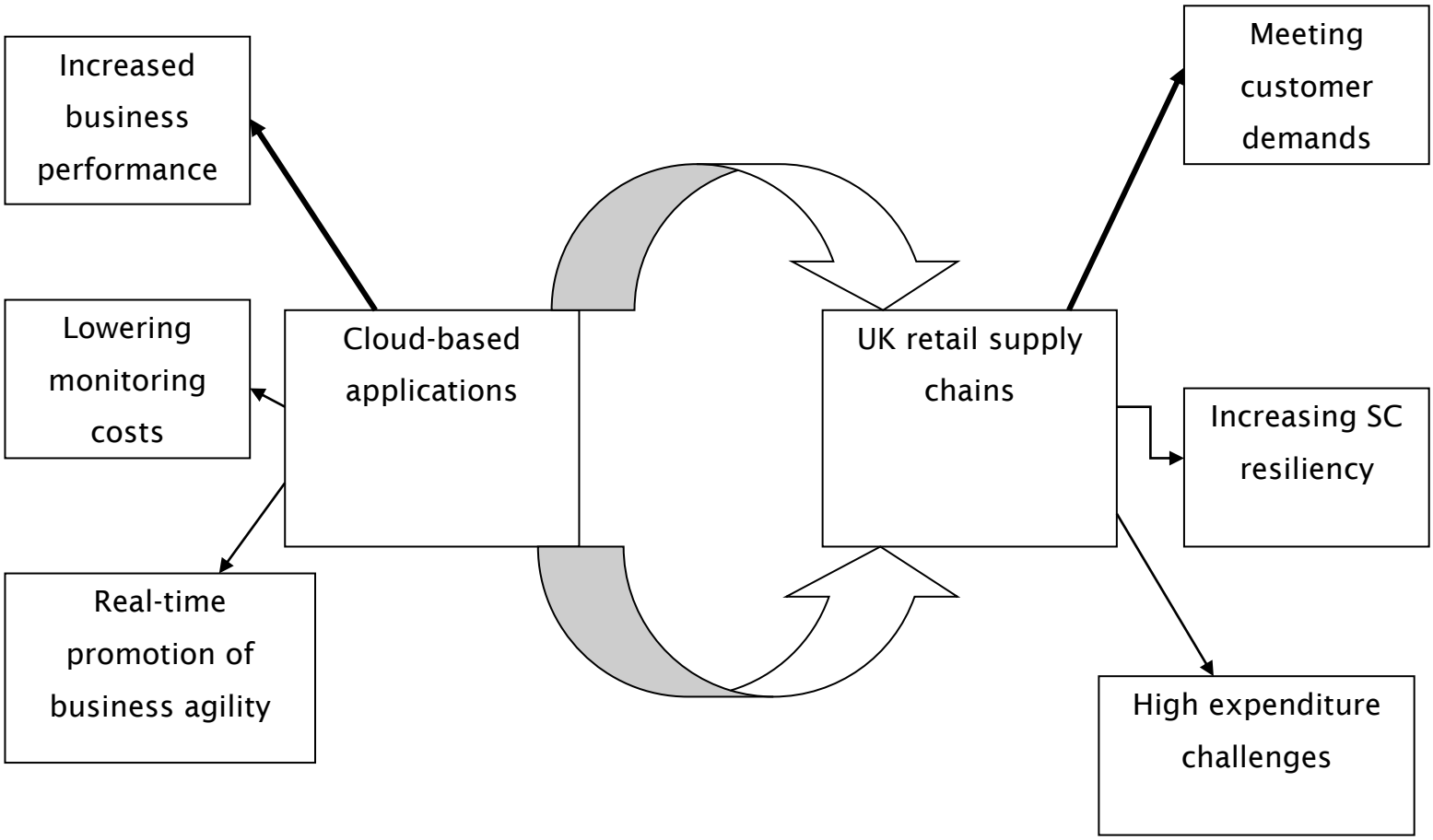

Figure 2.7.1: Conceptual Framework

(Source: Self-Developed)

It can be discerned that the use of cloud-based applications have major implications on UK retail supply chains such as helping businesses to effectively meet customer demands, enhancing SC resiliency while incurring high expenditure challenges. Thus, it can also lower monitoring costs in the long-term and provide UK retail companies with favourable growth opportunities.

2.8 Literature Gap

It sheds light on accessing the impact of cloud platforms in boosting the SC performance. This section analysed the conflicts that the mentioned businesses are currently encountering while adopting cloud platforms. However, previous studies related to the topic failed to assess the factors

that affect the implication of cloud platforms. This resulted in creating a gap in the study.

2.9 Summary

In conclusion, cloud platforms hold a significant influence in improving business efficiency as well as SC agility of the UK retail sector. However, due to the lack of expertise businesses are facing challenges in implementing the mentioned technology. The next chapter will evaluate the methods that this study followed for collecting information.

Chapter 3: Methodology

3.1 Chapter Introduction

It helps in understanding the data collection procedure that this study followed for evaluating the impact of cloud platforms in improving SC agility of the UK retail sector. The philosophy and approach followed by this study have been also demonstrated in this section.

3.2 Research Philosophy

Saunders's research onion has been considered by this study for collecting relevant contextual data. A visual representation related to the layers of research onion has been stated below:

