EFFECTS OF MANAGEMENT INFORMATION SYSTEMS ON THE GROWTH OF E-COMMERCE IN ZAMBIA.

BY

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NUMBER: 718000060

A DISSERTATION SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN COLLABORATION WITH ZIMBABWE OPEN UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF BUSINESS ADMINISTRATION.

THE UNIVERSITY OF ZAMBIA,

LUSAKA

2024

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DECLARATION

I, **JOKIWE TEMBO**, hereby declare that, to the best of my knowledge, this dissertation proposal is entirely original work and has never been created or submitted for award of a degree, diploma, or other qualification at the University of Zambia or any other university. I further affirm that all additional works by individuals cited in this study have been properly attributed and acknowledged.

Signed:………………………………..... Date…………………………………

CERTIFICATION OF APPROVALS

This proposal of **JOKIWE TEMBO** is approved as fulfilling the requirements for the award of the degree of Master of Business Administration (MBA-general) offered at the University of Zambia in collaboration with Zimbabwe Open University.

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Signature :……………………………….   Date………………………….

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Date of approval

DEDICATION

To the guiding lights of my life, my beloved parents, Mr. Aaron Tembo and Mrs. Laiza M. Tembo: Your unwavering love, support, and encouragement have been the bedrock of my educational journey. Your sacrifices and belief in me have shaped the person I am today. This dissertation is not just my achievement, but a testament to the values and resilience you have instilled in me. I dedicate this work to you as a token of my endless gratitude and love.

ACKNOWLEDGEMENT

ABSTRACT

This study investigated the effects of Management Information Systems (MIS) on the growth of e-commerce in Zambia. With the exponential growth of digital technologies globally, the adoption of MIS has become increasingly vital for businesses seeking to thrive in the digital marketplace. Through a comprehensive analysis of the Zambian e-commerce landscape, this research aimed to elucidate the impact of MIS implementation on various aspects of e-commerce growth in Lusaka.

Utilizing a mixed-methods approach, combining qualitative insights from interview guides with quantitative data analysis, the study examines the extent of MIS adoption, the challenges encountered, and the strategies employed to maximize the benefits of MIS in driving e-commerce growth. The findings reveal that MIS adoption in Zambia has facilitated improvements in customer engagement, operational efficiency, and service quality, resulting in enhanced competitiveness and market positioning for e-commerce businesses.

However, the research also identifies challenges such as operational disruptions, data privacy concerns, and the need for continuous innovation to overcome technological and regulatory barriers. To address these challenges, the study recommends the development of clear guidelines, interdisciplinary collaborations, and investments in advanced analytics capabilities as well as further research on a longitudinal basis to establish trends over a period of time.

Furthermore, the research highlights the importance of fostering a culture of innovation, strengthening industry-academia partnerships, and prioritizing cyber security measures to fully harness the potential of MIS for e-commerce growth in Zambia.

In conclusion, this study contributed to the existing literature by providing valuable insights into the effects of MIS on e-commerce growth in Zambia. By offering practical recommendations for policymakers, businesses, and academics, the research aims to facilitate informed decision-making and promote sustainable development in the Zambian e-commerce sector amidst the rapidly evolving digital landscape.

Key words: Management information system, e-commerce, effects, growth, performance.

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B2B: Business to business

B2C: Business to consumer

C2B: Consumer to business

C2C: Consumer to Consumer

CRM: Client relations management

E-COMMERCE: Electronic commerce or electronic way of conducting business

ERP: Enterprise resource planning

ICT: Information communication technology

IT: Information technology

MIS: Management Information Systems

SMEs: Small and Medium Enterprises

CHAPTER 1

INTRODUCTION

1.0 Overview

This chapter presented the background of the study, statement of the problem, purpose, objectives, research questions, significance, conceptual framework, scope, limitations and definition of operational terms.

1.1 Background of the study

The emergence of e-commerce has transformed the business landscape in Zambia, offering new opportunities for growth and expansion. As the use of technology in business becomes increasingly important, the implementation of Management Information Systems (MIS) has become a critical factor in the success of e-commerce ventures.

MIS is a computer-based system that helps organizations to manage, organize and analyze data, thereby improving decision-making processes. (Kamal, 2019; Laudon & Laudon, 2016) The use of MIS in e-commerce has the potential to enhance operational efficiency, reduce costs, and improve customer experience. (Tunji-Olayeni et al., 2017)

For example, MIS can be used to track inventory levels, manage customer orders, and process payments. This can help businesses to operate more efficiently and reduce costs. MIS can also be used to collect customer feedback and track website traffic. This can help businesses to improve their products and services and provide a better customer experience.

Adding to this foundational understanding, the Adoption Technology Theory and specific examples of Information Systems in e-commerce operations offer deeper insights into how MIS facilitates e-commerce growth. The Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Unified Theory of Acceptance and Use of Technology (UTAUT) are instrumental in understanding the determinants of MIS adoption and use in e-commerce. These models underscore the significance of perceived benefits, user intentions, and facilitating conditions, emphasizing that the successful adoption of MIS in e-commerce hinges on these factors (Tining Haryanti & Apol Pribadi Subriadi, 2019).

Furthermore, the diverse range of Information Systems, including Transaction Processing Systems (TPS), Management Information Systems (MIS), and Customer Relationship Management (CRM) systems, underpins various facets of e-commerce operations. These systems not only support inventory management and order processing but also enhance customer relationship management and supply chain optimization. The integration of MIS in

e-commerce operations enables businesses to achieve greater operational efficiency, streamline order fulfillment processes, and foster positive customer relationships through personalized marketing strategies and improved customer support (Qoblex, 2021).

The use of MIS in e-commerce is still in its early stages in Zambia. However, as the country's internet infrastructure continues to improve, MIS is likely to become increasingly important for businesses of all sizes.

1.2 Statement of the Problem

The emergence of e-commerce has revolutionized the way businesses operate worldwide. With this digital transformation, the adoption and integration of Management Information Systems (MIS) in e-commerce activities have become paramount for businesses to remain competitive and sustainable. While several global studies highlight the benefits of MIS in e-commerce, there's a noticeable gap in research specifically addressing its implications in the Zambian context. Despite the increasing uptake of e-commerce activities in Zambia, the effects of MIS on its growth and the subsequent influence on business performance remain understudied. This lacuna leaves Zambian enterprises without a contextual framework to understand the potential advantages and challenges of MIS adoption in their e-commerce endeavours. Understanding this relationship is crucial for Zambian businesses as they navigate the digital marketplace, adapt to consumer demands, and strive for efficiency and profitability.