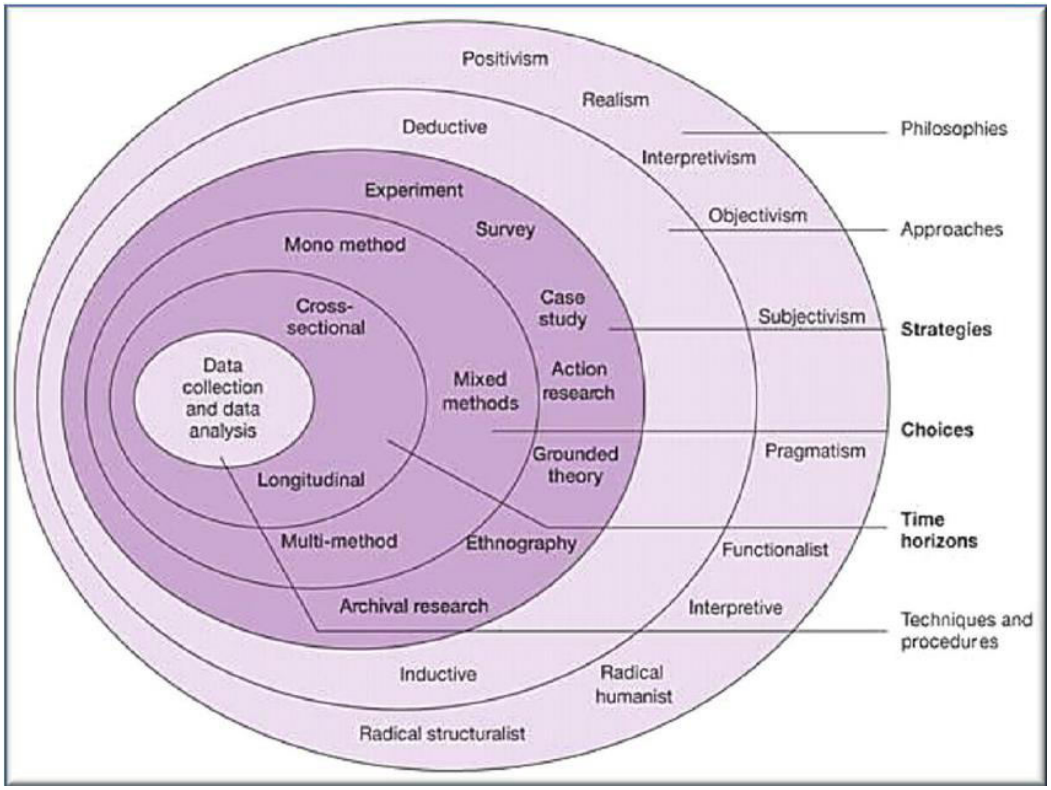

Figure 3.2: Saunders Research onion

(Source: Saunders, Lewis and Thornhill, 2020)

According to the diagram, the research paradigm is considered as the outermost layer of the research onion. The current study adopted ***interpretivism research paradigm.*** It analysed the effectiveness of cloud platforms in improving SC performance. It helped in facilitating deeper contextual understanding related to the conflicts that the retail sector of the UK is currently facing while adopting cloud platforms.

3.3 Research Approach

The inductive approach has been considered by the current study for generating theoretical views regarding the application of cloud platforms in improving the SC agility of the mentioned businesses. Proudfoot (2023) stated that the adoption of an inductive approach allows the study to create general conclusions based on theoretical observation. Therefore, it helped in providing a starting point. This eventually allowed the study to narrow down assumptions related to the impact of cloud platforms. On the other hand, the application of this methodology also helped in improving the creativity of the study. Thus, it can be demonstrated that an inductive approach is highly relevant for this study.

3.4 Research design

It followed ***an exploratory research design.*** It helped in evaluating the strategic approaches that the mentioned sector of the UK can follow to improve SC performance through the application of cloud computing. Thomas and Lawal (2020) argued that exploratory research design helps in setting multiple strategies for finding the most effective one. On the other hand, it also allowed this study to analyse a variety of sources of information. Therefore, the mentioned design helped in gathering a diverse range of information related to the strategic practices that the retail sector can follow for implementing cloud software successfully. Thus, this methodology is highly relevant for the research.

3.5 Research Strategy

For accessing the advantages that the UK retail sector is achieving through the application of cloud platforms, this study has followed ***Secondary qualitative*** strategy. It helped in assembling pre-published information related to the impact of cloud platforms in the context of UK SC.

3.6 Time Horizon

Cross-sectional time horizons have been adopted by this research for collecting as well as analysing a large amount of data. Wang and Cheng (2020) argued that cross-sectional research is less expensive than other types of research. Besides, it also helps in breaking down the stages of the

study. In other words, the mentioned time horizon helps in providing a snapshot of a population's behaviour as well as characteristics. Besides, the application of this methodology also helps in identifying the relation between different variables. It helped in providing a broad view related to the effectiveness of cloud platforms in the context of SC agility of the UK retail sector.

3.7 Research Techniques

3.7.1 Data collection method

For assessing the influence of cloud platforms in improving the overall agility of the UK retail sector, this study has followed ***the secondary data collection.*** Alam (2021) stated that secondary sources help in accessing a diverse range of data. However, the secondary method is also cheaper than the primary method. Hence, the current study focused on using different secondary sources for collecting authentic data. Secondary data sources such as Research Gate, Science Direct, ProQuest and Google Scholar were followed by this research to understand the effectiveness of cloud platforms in the context of the UK retail sector. On the other hand, in order to collect statistical information this study focused on considering different authentic websites. Websites such as Government websites, news, and Industrial reports have been followed by this study for collecting numerical data. ***Random probability sampling*** has been adopted by this research to support the inclusion as well as exclusion criteria of the study. It included the information that was published after 2019 along with excluding the information that was published before 2019. On the other hand, it also included the data that are peer-reviewed as well as written in English.

3.7.2 Data Analysis Method

Thematic analysis with a narrative approach has been adopted by the current research for analysing the gathering of secondary data. Braun and Clarke (2020) argued that a thematic approach to data analysis helps in creating personalised themes related to the core context of the research. On the other hand, the mentioned method of data analysis also helps in using a subjective approach for creating different themes. 5-6 themes have been developed to understand the benefits that the retail sector of the UK can

achieve through the help of cloud platforms. Besides, this approach also helped in generating deeper exploration related to the challenges that the retail sector of the UK is currently facing while improving its SC agility through the cloud platforms.

3.8 Ethical considerations

The current study has followed different ethical aspects for improving the research. The Data Protection Act 2018 has been maintained throughout this study. Moreover, it also focused on maintaining university guidelines in order to minimise the possibilities of academic misconduct. Moreover, it also focused on following the copyright act.

3.9 Chapter Summary

In summary, this section analysed the secondary data collection method that has been considered by this study for understanding the impact of cloud programs in improving SC agility. Besides, the thematic method has been followed for analysing the gathered information. The upcoming section will focus on performing the thematic analysis method.

Chapter 4: Discussion and Findings

4.1 Introduction

This section focuses on performing thematic analysis methods for analysing the influence of cloud platforms in improving business agility. 5 themes have been developed to meet the research objectives.

4.2 Overview of the industry/company

The mentioned businesses of the UK are identified as the biggest contributor to the economic growth of the country. It has been identified that the economic output of the UK retail sector will be £112.8 billion in 2023. Therefore, the economic output of the mentioned sector has increased by 2.4% from 2022 (research briefings, 2024). On the other hand, the retail sector of the mentioned country is also considered one of the biggest entrepreneurs. It has been discovered that there were more than 2.7 million jobs available in the mentioned sector (Research Briefings, 2024). On the other hand, the annual sales value of the retail sector is increasing at a significant rate.

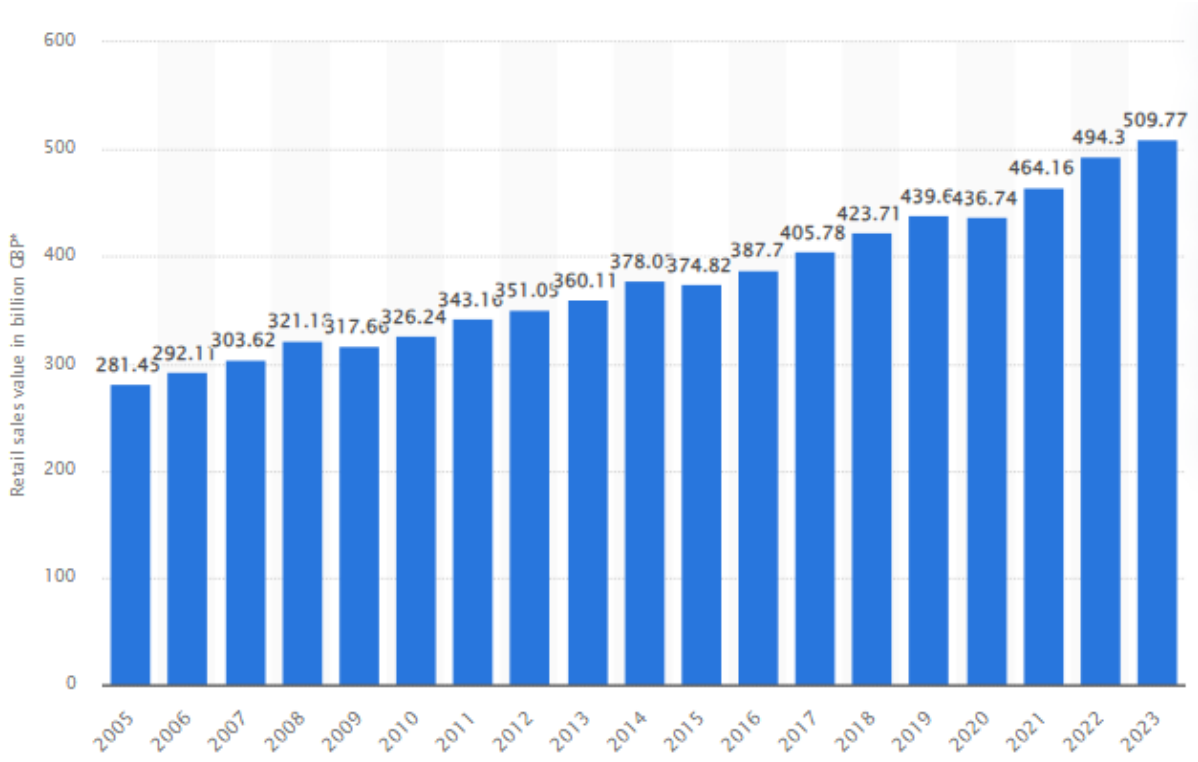

Figure 4.2: Annual sales value of the retail sector

(Source: Sabanoglu, 2024)

The diagram mentioned that in 2023 the sales volume of the UK retail businesses increased from 494.3 to 509.77 (Sabanoglu, 2024). This high annual sales growth indicated that the retail sector has strong competitive advantages. However, Tesco, Sainsbury's as well as Asda are considered as the key players of the mentioned sector. It has been identified that the mentioned businesses are facing several challenges while managing their SC efficiency. SC disruption has resulted in creating a negative impact on the overall competitive edges of the mentioned businesses.

4.3 Secondary data analysis

Theme 1: Cloud computing platforms allow the UK retail sector to improve SC agility by analysing daily performance

The adoption of cloud platforms allows UK retail businesses to improve overall SC efficiency. It helps the mentioned businesses in improving their practices regarding inventory management. On the other hand, it also helps the businesses understand the daily performance of the SC.

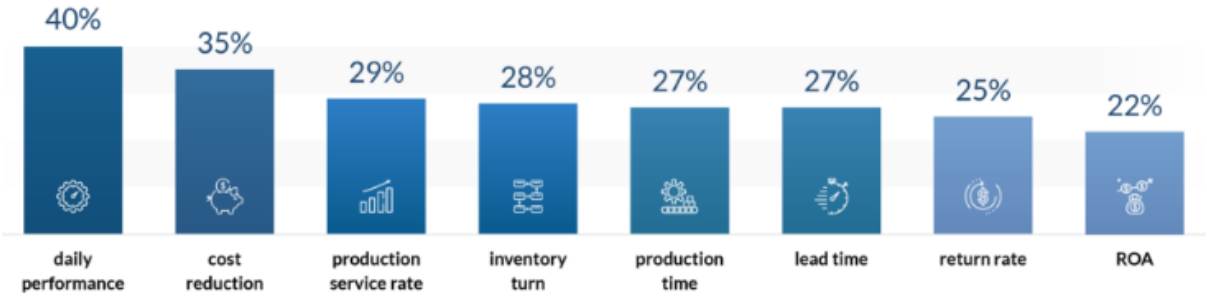

Figure 4.3.1: KPIs used for SC monitoring

(Source: Finances Online, 2024)

The diagram stated that 40% of the respondents stated that analysing daily performance is considered one of the most important Key Performance Indicators (KPIs) that have been used for improving SC performance (Finances Online, 2024). Therefore, it can be demonstrated that the adoption of cloud platforms can allow retail businesses to understand the daily performance of SC by increasing SC visibility. This eventually helps in improving SC agility. Thus, this theme helped in meeting the first objective.

Theme 2: The adoption of cloud computing allows the retail organisations to improve SC efficiency by tracking inventory

Cloud software also allows the mentioned sector to enhance SC efficiency by tracking inventory. Inventory management is considered one of the most important factors that allow a business to improve SC efficiency.