1.3 Purpose of the Study

The purpose of the study was to assess the impact of Management Information Systems (MIS) on e-commerce growth in Zambia, focusing on operational efficiency, cost reduction, and customer experience improvements. It identified integration challenges and proposed strategies for leveraging MIS towards sustainable e-commerce success.

1.4 Research Objectives

Below are the objectives of the study;

1.4.1 General Objective

The main objective of this study was to identify the emerging effects of MIS on various aspects of e-commerce growth in Zambia.

1.4.2 Specific Objectives

i. To examine the extent to which MIS adoption has contributed to the growth of e-commerce in Zambia.

ii. To identify the challenges faced by businesses in Zambia in the adoption of MIS for e-commerce.

iii. To explore effective strategies for maximizing the benefits of MIS for e-commerce growth in Zambia.

1.5 Research Questions

i. How has the adoption of MIS affected the growth of e-commerce in Zambia?

ii. What are the main challenges faced by businesses in Zambia in the adoption MIS for e-commerce?

iii. What strategies are most effective in maximizing the benefits of MIS for e-commerce growth in Zambia?

1.6 Significance of the Study

The study sought to contribute to both academic knowledge and practical business applications, particularly in the growing field of e-commerce within developing economies like Zambia.

- Academic importance: This research aims to fill a gap in the literature on the role and impact of MIS on e-commerce growth in Zambia. The findings of this study will provide a benchmark for future studies in this area, particularly within the context of developing economies.

- Benefit to businesses: E-commerce businesses in Zambia will benefit from the findings of this research by understanding how MIS influences operational efficiency, cost reduction, and customer experience. This knowledge will help businesses to better strategize their use of MIS for growth and competitiveness.

- Policy implications: The study could inform policymakers about the potential benefits and challenges of implementing MIS in e-commerce. The insights gained could help in crafting supportive policies that encourage the effective use of MIS in the e-commerce sector, leading to overall growth in the digital economy.

- Consumer benefits: Improved business operations facilitated by effective MIS implementation can enhance the consumer experience. Better product availability, faster service, and personalized offerings are potential benefits that consumers could enjoy.

- Advancement of the IT sector: By highlighting the importance and utility of MIS, this study could also encourage growth and innovation in Zambia's information technology sector.

Overall, this study sought to provide a comprehensive understanding of the role of MIS in e-commerce growth in Zambia, offering potentially beneficial insights to a wide range of stakeholders.

1.7 Limitations of the Study

The research had several potential limitations that need to be considered. Firstly, the sample size used in the research was not representative of the entire population of e-commerce businesses in Zambia as it concentrated on Lusaka selected e-commerce businesses. This impacted the generalizability of the study's findings. Additionally, data collection techniques, such as surveys, could not accurately capture the nuanced experiences of e-commerce businesses. This could have resulted in incomplete or biased data, which could affect the validity of the study's results.

The study's design also limited the ability to establish causality between the use of MIS and the growth of e-commerce in Zambia, as other factors such as market conditions and government policies could also influence e-commerce growth. Furthermore, the study's reliance on self-reported data could introduce social desirability bias, where participants may provide responses that are favorable rather than truthful. Finally, the study's time frame may limit the generalizability of the findings, as e-commerce trends and market conditions could change over time.

1.8 Scope of the Study

The area of study was confined to e-commerce businesses in Lusaka, Zambia. Lusaka is the capital city of Zambia and the largest urban zone in the country. It is a vibrant hub of economic and business activities, and it hosts a diverse range of e-commerce businesses. The city's advanced infrastructure and internet connectivity make it an ideal location to study the impact of MIS on e-commerce growth.

The choice of Lusaka as the study area was influenced by practical considerations. Proximity is a key factor, as the researcher is self-sponsored and focusing on Lusaka helps to manage logistical complexities and keep the research process cost-effective. Being in close proximity to the study area also enables easier access to businesses for data collection, whether it be interviews, surveys, or observational studies.

It is important to note that while the study was focused on Lusaka, the findings may have implications for e-commerce businesses across Zambia and potentially in other similar economies.

1.9. Conceptual Framework

The conceptual framework for the study is illustrated below:

INDEPENDENT
VARIABLE: MIS USE

DEPENDENT VARIABLE:
E-COMMERCE GROWTH

MODERATING VARIABLE:
MODERATING FACTORS
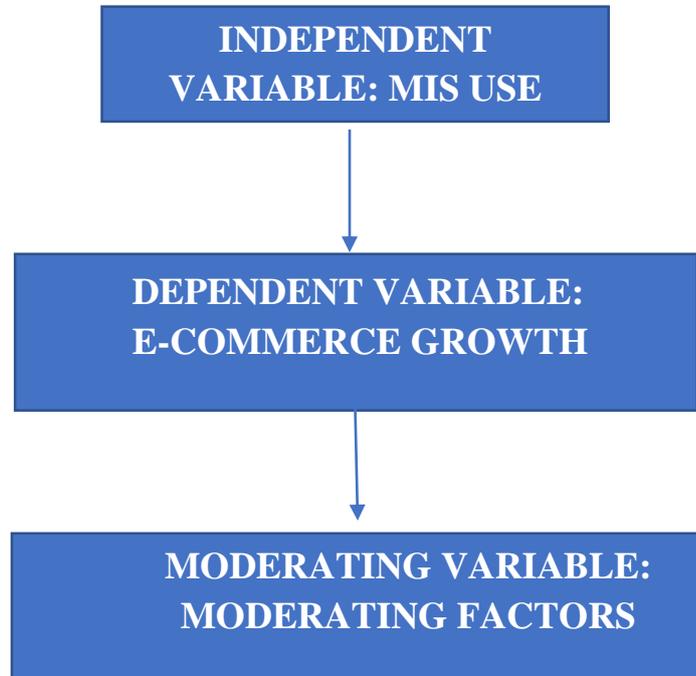
Figure 1. Conceptual Framework

The conceptual framework developed for this study provides a structured approach to exploring the interconnections between Management Information Systems (MIS) adoption, e-commerce growth, and overall business performance. It also considers the influence of moderating factors such as business size, sector, and technological readiness on these relationships. This framework is pivotal in guiding the research design, organizing the analysis of findings, and drawing insightful conclusions on the dynamics at play between the variables under study.

Justification of the Conceptual Framework

- **Relationship between MIS Adoption and E-commerce Growth**: The premise that MIS adoption can significantly propel the growth of e-commerce is well-founded. MIS tools are essential for efficient data management, providing customer insights, and enhancing operational workflows, all crucial for e-commerce expansion. The

direct contribution of MIS to improving decision-making and optimizing e-commerce operations underscores the potential for businesses to augment their online market presence and sales, supporting the proposed linkage within the framework.