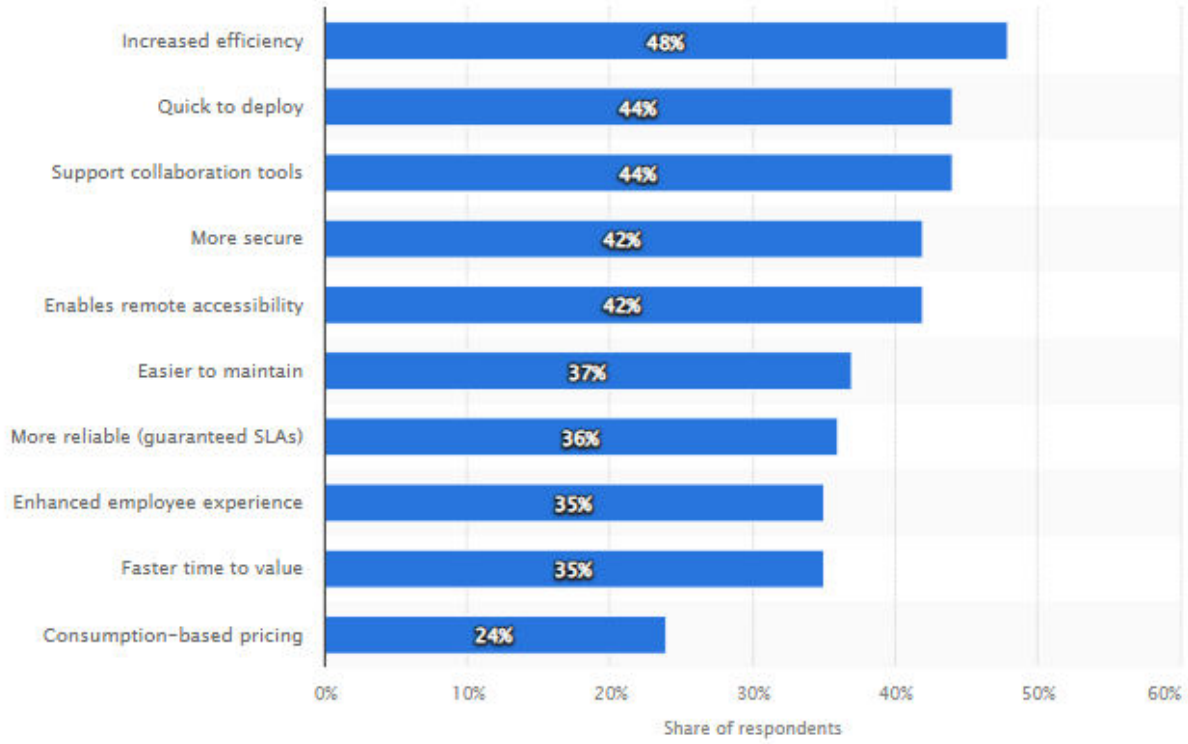

Figure 4.3.2: Advantages of Cloud platforms

(Source: Vailshery, 2023)

The diagram helped in discussing the key advantages that a business can achieve through the adoption of cloud computing. It has been identified that 48% of the respondents stated that the application of cloud platforms can help in improving efficiency (Vailshery, 2023). Therefore, through the help of the mentioned software, the UK retail sector can improve the inventory management of SC. Thus, this theme helped in meeting the first objective.

Theme 3: Material shortages in the UK retail businesses impacted on the supply chain operations

Material shortages in the UK retail businesses affected the supply chain operations that have directly affected the attributes of the organisation. The issues with material shortages impacted the productivity level of the retailers. As per Helo and Hao (2022), this leads to the nonfulfillment of consumer demands according to their preferences and behaviour. This

affected the overall sales and profit growth of the UK retailers and affected overall business opportunities. Material shortages were considered as significant challenges for UK retail businesses that directly affected inventory management. Raw material shortages affected the production of retail businesses and affected the inventory for fulfilling consumer demands.

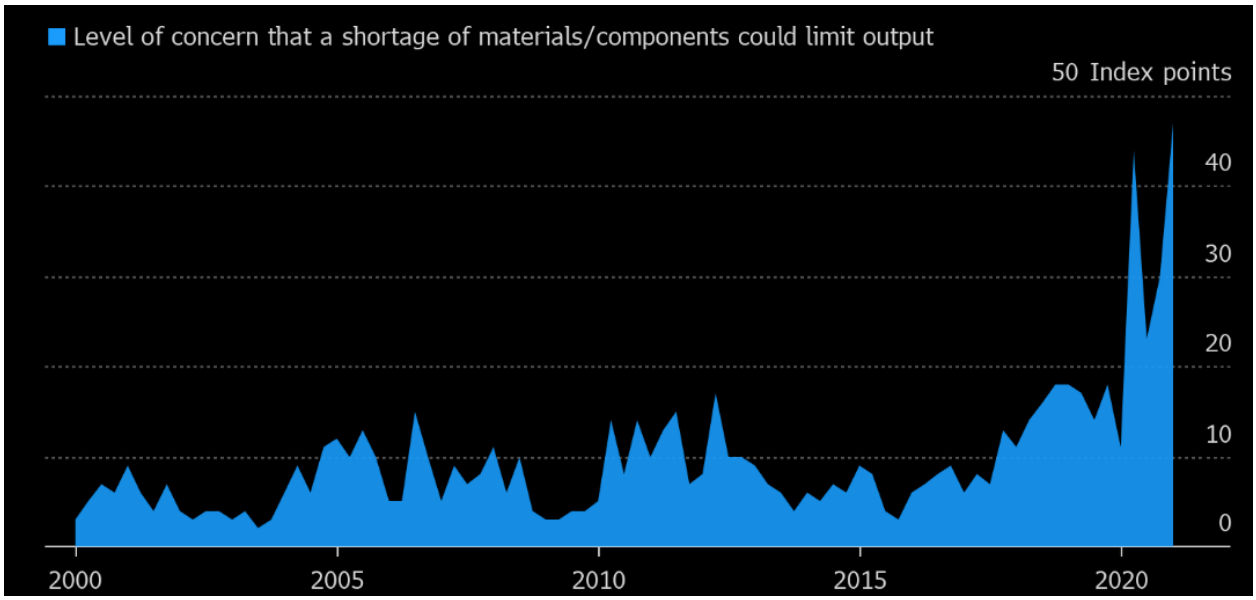

Figure 4.2.3: Raw material shortages in the UK

(Source: Bloomberg, 2021)

The above figure stated that UK retail manufacturers worried about shortages of raw materials as the index hit 50 points in 2020 (Bloomberg, 2021). This indicated that shortages of materials in the UK retail manufacturers affected the productivity levels. This has directly affected the overall operational levels of the UK retail industry.