- **E-commerce Growth Leading to Improved Business Performance**: The framework posits that the expansion of e-commerce activities, facilitated by MIS adoption, is a key driver of enhanced business performance. Increased revenue, market reach, and customer engagement are direct outcomes of successful e-commerce strategies, leading to improved financial health and competitive positioning for businesses engaging in online commerce.

- **Moderating Effects of Business Characteristics**: Incorporating moderating variables acknowledges that the impact of MIS on e-commerce growth and business performance is not uniform across all enterprises. The size of a business, its sector, and its readiness to embrace technology significantly influence how effectively MIS can be leveraged, highlighting the framework's comprehensive approach to examining MIS integration's effects.

Benefits of the Conceptual Framework:

- **Directs a Focused Research Design:** The framework aids in formulating precise research questions and selecting appropriate data analysis methods, aligning the study with its core objectives.

- **Facilitates Structured Analysis:** By providing a clear structure for the investigation, the framework ensures that data analysis is thorough and conclusions are robust, enhancing the study's credibility.

- **Promotes Clarity and Academic Rigor:** The framework's explicit articulation of relationships and variables enhances the transparency of the research process, delineating the study's scope and potential areas for further inquiry.

- **Supports Academic Discourse:** The structured nature of the framework enables the findings to be compared with other studies, enriching academic discussions on MIS and its role in e-commerce and business performance.

The conceptual framework is crucial for understanding how MIS integration impacts e-commerce and business success, particularly in the Zambian context where digital literacy

and infrastructure challenges are prevalent. It ensures that the study addresses the complex relationship between technology adoption and business outcomes, making a significant contribution to both theoretical and practical understanding of e-commerce dynamics in an African setting. This approach not only advances academic knowledge but also offers practical insights for leveraging MIS in enhancing e-commerce ventures in Zambia and similar contexts.

1.10 Operational definition of terms

E-commerce: In this study, e-commerce is referred to as the buying and selling of goods or services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer (C2C) or consumer-to-business (C2B).

Management Information Systems (MIS): For the purpose of this study, MIS is defined as a computer-based system used by organizations to manage, organize, and analyze data, thereby aiding in decision-making processes.

Operational Efficiency: This term is used in the context of the study to refer to the capability of an e-commerce business to deliver products or services to its customers in the most cost-effective manner possible while still ensuring the high quality of its products, service and support.

Business Performance: In the context of this research, business performance refers to the analysis of a company's success, typically in terms of increased revenue, profits, market share or high customer satisfaction ratings, which in this study is viewed in relation to the adoption of MIS in e-commerce businesses.

Technological Readiness: This term is used to refer to the state or degree of being prepared to implement and utilize new technologies, such as MIS, in the operations of an e-commerce business.

Data Privacy and Security: Within the scope of this study, these terms refer to the measures and protocols that businesses use to protect customer data from unauthorized access, use, disclosure, disruption, modification, or destruction.

E-commerce growth: For this research, e-commerce growth refers to the increase in the volume of online transactions, the number of customers shopping online, or the revenue generated from online sales.

Adoption of MIS: This term refers to the process of starting to use Management Information Systems in the daily operations, decision making and strategy planning of an e-commerce business.

Developing Economies: This term, as used in this study, refers to countries that are less industrialized and have lower per capita income levels than developed countries, such as Zambia.

CHAPTER 2

LITERATURE REVIEW

2.0 Overview

Relevant scholarly literature was reviewed guided by the Gglobal, Regional, and local perspective models on the study on the effects of Management information systems on the growth of e-commerce selected businesses in Lusaka.

2.1 Global Perspective

Globally, the integration of MIS in e-commerce has been extensively studied, revealing its pivotal role in enhancing operational efficiency, customer satisfaction and trust. Notably in 2023, researchers Johnson and Johnson initiated a study in the United States with the objective to delve deeper into the role played by Management Information Systems (MIS) in catalysing the growth of the e-commerce sector. Their focus was specifically on the areas of data analytics and customer relationship management (CRM), two key facets of modern e-commerce where MIS is increasingly being leveraged. The outcomes of their investigation unveiled that when MIS was effectively utilized for analysing customer data, it brought about significant improvements in the development and execution of targeted marketing strategies. Consequently, these enhanced strategies led to a tangible increase in e-commerce sales, underscoring the vital role of data analytics in e-commerce and the consequent necessity of effective MIS systems.

However, it is important to note a gap in the research when considering the applicability of these findings to the Zambian e-commerce sector. Zambia faces unique infrastructural and resource limitations that could challenge the implementation of MIS. The scalability of the strategies highlighted in Johnson and Johnson's study may need to be adapted to fit the technological, economic, and logistical frameworks present in Zambia. This presents an opportunity for further investigation into how the benefits of MIS in data analytics and CRM can be harnessed within the Zambian context, ensuring that such systems are feasible and can be integrated effectively despite potential constraints.

The insights from Johnson and Johnson's study provide a clear indication that Zambia could gain substantial benefits from a robust application of MIS, particularly in the realm of data analytics. The efficient analysis of customer data through MIS could provide Zambian e-commerce businesses with invaluable insights into customer behavior and preferences. These insights could then be utilized to devise highly targeted marketing strategies, which in turn could lead to improved customer engagement, increased sales, and ultimately, foster growth

in the e-commerce sector. Furthermore, the use of MIS can also assist in effective customer relationship management, further aiding in customer retention and long-term growth.

In essence, Johnson and Johnson's research provides a compelling case for the strategic deployment of MIS in data analytics and CRM within Zambia's e-commerce landscape. While acknowledging the existing infrastructural and resource challenges, the study serves as a guide, demonstrating how MIS can be harnessed effectively to drive targeted marketing, enhance sales, and foster overall growth in Zambia's burgeoning e-commerce sector, with the caveat that further research is needed to adapt these findings to the local Zambian context.

In 2022, researchers Taylor, Jenkins, and Armstrong in the United Kingdom embarked on a study aiming to scrutinize the influence of Management Information Systems (MIS) on e-commerce logistics and supply chain management. Motivated by the premise that effective use of MIS could streamline logistical operations, thereby enhancing the overall performance and efficiency of e-commerce businesses, their research provided substantial evidence in support of this theory.

The findings of their study substantiated their initial hypothesis. The researchers discovered that effective utilization of MIS significantly improved logistics operations within the e-commerce sector. This optimization led to shortened delivery times and increased levels of customer satisfaction, highlighting the pivotal role MIS plays in refining logistics and supply chain processes.