Theme 4: Logistics issues in the UK retail businesses affected the inventory management

Logistics issues in the UK retail businesses are considered significant challenges for fulfilling the evolving needs of the consumers. Growing e-commerce activities in the UK retail businesses and logistics issues affected the fulfilment of orders that directly affected the overall profit of the businesses. As per Sharma *et al.* (2021), this has directly influenced the level of uncertainty for fulfilling the current market demands that have directly affected the operational levels of UK retail businesses. Logistics issues in the UK retail businesses directly affected the inventory of the businesses. The

issues with the inefficient logistics operations directly affected the inventory management and overall retail businesses profit has decreased. Retail businesses are inefficient in fulfilling the demands for rising e-commerce activities at the logistics challenges affecting overall operations.

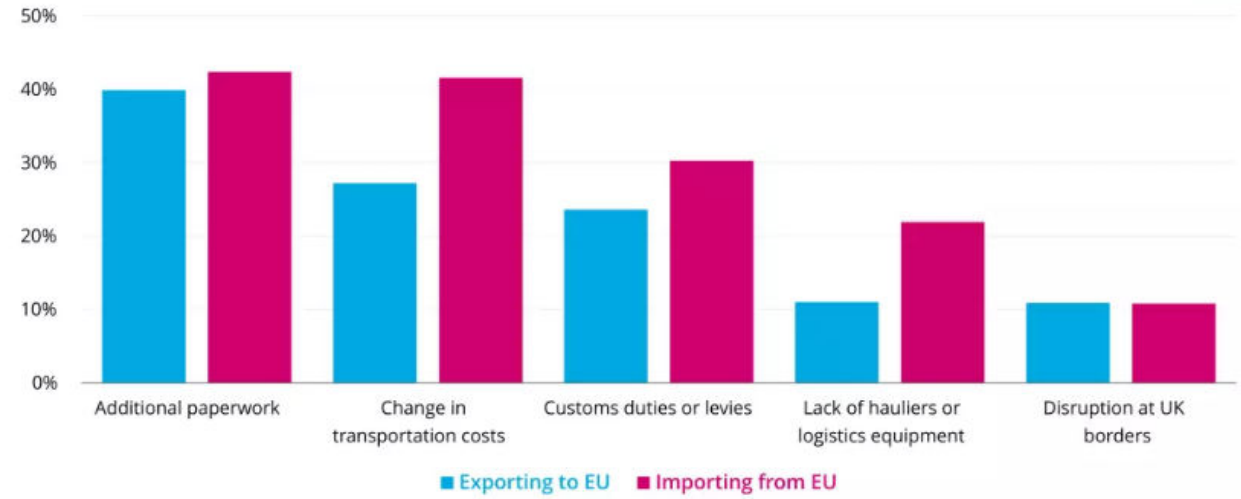

Figure 4.2.4: Logistics and Transportation Challenges in the UK

(Source: Institute, 2024)

According to the above image, the change in transportation costs for exporting to the EU has risen by around 28% and imports from the EU have risen by around 40% in 2020 (Institute, 2024). This indicated that higher transportation costs affected the price levels of the products. This has directly affected the overall operational levels of the UK retail industry.

Theme 5: AI and ML technology adoptions can be effective for UK retail SC operations

AI and ML technology applications can be beneficial for better supply chain operations in the UK retail industry. As per Zhu, Chou and Tsai (2020), this can be effective with better allocation of resources with predictive analytics and fulfilling consumer demands. This can be beneficial for the UK retail operations and enhances capabilities for fulfilling the evolving needs of the consumers. AI and ML applications can be effective for a better understanding of the e-commerce operations in the UK retail operations. The better approach with the adoption of AI and ML technologies can be efficient for the current approaches for fulfilling the abilities of the SC operations.

This can have the capabilities to fulfil the current marketing capabilities of the UK retail services.

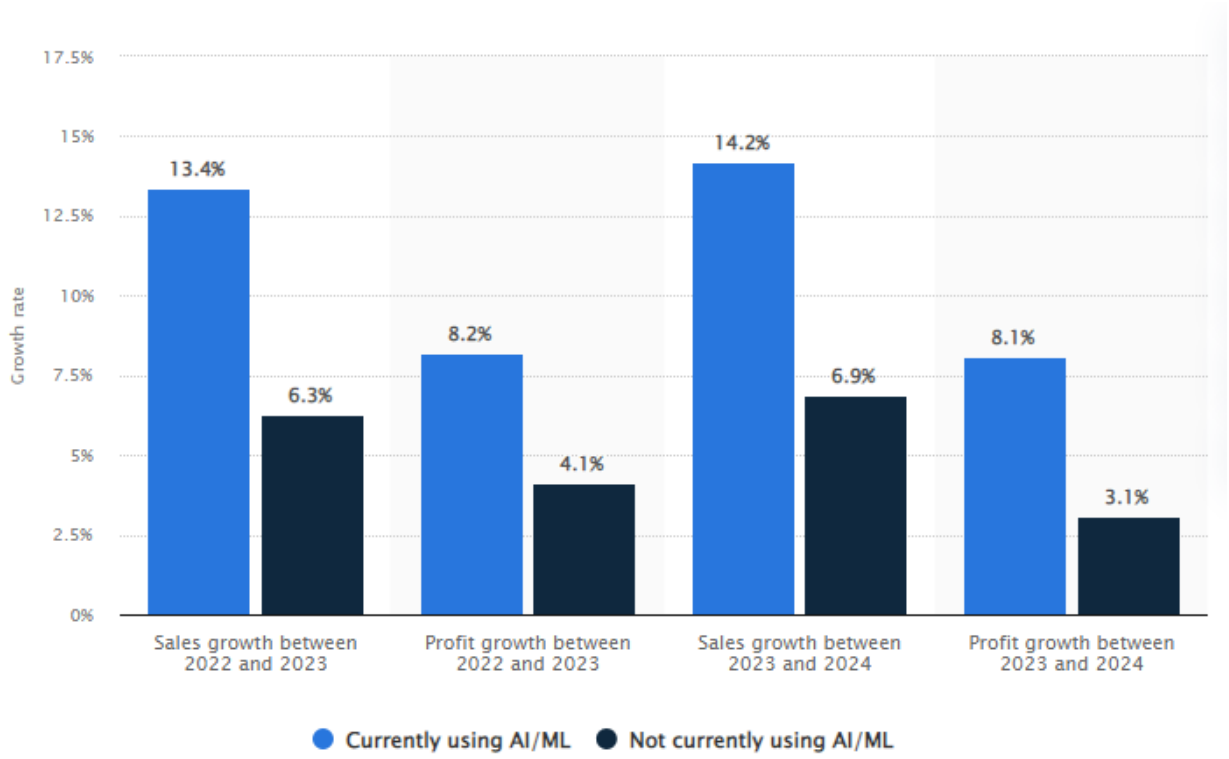

Figure 4.2.5: AI and ML adoptions in the UK retail businesses

(Source: Statista, 2024)

From the above figure, it can be stated that retail businesses currently using AI and Ml have a profit growth of 8.2% in 2022-203 and those who are not using AI and Ml technology have a profit growth of 4.1% (Statista, 2024). This indicated that AI and ML technology adoptions can be efficient for fulfilling the consumer demands. This can be enhanced through cloud technologies adoptions and effective for better fulfilling of consumer demands.

4.4 Discussion

4.4.1 Significance of Findings

Findings 1: Cloud computing platforms help to analyse UK retail sector SC operations

From theme 1, it can be derived that the adoption of cloud platforms in the UK retail businesses helps to improve SC efficiency. The improvement of the SC operations enhances the capabilities of inventory management and improves the daily performances. Cloud computing services have

provisioning storage and servers that have the capabilities of monitoring and reporting. Cloud computing includes faster innovation and has the capabilities to serve better SC opportunities. From theme 2, it can be reviewed that inventory management with the help of cloud platforms enhances the capabilities of the UK retail sector. Cloud computing platforms are effective in increasing efficiency for inventory management of retail sector operations. From the analysis of themes 1 and 2, it can be derived that cloud-computing platforms allow better SC inventory management capabilities and fulfil objective 1.

Findings 2: Cloud computing adoption contributes to increased tracking effectiveness of SC operations in the UK retail industry

From theme 2, it can be stated that the adoption of cloud platforms helps to improve the efficiency of the inventory management of the UK retail sector. The better adoptions of the cloud computing platforms with better tracking of the inventory and the capabilities are to fulfil the current marketing capabilities of the SC operations. From theme 5, it can be derived that AI and ML technology adoptions can be effective for better management of retail operational activities and have the capabilities to improve inventory. AI and ML technological adoptions allow better management of the inventory and increase opportunities for business operations. In the derivation of themes 2 and 5, it can be stated that the adoption of cloud computing platforms enhances the capabilities of the UK retail sector inventory management system and fulfils objective 1.

Findings 3: Material shortages impacted the inventory management of the UK retail sector

From theme 1, it can be stated that cloud-computing services are effective for better SC agility in the UK retail sector. The adoption of cloud platforms helps in improving SC agility and has the capabilities for better performance. From the analysis of theme 3, it can be derived that material shortages affected the SC operations in the UK retail sector. Raw material shortages in the UK retail business impacted the agility of the UK retail sector. The material shortages in the UK retail sector affected the production capacities of the UK retail sector. From the analysis of themes 1 and 3, it can be

derived that material shortages impact the agility of SC operations in the UK retail sector and fulfil objective 2.

Findings 4: Logistics issues and material shortages affected the UK retail sector SC operations

From the derivation of theme 3, material shortages affected productivity and hampered the services in the UK retail sector. Raw material shortages pose significant challenges that have affected inventory management. From the derivation of theme 4, logistics issues impacted the e-commerce operations of the UK retail sector for fulfilling consumer demands. The rise of e-commerce activities with the increasing logistics issues impacted the SC operations of the UK retail sector. From the derivation of themes 3 and 4, raw material shortages along with logistics and transportation issues impacted the SC operations of the UK retail sector and fulfilled objective 2.

Findings 5: AI and ML technology adoptions can be efficient for tracking inventory of the UK retail sector

From theme 1, it can be stated that effective adoption of cloud computing platforms has the capabilities for fulfilling SC operations in the UK retail sector. The better adoption of cloud computing platforms has the opportunity to increase inventory management. From theme 5, it can be derived that AI and ML technological adoptions can have the effectiveness of tracking inventory management activities in the UK retail sector. The adoption of AI and ML technologies can be beneficial for fulfilling consumer demands and have the capabilities to fulfil the efficiency of the UK retail sector. From the analysis of themes 1 and 5, it can be derived that AI and ML technological adoptions have the capabilities to fulfil inventory tracking and objective 3.

4.4.2 Relation to Literature

The cloud-based software application allows UK retail businesses to have the capabilities for scaling up their resources and focuses on investment capabilities. Cloud computing software helps to allocate resources for streamlining the automation of logistics operations. The applications of software applications help enhance transparency in retail business operations. Cloud software integration can increase the agility of inventory

management and have the capabilities to fulfil better marketing opportunities. From findings 1 and 2, it can be derived that effective adoptions of cloud computing platforms have the capabilities to fulfil the marketing capabilities of the UK retail sector.

4.4.3 Marginal Implications

Cost accounting is identified as a challenge for retail businesses and has the capabilities to fulfil the current marketing capabilities for better SC operations. Cloud computing helps to create better awareness among brands and has the capabilities to fulfil evolving consumer demands. This can be effective for enhancing the current marketing capabilities that help to fulfil the inventory management operations of the UK retail sector.

4.5 Summary

In summary, lack of awareness and logistics challenges create challenges for the UK inventory management to increase the management capabilities. The operational efficiency of SC activities in UK retail organisations is thought to be higher when data security is in place. Better inventory management capabilities may be possible with the use of AI and ML technology.