However, it is crucial to note a gap when contextualizing their findings within the Zambian landscape. While the study found MIS to be essential in improving logistics and supply chain management, the logistical infrastructure and supply chain networks in Zambia may differ significantly. The Zambian context presents unique challenges, such as geographic and economic factors, which may impact e-commerce logistics. Therefore, there is a need to adapt these insights to fit the specific circumstances in Zambia, where the implementation of MIS could confront different constraints and opportunities compared to those in developed countries like the United Kingdom.

For Zambia's growing e-commerce sector, the insights from Taylor, Jenkins, and Armstrong's research could be particularly valuable, especially when tailored to local conditions. By effectively integrating MIS into logistics and supply chain processes, Zambian e-commerce businesses have the potential to achieve enhanced operational efficiency, leading to reduced delivery times and improved customer satisfaction.

Such improvements could significantly elevate customer satisfaction levels due to faster and more efficient delivery of goods. This, in turn, could potentially lead to increased customer retention and a larger market share, thereby fostering growth in Zambia's e-commerce sector. Nonetheless, it is imperative that any adoption of MIS for streamlining logistics and supply chain management be contextualized to address the specific challenges faced by Zambian businesses.

Taylor, Jenkins, and Armstrong's research offers a pertinent blueprint for how Zambia could leverage MIS to optimize e-commerce logistics and supply chain management effectively. However, for the true potential of MIS to be realized in enhancing Zambia's e-commerce sector, further study is necessary to understand and adapt these systems within the unique Zambian context, ensuring that the proposed solutions are viable and sustainable in the long term.

In 2022, researchers Moreau and Dupont from Canada centered their investigation around understanding the impact of Management Information Systems (MIS) on the growth of small and medium-sized enterprises (SMEs) operating within the e-commerce sector. They aimed to establish whether and how MIS could propel growth in these businesses, which are often constrained by unique operational challenges.

Their findings indicated that deploying MIS significantly facilitated the growth of SMEs in the e-commerce industry, primarily through enhancements in internal efficiency and the enablement of informed decision-making. These factors are crucial for the success and growth of SMEs, leading to improved productivity, cost reduction, and increased profitability.

While the research provides valuable insights, it does not fully address the barriers that Zambian SMEs may face when adopting MIS. These challenges include local economic conditions, such as the availability of financial resources to invest in technology, and technical literacy, which impacts the ability of staff to effectively utilize MIS tools. These gaps indicate a need for research tailored to the Zambian economic and technological landscape, where the adoption of MIS must consider these local barriers to be effective.

Zambia's reliance on SMEs for economic growth makes the findings of Moreau and Dupont's study particularly relevant. The results suggest that Zambian e-commerce SMEs could benefit significantly from the adoption and implementation of MIS, which in turn could lead to broader sectoral growth. The ripple effect of successful SME growth, facilitated by MIS,

could be substantial, contributing to the robustness and expansion of the e-commerce industry in the country.

However, for MIS to be a true game-changer for Zambian e-commerce SMEs, it is crucial to address the aforementioned barriers. Future research and implementation strategies should focus on overcoming these challenges to enhance internal efficiency and decision-making capabilities. By doing so, MIS can become a powerful catalyst in driving the growth of these businesses and, by extension, Zambia's broader e-commerce sector.

In 2023, German researchers Schmidt and Wagner embarked on a study to explore how Management Information Systems (MIS) could enable e-commerce businesses to personalize the customer experience. Their research was driven by the hypothesis that the judicious use of MIS could enhance the level of personalization in customer interactions, thereby fostering greater customer loyalty and, in turn, driving growth in the e-commerce sector.

The findings of their study confirmed their initial hypothesis. They found that the effective deployment of MIS indeed facilitated more personalized customer experiences. This level of customization led to increased customer loyalty, which subsequently resulted in e-commerce sector growth. This connection between personalized customer experiences, customer loyalty, and e-commerce growth underscores the strategic importance of MIS in the context of e-commerce.

However, while Schmidt and Wagner's research provides compelling insights into the benefits of personalization through MIS, it does not fully address the cultural relevance and effectiveness of such personalization strategies in Zambia's diverse market. The effectiveness of personalization is highly dependent on a deep understanding of local consumer behaviour, preferences, and cultural nuances, which might differ significantly from the German context. Therefore, this suggests a gap in research tailored for the Zambian market, where local cultural factors must be considered to effectively implement personalization strategies through MIS.

The Zambian e-commerce sector could potentially benefit significantly from the insights provided by Schmidt and Wagner's study, should these local factors be taken into account. By leveraging MIS to tailor customer experiences on their e-commerce platforms, Zambian businesses could potentially foster a more engaging and satisfactory shopping experience for consumers. This personalization could lead to increased customer loyalty, as customers tend to return to businesses that understand and cater to their individual needs and cultural preferences.

Increased customer loyalty can enhance customer retention and attract new customers through positive word-of-mouth, potentially leading to a rise in sales and subsequent sector growth. Therefore, for Zambia to effectively integrate MIS into its e-commerce platforms and reap the benefits of enhanced customer experiences through personalization, further research is needed to understand and apply these strategies within the unique cultural context of the Zambian marketplace.

In 2022, Yoshida and Tanaka, researchers based in Japan, pursued an investigation aimed at understanding the influence of Management Information Systems (MIS) on augmenting the agility of e-commerce businesses. Business agility, in this context, refers to the ability of businesses to quickly adapt to market changes and evolving customer needs. The study was premised on the belief that an agile implementation of MIS could significantly boost this capacity, thus enhancing the competitiveness and growth prospects of e-commerce entities.

Their research findings validated this initial assumption, demonstrating that a quick and flexible deployment of MIS empowered e-commerce businesses to swiftly adapt to changes in the market landscape. This agility significantly improved the competitiveness of these businesses and facilitated their growth, by enabling them to stay in tune with customer needs and market trends, and to respond effectively to changes.

However, the study did not take into account the specific market forces and economic conditions in Zambia that could affect e-commerce agility. While the research validates that agile implementation of MIS enhances business responsiveness and competitiveness, there is a gap in understanding how Zambian e-commerce can achieve similar agility through MIS amidst local constraints and opportunities. This includes factors such as limited technological infrastructure, varying levels of digital literacy, and different consumer behaviours in the Zambian market. Addressing this gap is crucial for effectively applying the insights from Yoshida and Tanaka's research in the Zambian context.

The findings suggest that Zambia could strategically employ MIS to enhance agility in its e-commerce sector. Through the agile implementation of MIS, Zambian e-commerce businesses could react more promptly and effectively to market changes, resulting in improved competitiveness. However, to fully realize this potential, it's important for future research and implementation strategies to consider the unique challenges and opportunities present in Zambia. This could involve adapting MIS solutions to fit the technological

capabilities of the region, training programs to improve digital literacy, and understanding local market dynamics to ensure that the benefits of agility are fully harnessed.

Heightened competitiveness, in turn, could lead to increased market share and business growth. Thus, by harnessing MIS to boost agility, Zambia has the potential to drive significant growth in its e-commerce sector, provided that the approaches are tailored to the specific Zambian market conditions and constraints.

The research conducted by Yoshida and Tanaka provides an instructive guide for Zambia to capitalize on MIS for enhancing business agility. This strategic approach has the potential to elevate the competitiveness of Zambian e-commerce businesses, thereby catalysing sector growth, when adapted to local market realities.

2.2 Regional Perspective

In the African context, studies have underscored the significance of MIS in bolstering e-commerce, with public-private partnerships playing a crucial role in fostering an enabling environment. Mukwiri's 2020, research in Kenya, concentrated on the significance of public-private partnerships in enabling the growth of e-commerce, specifically emphasizing the role of Management Information Systems (MIS). This research provides invaluable insights that can be applied to the Zambian context, particularly for the research topic under consideration. The research found that public-private partnerships were instrumental in building the necessary infrastructure for e-commerce. These collaborations pooled resources, knowledge, and expertise from both public institutions and private entities, creating a more favorable environment for the growth of e-commerce. This infrastructure extended beyond the physical realm, such as internet connectivity and logistics, into areas like legislative and regulatory support, which are crucial for the functioning of e-commerce platforms.

Moreover, Mukwiri's study highlighted the role of these partnerships in promoting digital literacy, ensuring that individuals and businesses were equipped to effectively utilize e-commerce platforms. This is particularly important in contexts like Zambia, where digital literacy could be a limiting factor in e-commerce growth.

Central to this research was the identification of the role of MIS in managing business processes, improving decision-making, and enhancing the overall functionality of e-commerce platforms. These systems help businesses organize, evaluate, and effectively manage their data, which is vital for efficient e-commerce operations. The findings show that

the implementation of MIS, supported by public-private partnerships, can significantly enhance the performance of e-commerce platforms.

However, while the study emphasizes the role of MIS in areas like CRM, it may not fully address the broader strategic integration of MIS into other areas of e-commerce operations. There is a notable gap in understanding how MIS can be integrated into areas such as inventory management, marketing, or customer service, to create a comprehensive ecosystem supporting overall growth. This broader integration is crucial for realizing the full potential of MIS in enhancing the efficiency and competitiveness of e-commerce businesses.

Applying these findings to the Zambian context, the successful growth of e-commerce in Zambia could be significantly influenced by strategic public-private partnerships, which can aid in overcoming challenges such as infrastructure development and digital literacy. Additionally, these collaborations can support the comprehensive implementation and effective use of MIS across various facets of e-commerce operations, enhancing operational efficiency and business growth.

Mukwiri's study offers valuable insights into how MIS, facilitated by public-private partnerships, can contribute to the growth of e-commerce. Thus, this research provides an important theoretical and practical foundation for further study in the Zambian context, emphasizing the need for a holistic approach to MIS integration in e-commerce operations.

In 2021, Hussen embarked on research to evaluate the existing application of Management Information Systems (MIS) in the sphere of e-commerce within Ethiopia, with the added aim of identifying potential obstacles to its expansion. The findings revealed a rather underdeveloped state of MIS implementation in Ethiopian e-commerce, impeding the sector's growth and signifying an untapped opportunity for development.

Hussen's study emphasized the need for boosting investments in two critical areas to catalyse e-commerce growth. Firstly, significant investment in MIS infrastructure is essential to bring about advanced technology and systems for the effective gathering, management, and utilization of data. Such infrastructure is a foundational prerequisite to optimize the potential benefits of MIS in the e-commerce sector. Secondly, the study highlights the need for greater emphasis on improving digital literacy, promoting education and skills development in digital technologies to enhance the understanding and usage of MIS in e-commerce.

While these implications from Hussen's research can be generalized to the Zambian context, considering the similar developmental challenges both countries face, there is a notable gap in the study. The research does not fully address how cultural factors in Zambia might

influence the adoption of MIS and the growth of e-commerce. Understanding Zambia's cultural and societal norms is crucial in determining the specific barriers and facilitators for MIS adoption in the region. Cultural factors can significantly impact how technology is perceived and utilized, which in turn affects the effectiveness of MIS in enhancing e-commerce operations.

Therefore, in applying the findings of Hussen's research to the Zambian context, it is essential to consider the cultural dimensions. This involves exploring how traditional business practices, societal attitudes towards technology, and local market dynamics might interact with MIS implementation. Understanding these cultural aspects is key to designing and implementing MIS solutions that are not only technologically sound but also culturally resonant and user-friendly, thereby ensuring their successful adoption and utilization in Zambia's e-commerce sector.

Thus, while Hussen's research provides valuable insights into the potential impact of effective MIS implementation on e-commerce growth and the necessary investments in infrastructure and digital literacy, further research is needed to explore the cultural nuances of MIS adoption in Zambia. Such research would deepen our understanding of the complex dynamics between MIS, infrastructure, digital literacy, culture, and e-commerce growth, offering crucial insights for this research topic in the Zambian context.

In 2020, a detailed analysis of the role of Management Information Systems (MIS) in the expansion of e-commerce was carried out by Owusu, Kwarteng & Kyere within the context of Ghana. This study placed a particular emphasis on communication in both business-to-business (B2B) and business-to-customer (B2C) models.

The researchers concluded that MIS plays a significant role in enhancing communication between businesses and their customers. By streamlining data management, facilitating real-time information exchange, and ensuring transparency, MIS proved to be a vital instrument in improving communication channels. This enhancement in communication positively affected e-commerce growth, demonstrating the potential power of MIS in this sector.

While the study highlights the importance of MIS in enhancing B2B and B2C communication, it might lack a deep dive into the effects of such enhancements on customer trust and long-term business sustainability. There is a significant research opportunity to explore how improved MIS communication affects customer trust and loyalty in Zambia and how this translates into sustainable e-commerce growth. Understanding the relationship between enhanced communication through MIS and the development of customer trust is

crucial, as trust is a key driver of customer loyalty and repeat business, which are essential for long-term sustainability in the e-commerce sector.