Chapter 5: Conclusion and Recommendations

5.1 Summary

Cloud computing solutions facilitate data collection, sharing, and replenishment related to sales and product enhancements. Eventually, this gave UK retail enterprises a competitive advantage. The study additionally demonstrates how the aforementioned program enhances forecasting accuracy. Consequently, cloud-based platforms have a big influence on increasing SC's agility. The study has followed a secondary data collection method that is effective for understanding the integration of cloud computing in SC operations. In addition to increasing supply chain visibility, cloud platform adoption plays a major role in reducing stock-outs and excess inventory. Thus, it can be concluded that cloud computing contributes to a higher level of communication throughout the UK supply chain.

5.2 Conclusion

Linking with Objective 1

Goal no 1 of the study is related to the analysis of the effectiveness of cloud-based software applications in the SC agility of the UK retail sector. From the analysis of findings 1, it can be derived that cloud platform adoptions have the significance of the inventory management of the UK retail sector. Puica (2020) stated that improved cloud computing platform adoption rates, improved inventory management, and the ability to meet the SC operations' present marketing needs. Findings 2 suggest that implementing AI and ML technologies can enhance inventory management and be a useful tool for better managing retail operational activities. The analysis of findings 1 and 2, can be derived that effective inventory management with cloud computing applications is effective for influencing the agility of SC operations and fulfilling goal no 1.

Linking with Objective 2

Goal no 2 is related to the recognition of barriers faced by UK retail businesses to manage the SC operations efficiency. Finding 3 suggests that shortages of raw materials provide serious problems that have impacted

inventory control. According to findings 4, logistics problems affected the UK retail sector's e-commerce operations to satisfy customer demands. Attaran (2020) stated that the SC operations of the UK retail industry were impacted by the growth of e-commerce activity and the escalating logistics challenges. The agility of the UK retail sector was hampered by a shortage of raw materials. The UK retail sector's production capacities were impacted by the material shortages. Therefore, from the derivation of findings 3 and 4, challenges faced by the UK retail sector in their SC operations are identified, which helps to fulfil objective 2.

Linking with Objective 3

Goal no 3 is related to recommended strategies for effective adoption of cloud-based software for better management of the SC operations of the UK retail sector. In the UK retail industry, successful cloud computing platform deployment can meet SC operations. Mallaboyev et al. (2022) stated that improved cloud computing platform usage offers the potential to improve inventory management. The deployment of AI and ML technologies can effectively track inventory management activities in the UK retail industry, as may be inferred from findings 5. The adoption of AI and ML technologies has the potential to improve the efficiency of the UK retail industry as well as meet consumer needs. However, the strategies are not implemented by all the retailers so these objectives draw limitations for the findings.

5.3 Recommendations

Training and development initiatives can improve SC agility

The UK retail industry faces several challenges when utilising cloud computing to promote business agility. A company can reduce the risk of data security breaches by installing and using the most recent software. Thus, cybersecurity software can be used by the retail industry to avoid disputes over data security. Khan (2024) indicated that the implementation of training and development initiatives can help the aforementioned companies reduce the problem of the knowledge gap. Thus, the UK retail industry can concentrate on employing cloud experts with automation specialisations. Additionally, this can help companies enhance their SC management procedures. The aforementioned companies find that

managing cloud environments is made easier with the adoption of a multi-cloud data management platform. Furthermore, the aforementioned firms can enhance their cloud computing cost-management strategies by incorporating auditing systems and resource utilisation monitoring technologies. Thus, it can be shown that implementing these tactics can help UK retail companies make cloud computing more applicable for promoting business agility throughout SC. Training and development initiatives for the employees with the current operational insights have significance to fulfil the evolving consumer demands and maintain SC operational efficiency.

Cost efficiency and rapid innovation processes for better SC agility

Cost efficiency and rapid innovation processes can have the resilience in better innovative performances in the UK retail sector. Rapid innovation processes in the SC operations can foster the changes and effectively prioritise the operational processes. This can be effective for the pursuit of innovation and response to quick changes. Panigrahi *et al.* (2023) stated that this can be beneficial for the innovation processes that can fulfil the marketing capabilities of the innovation processes. Cost-efficiency in the reduction of distributions and production costs is effective for better improvement in the SC agility operations. This can have the capabilities to fulfil overall marketing capabilities that have better success in the processes of the current operation for better approaches in the SC operations of the UK retail sector. This can be beneficial for better management capabilities to fulfil the marketing opportunities and have significance for better marketing approaches in the innovation processes. This can have significance with the current managerial attributes that hold significance for the services with the SC agility operations. Operational agility of the supply chain processes with the UK retail sector that has the capabilities to optimise the resources with innovation and productivity. Rapid innovation processes can have the capabilities to fulfil the current marketing opportunities with SC agility improvement in the UK retail sector.

5.4 Limitations

The identification of recommended strategies is not yet implemented by all the UK retailers and understands the efficiency of the services to improve

inventory management. Therefore, identifying strategic solutions for the effective implementation of cloud computing technologies on a large scale holds limitations for the study findings.

5.5 Future Work

The identification of the right technologies for better inventory management can influence the purchasing attributes and have the capabilities for better significance in the current environment. The identification of effective strategies that can be implemented in the SC operations can be effective for better fulfilment of findings related to the strategies.

Reference List

Alam, A. (2022) 'Cloud-based e-learning: scaffolding the environment for adaptive e-learning ecosystem based on cloud computing infrastructure', In *Computer Communication, Networking and IoT: Proceedings of 5th ICICC 2021, Volume 2* (pp. 1-9). Singapore: Springer Nature Singapore.

Alam, M.K. (2021) 'A systematic qualitative case study: questions, data collection, NVivo analysis and saturation', *Qualitative Research in Organizations and Management: An International Journal*, *16*(1), pp.1-31.

Almurisi, N. and Tadisetty, S. (2022) 'Cloud-based virtualization environment for iot-based wsn: solutions, approaches and challenges', *Journal of Ambient Intelligence and Humanized Computing*, *13*(10), pp.4681-4703.

Alouffi, B., Hasnain, M., Alharbi, A., Alosaimi, W., Alyami, H. and Ayaz, M. (2021) 'A systematic literature review on cloud computing security: threats and mitigation strategies', *Ieee Access*, *9*, pp.57792-57807.

Al-Radaideh, A., Almajali, D., Alomari, Z., Alshanty, A., Smadi, K. and Hijazeen, O. (2023) 'Assessing the impact of cloud-based supply chain management on organizational agility: a structural equation modeling approach', *Uncertain Supply Chain Management*, *11*(3), pp.1289-1294.