The improved communication fostered by MIS can result in increased customer satisfaction, as customers feel more informed and connected to the businesses. This satisfaction often leads to higher customer retention, as satisfied customers are more likely to return for repeat purchases. However, the correlation between improved communication through MIS and the building of customer trust, particularly in the Zambian cultural and business context, remains an area ripe for exploration.

Given these findings, Zambia could potentially exploit MIS to amplify communication within B2B and B2C models. By enhancing the effectiveness of communication, Zambia could stimulate customer satisfaction, boost customer retention, and subsequently promote e-commerce growth. However, for Zambia to fully leverage the benefits of enhanced communication through MIS, additional research is needed to understand how these improvements can foster customer trust and loyalty, contributing to sustainable growth in its e-commerce sector.

The study by Owusu, Kwarteng & Kyere provides empirical evidence of the pivotal role MIS can play in e-commerce growth through the improvement of B2B and B2C communication. This insight provides a key aspect to consider when studying the potential impacts of MIS in Zambia's e-commerce sector, thus contributing significantly to this area of research, particularly in the context of building customer trust and ensuring long-term business sustainability.

In their recent study conducted in Senegal, Diouf and Niang (2023) embarked on a rigorous investigation to determine how the integration of Management Information Systems (MIS) could potentially enhance the performance of the e-commerce sector. This research was driven by the hypothesis that MIS, by providing businesses with timely, reliable, and pertinent information, could significantly improve the decision-making process and subsequently lead to overall performance enhancement in the e-commerce sector.

Their empirical findings corroborated their initial hypothesis, indicating that integrating MIS within e-commerce business structures led to significant improvements in business decision-making. The researchers found that MIS, being a comprehensive and integrated set of information, aids in processing data from various business operations, thereby facilitating informed and effective decision-making. Consequently, this improvement in the decision-

making process proved to be instrumental in enhancing the performance of the e-commerce sector, further emphasizing the crucial role of MIS integration.

However, while the study highlights the benefits of MIS integration in improving decision-making in Senegal's e-commerce sector, there is a gap in understanding the specific types of MIS tools that are most effective in the Zambian context. Additionally, the challenges of integrating these tools into the operations of Zambian businesses are not fully addressed. This gap suggests the need for research focused on identifying the MIS tools best suited to the Zambian market and exploring strategies for overcoming the obstacles to their integration, such as resource constraints, technical expertise, and infrastructure limitations.

Zambia, sharing similarities with Senegal as an African nation with a growing e-commerce sector, can benefit significantly from the learnings of the Senegalese study. The indication that MIS integration can improve business decision-making processes suggests that Zambia's e-commerce sector could leverage this strategy to facilitate growth. The utilization of MIS could provide Zambian e-commerce businesses with a structured way to collect, process, and interpret data, leading to more informed business decisions. This could result in enhanced operational efficiency, increased customer satisfaction, and ultimately, exponential growth in the e-commerce sector.

Nevertheless, for Zambia to effectively capitalize on the potential benefits of MIS integration, as demonstrated by the Senegalese study, further research is required. This research should focus on the identification of suitable MIS tools for the Zambian e-commerce context and the development of strategies to address the challenges in integrating these tools. Such research would provide valuable insights for policymakers and business leaders in Zambia, enabling them to make informed decisions on the adoption and implementation of MIS to catalyse growth in the e-commerce sector.

In 2021, Solange undertook a study in Rwanda with the aim of highlighting the necessity for strategic investments in Information and Communication Technology (ICT) infrastructure and the creation of customized Management Information Systems (MIS) solutions. This research was based on the belief that a well-structured ICT environment, complemented by bespoke MIS solutions, could significantly boost the functionality and growth trajectory of the e-commerce sector.

The study's findings confirmed the hypothesis, demonstrating that strategic investments in ICT infrastructure and tailored MIS solutions had a significant positive impact on the functionality and expansion of the e-commerce sector in Rwanda. This underscores the

importance of not only investing in ICT and MIS but doing so with a strategic approach that caters to the unique needs and conditions of each nation.

Drawing parallels to Rwanda, Zambia, as a developing African nation, holds substantial potential for growth in the e-commerce sector. Solange's study thus provides strategic guidance for Zambia on effectively utilizing ICT and MIS to enhance its e-commerce growth. Strategic ICT investments aimed at building a robust digital infrastructure could prime Zambia for rapid e-commerce expansion. Moreover, developing custom MIS solutions that meet the specific needs and characteristics of the Zambian market could further bolster this growth.

These tailored MIS solutions could equip Zambian businesses with essential tools for effectively processing and interpreting market data, thereby enhancing decision-making processes, operational efficiency, and customer satisfaction. Such advancements could significantly accelerate the growth of Zambia's e-commerce sector.

However, Solange's research, while illuminating the path for strategic ICT and MIS investments in Rwanda, does not delve into how these investments should be managed and scaled within the context of Zambia's economic and technological maturity. Zambia faces unique challenges and opportunities that necessitate a tailored approach to managing and scaling ICT and MIS investments. Further research is needed to explore best practices in this area, including strategies for building local expertise in ICT and MIS. This would entail identifying effective management and scaling techniques that align with Zambia's specific developmental stage and technological landscape, ensuring that such investments yield the maximum benefit for the e-commerce sector.

In essence, Solange's study sheds light on the potential benefits of strategic ICT investments and the development of custom MIS solutions, providing a valuable framework for Zambia. However, to fully capitalize on these strategies, Zambia must consider its unique economic and technological context, underscoring the need for further research into the management and scaling of these investments to truly harness their power for e-commerce growth.

2.3 Local Perspective

In the Zambian e-commerce landscape, while the application of MIS is still emerging, the broader adoption of ICT across various sectors offers invaluable lessons for enhancing digital integration. A pivotal study by Sylvia Chansa Mulenga in 2023 on the postal sector

underscores this potential. Mulenga's investigation into ICT's role within Zambia Postal Services Corporation (ZAMPOST) demonstrates how digital technologies revolutionize traditional service sectors, presenting a model for overcoming infrastructural challenges and enhancing operational efficiency. This aligns with the findings of Mwale and Phiri (2023) who conducted a significant study focusing on the role of MIS in propelling the growth of e-commerce through efficient customer relationship management (CRM) among Zambian small and medium-sized enterprises (SMEs). Their findings indicated that SMEs employing MIS in their CRM processes experienced a marked increase in customer satisfaction and retention, which in turn, contributed to the businesses' overall growth. This research provides crucial evidence on how MIS can be leveraged to enhance customer relations within the Zambian e-commerce sector, emphasizing the importance of effective CRM supported by MIS as a strategy for stimulating e-commerce growth in the country.

However, while Mwale and Phiri's study highlights the benefits of employing MIS specifically within the realm of CRM, it does not extend to address the broader strategic integration of MIS across various facets of e-commerce operations. This oversight reveals a significant gap in the current understanding of how MIS can be integrated beyond CRM to encompass other critical areas such as inventory management, marketing, or customer service. Such an integrated MIS approach could create a comprehensive ecosystem that not only supports but also amplifies overall growth within the e-commerce sector.

The incorporation of MIS into these additional operational areas could offer Zambian e-commerce businesses a more holistic view of their operations, enabling better decision-making, streamlining processes, and enhancing efficiency across the board. For instance, integrating MIS into inventory management could provide real-time insights into stock levels, predict inventory needs based on historical data, and automate reordering processes. Similarly, applying MIS to marketing efforts could allow for more targeted campaigns based on customer data analytics, thereby improving the return on investment. In customer service, MIS could facilitate quicker resolution of customer inquiries and complaints by providing service representatives with immediate access to customer histories and preferences.

The gap identified in Mwale and Phiri's research suggests a need for further exploration into how Zambian e-commerce businesses can effectively extend the application of MIS beyond CRM. Investigating and implementing MIS across these various operational domains could significantly enhance the competitiveness and growth potential of Zambia's e-commerce sector. Future research should, therefore, aim to provide actionable insights and frameworks for the holistic integration of MIS in e-commerce, tailored to the specific challenges and

opportunities within the Zambian context. This broader application of MIS is crucial for realizing the full potential of e-commerce growth in Zambia, underlining the importance of expanding the scope of MIS integration to support a comprehensive and sustainable growth strategy.

In 2022, researchers Chanda and Mumba conducted an investigation within Zambia with the objective of understanding the potential influence of Management Information Systems (MIS) on the growth of the e-commerce sector, specifically through enhancing supply chain efficiency. The significance of the supply chain in e-commerce is paramount, as it directly affects product delivery and customer satisfaction.

Their research findings revealed that Zambian e-commerce companies adopting MIS in managing their supply chains experienced marked improvements in operations. Specifically, these businesses saw decreased delivery times and reduced errors, leading to enhanced customer satisfaction due to the timely and accurate delivery of products. This operational efficiency also resulted in increased sales, thereby fostering business growth.

Chanda and Mumba's study offers practical evidence of the positive impact that effective utilization of MIS can have on supply chain management within the e-commerce sector in Zambia, highlighting the integration of MIS into supply chain operations as a significant enhancer of operational efficiency. Shorter delivery times and fewer errors streamline the supply chain process, leading to higher customer satisfaction—a critical success factor in the e-commerce landscape. Increased satisfaction encourages repeat purchases and positive word-of-mouth referrals, driving sales growth.

However, while this research focuses on supply chain efficiency, it identifies a gap in the current understanding of how MIS integration impacts other crucial aspects of e-commerce, such as return policies, customer feedback loops, and sustainability practices. This oversight suggests a need for further research into how MIS can be leveraged to optimize these areas, enhancing the overall e-commerce experience. Understanding the broader implications of MIS integration beyond supply chain efficiency could provide comprehensive insights into creating a more responsive, customer-centric, and sustainable e-commerce ecosystem.

Therefore, integrating MIS into supply chain operations offers Zambian e-commerce businesses a pathway to enhance their operational efficiency, which can significantly contribute to sector growth. The resultant improved customer satisfaction and increased sales underscore the potential of MIS to transform e-commerce operations.

Chanda and Mumba's research not only provides valuable insights for the e-commerce industry in Zambia by highlighting the strategic application of MIS in supply chain management but also opens avenues for future investigations. By exploring the broader impacts of MIS on e-commerce, including return policies, customer feedback, and sustainability, new strategies can be developed to further stimulate growth in the e-commerce sector, ensuring a comprehensive approach to leveraging technology for business success.

Incorporating the insights from Tembo's (2023) study on the impact of e-marketing on tourism growth in Zambia. Tembo's research illustrates the effective use of digital marketing to enhance visibility and customer engagement in the tourism sector, underscoring the potential for similar digital approaches to augment e-commerce strategies across other sectors in Zambia.

This addition underscores the broader applicability and potential benefits of integrated digital strategies, including both MIS and digital marketing, in enhancing the operational efficiency and customer outreach of Zambian e-commerce businesses.

However, the study indicates a gap in comprehensive studies on the complementary effects of MIS and digital marketing strategies across various e-commerce sectors in Zambia, particularly regarding their implementation challenges and impact on customer behavior and sales growth.

By exploring these areas further, future research could provide actionable insights for Zambian e-commerce businesses to effectively leverage the full spectrum of digital tools for sustainable growth, addressing both the operational and marketing aspects of their digital transformation efforts.

Banda and Lungu (2023) conducted a pivotal study focused on the role of Management Information Systems (MIS) in mitigating security risks within Zambia's e-commerce sector. Their findings revealed that businesses implementing robust MIS measures experienced a significant reduction in security breaches, thereby fostering consumer trust and catalyzing growth within the sector. This investigation provides a crucial Zambian perspective on the importance of e-commerce security and the instrumental role of MIS in securing it. The insights derived from this study underscore the critical need for secure MIS systems in enhancing consumer trust in e-commerce, a key driver for the sector's expansion in Zambia.

In addition to underlining the value of security, the study provides comprehensive perspectives on leveraging MIS to stimulate growth across Zambia's e-commerce landscape.

It elucidates the multifaceted roles of MIS in augmenting customer relations, streamlining supply chain operations, and safeguarding online transactions. These insights are instrumental in formulating strategies to propel e-commerce growth in Zambia through the effective use of MIS.

However, while the study shows how important security is for building trust and helping e-commerce grow, it doesn't go into detail about what kinds of security steps work best in Zambia. There's also not much information on how businesses can add these security steps without spending too much money or making things too complicated. This is an area where more research could help, pointing out the need to find security solutions that fit well with what Zambian e-commerce businesses need and can afford.

This research should look into different security tools and ways to keep online businesses safe that don't cost too much or are too hard for Zambian companies to use. It should give clear advice on how businesses can protect themselves online in a way that's affordable and not too complex. Looking into ways to make security cheaper and easier, maybe through help from the government or partnerships, could really help e-commerce in Zambia grow safely.