Attaran, M. (2020, July) 'Digital technology enablers and their implications for supply chain management', In *Supply Chain Forum: An International Journal* (Vol. 21, No. 3, pp. 158-172). Taylor & Francis.

Bloomberg (2024) *U-k-manufacturers-worried-about-raw-material-shortages-* [Online] Available at: https://www.bloomberg.com/news/articles/2021-01-22/u-k-manufacturers-worried-about-raw-material-shortages-chart [Accessed: 5th August, 2024]

Braun, V. and Clarke, V. (2020) 'Reflecting on reflexive thematic analysis'. Qualitative research in sport, exercise and health, 11(4), pp.589-597.

Chatterjee, S., Chaudhuri, R., Vrontis, D. and Thrassou, A. (2023) 'Revisiting the resource-based view (RBV) theory: from cross-functional capabilities perspective in post COVID-19 period', *Journal of Strategic Marketing*, pp.1-16.

Dong, X. and Salwana, E. (2022) 'The impact of cloud-based human resource and supply chain management systems on the performance of multinational organizations', *Kybernetes*, *51*(6), pp.2030-2043.

Financesonline, (2024) *97 Supply Chain Statistics You Must Know: 2024 Market Share Analysis & Data*Available at: Financesonline, 2024 https://financesonline.com/supply-chain-statistics/ (Accessed 8 August 2024)

Goh, E. and Sigala, M. (2020) 'Integrating Information & Communication Technologies (ICT) into classroom instruction: teaching tips for hospitality educators from a diffusion of innovation approach', *Journal of teaching in travel & tourism*, *20*(2), pp.156-165.

Helo, P. and Hao, Y. (2022) 'Artificial intelligence in operations management and supply chain management: An exploratory case study', *Production Planning & Control*, *33*(16), pp.1573-1590.

Institute (2024). *Supply chain problems* [Online] Available at: https://www.instituteforgovernment.org.uk/explainer/supply-chain-problems [Accessed: 5th August, 2024]

Khan, M. (2024) 'Enhancing supply chain resilience: The role of SC-ambidexterity and SC-agility', *Journal of Future Sustainability*, *4*(4), pp.189-214.

Lubis, N.W. (2022) 'Resource based view (RBV) in improving company strategic capacity', *Research Horizon*, *2*(6), pp.587-596.

MacCarthy, B.L. and Ivanov, D. (2022) 'The Digital Supply Chain—emergence, concepts, definitions, and technologies', In *The digital supply chain* (pp. 3-24). Elsevier.

Mallaboyev, N.M., Sharifjanovna, Q.M., Muxammadjon, Q. and Shukurullo, C. (2022, May) 'Information security issues', In *Conference Zone* (pp. 241-245).

Min, S., So, K.K.F. and Jeong, M. (2021) 'Consumer adoption of the Uber mobile application: Insights from the diffusion of innovation theory and technology acceptance model', In *Future of tourism marketing* (pp. 2-15). Routledge.

Ouchaou, L., Nacer, H. and Labba, C. (2022) 'Towards a distributed SaaS management system in a multi-cloud environment', *Cluster Computing*, *25*(6), pp.4051-4071.

Panigrahi, R.R., Jena, D., Meher, J.R. and Shrivastava, A.K. (2023) 'Assessing the impact of supply chain agility on operational performances-a PLS-SEM approach', *Measuring Business Excellence*, *27*(1), pp.1-24.

Proudfoot, K. (2023) 'Inductive/deductive hybrid thematic analysis in mixed methods research', *Journal of mixed methods research*, *17*(3), pp.308-326.

Puica, E. (2020) 'Cloud computing in supply chain management and economic, environmental and social impact analysis', *Informatica Economica*, *24*(4), pp.41-54.

research briefings, (2024) *Retail sector in the UK*Available at: https://researchbriefings.files.parliament.uk/documents/SN06186/SN06186.pdf(Accessed 8 August 2024)

Sabanoglu, (2024) *Annual sales value of all retailing in Great Britain from 2005 to 2023*Available at: https://www.statista.com/statistics/287912/retail-total-annual-sales-value-great-britain/ (Accessed 8 August 2024)

Saunders, M., Lewis, P.H.I.L.I.P. and Thornhill, A.D.R.I.A.N. (2020) 'Research methods', Business Students 8th edition Pearson Education Limited, England, 6(3), pp.1-268.

Sharma, M., Luthra, S., Joshi, S. and Kumar, A. (2021) 'Accelerating retail supply chain performance against pandemic disruption: adopting resilient strategies to mitigate the long-term effects', *Journal of Enterprise Information Management*, *34*(6), pp.1844-1873.

Statista (2024) *Challenges to enterprise cloud computing usage worldwide in 2019 to 2024* Available at: https://www.statista.com/statistics/511283/worldwide-survey-cloud-computing-risks/ (Accessed: 7 August 2024).

Statista (2024) *Impact of artificial intelligence (AI) and machine learning (ML) use on retail performance between 2022 and 2024* [Online] Available at: https://www.statista.com/statistics/1453198/ai-and-ml-impact-on-retail-performance/ [Accessed: 5th August, 2024]

Tabrizchi, H. and Kuchaki Rafsanjani, M. (2020) 'A survey on security challenges in cloud computing: issues, threats, and solutions', *The journal of supercomputing*, *76*(12), pp.9493-9532.

Thomas, O.O. and Lawal, O.R. (2020) 'Exploratory Research Design in Management Sciences: An X-Ray of Literature', *Annals of the University Dunarea de Jos of Galati: Fascicle: I, Economics & Applied Informatics*, *26*(2).

Vailshery, (2023) *What do you see as the biggest benefits from cloud computing?*Available at: https://www.statista.com/statistics/1236805/cloud-computing-benefits/(Accessed 8 August 2024)

Wang, J., Xu, Y.P. and She, C. (2023) 'Effect of cloud-based information systems on the agile development of industrial business process management', *Journal of Management & Organization*, *29*(4), pp.614-631.

Wang, X. and Cheng, Z. (2020) 'Cross-sectional studies: strengths, weaknesses, and recommendations', *Chest*, *158*(1), pp.S65-S71.

Zhu, G., Chou, M.C. and Tsai, C.W. (2020) 'Lessons learned from the COVID-19 pandemic exposing the shortcomings of current supply chain operations: A long-term prescriptive offering', *Sustainability*, *12*(14), p.5858.