So, while the study by Banda and Lungu starts to show us how important MIS and security are for e-commerce in Zambia, there's still a lot more to learn. Future studies need to fill in these gaps by finding practical and low-cost security measures that fit the Zambian market. This will help make sure that e-commerce can keep growing in Zambia without facing too many risks online.

In 2014, Mweemba and Nsama conducted a study that delved into the challenges faced by small and medium enterprises (SMEs) in Zambia when it comes to fully adopting e-commerce. They pinpointed several key factors that limit the widespread use of e-commerce within this crucial sector of the Zambian economy.

The study revealed that a significant obstacle was the lack of proper education in information technology among management, which hindered their ability to fully grasp and utilize e-commerce platforms and tools, including Management Information Systems (MIS). Additionally, many SMEs struggled with securing a stable and affordable internet connection, which is vital for the smooth operation of e-commerce activities. The intermittent nature of internet service in the area could severely disrupt online business transactions.

Another notable barrier was resistance to change. With traditional business methods deeply ingrained, moving towards digital commerce was often seen as a risky endeavor. This reluctance to adapt prevents SMEs from tapping into the benefits of e-commerce and related

technologies such as MIS. Moreover, the study highlighted a general lack of engagement with e-commerce among various stakeholders, including customers, partners, suppliers, and the local community, further stifling the potential growth of e-commerce.

While Mweemba and Nsama's research sheds light on these barriers, it stops short of offering concrete solutions to these issues. This gap highlights the need for further research into how MIS can be developed to be more accessible and user-friendly, especially for individuals with limited IT skills. Additionally, there's a pressing need to find ways to ensure reliable internet access to support continuous e-commerce activities.

Tailoring MIS to be simpler and more intuitive can help lower the technological barrier for SMEs, making it easier for them to adopt and benefit from e-commerce. Similarly, identifying cost-effective solutions for stable internet connectivity can address one of the fundamental infrastructural challenges facing e-commerce in Zambia.

In conclusion, tackling the identified challenges and enhancing the usability and accessibility of MIS could play a pivotal role in breaking down the barriers to e-commerce adoption among Zambian SMEs. This approach could significantly contribute to the expansion and success of the e-commerce sector in Zambia, paving the way for a more digitally inclusive business environment.

2.9 Gap Analysis

Based on the literature review conducted, it can be concluded that management information systems (MIS) play a significant role in the growth of e-commerce globally, in the African region, and in Zambia. The literature indicates that MIS can be used to improve supply chain management, personalize the shopping experience, analyze and predict customer behavior, and enhance the user interface and user experience in e-commerce. However, despite the potential benefits of MIS, there are several knowledge gaps in the literature that have led to the study of the topic.

Despite the acknowledgment of MIS's pivotal role in e-commerce enhancement, there exists a notable dearth of research focused on identifying which MIS applications are most conducive to fostering e-commerce growth within the unique African, and specifically Zambian, context. This gap underscores the imperative for investigations tailored to elucidate the

challenges and opportunities peculiar to Zambia, aiming to pinpoint the most efficacious MIS applications to bolster e-commerce development.

Amidst escalating concerns over cybersecurity threats, the literature reveals a significant gap in research dedicated to formulating and executing effective information security protocols tailored to the African e-commerce landscape. This deficiency highlights an urgent need for studies that delve into the distinct security challenges faced by African e-commerce platforms, including those in Zambia, to develop robust strategies that safeguard sensitive customer information and fortify platforms against cyber incursions.

Another identified gap pertains to the influence of cultural and social factors on the adoption and utilization of MIS in e-commerce. The current body of literature lacks comprehensive exploration into how these factors specifically impact MIS integration within different African societies, including Zambia. There's a pressing need for research that examines these cultural and social determinants to formulate and implement MIS strategies that resonate with diverse user groups across the continent.

Highlighted studies indicate a gap in understanding how MIS can be designed to be more accessible and user-friendly for individuals with limited IT skills, especially in the Zambian context where education and internet connectivity pose significant barriers to e-commerce adoption. Research is needed to explore innovative ways to simplify MIS interfaces and functionalities, making them more inclusive and supportive of e-commerce activities in regions with varying levels of digital literacy.

Finally, while the importance of strategic ICT and MIS investments is acknowledged, there is a lack of guidance on managing and scaling these investments effectively in accordance with Zambia's economic and technological maturity. Future research should aim to uncover best practices for managing and scaling ICT and MIS investments to build local expertise and ensure that these technologies contribute optimally to e-commerce growth.

In conclusion, the literature review has identified several knowledge gaps that have led to the study of the topic. These gaps highlight the need for further research on the role of MIS in e-commerce growth, specifically in terms of the specific types of MIS applications that are most effective, the cultural and social factors that influence adoption and use, and the most effective ways to use MIS to improve various aspects of the e-commerce experience. By addressing these gaps, future research has the potential to make significant contributions to the field of e-commerce and to support the growth and development of e-commerce in Zambia, Africa, and globally.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Overview

This section outlines the research design, target population, sample size, sampling techniques, instruments for data collection, data analysis and ethical considerations adopted in this study in a systematic manner.

3.1 Philosophical Underpinning

At the core of this study's methodology lies pragmatism, a philosophical tradition that values action, outcome, and practical applications of theories. This philosophical stance supports the exploratory sequential research design, prioritizing the most effective approach to answer the research questions and allowing for adaptive learning throughout the research process.

3.2 Research Paradigm

This paradigm aligns with the study's mixed-methods approach, enabling a flexible, outcome-focused investigation. It allowed the research to combine quantitative data with qualitative insights to provide a comprehensive understanding of how Management Information Systems influence e-commerce in Zambia. This pragmatic approach facilitates the exploration of both the measurable impacts of MIS and the contextual factors influencing its adoption and effectiveness in the Zambian e-commerce sector.

3.3 Research Design

The study used a mixed research design of exploratory sequential type. The study involved a comprehensive literature review to identify existing research on the topic and to inform the study's design and methodology.

The study used two specific research instruments; a questionnaire and a documentary guide, to collect data from e-commerce business owners, managers, and employees in Zambia. The questionnaire will collect quantitative data on their use and perceptions of management information systems in their businesses. The documentary guide collected and analyzed documents related to e-commerce businesses in Zambia, such as financial statements, reports, and other relevant data.

The collected data was analyzed using both qualitative and quantitative methods. The quantitative data was analyzed using statistical software, while the qualitative data will be analysed using thematic analysis. The findings from the data analysis were used to draw conclusions and answer the research questions. The conclusions were supported by the data collected and analyzed. Based on the findings, the study provided recommendations for improving the use of management information systems in e-commerce businesses in Zambia.

Overall, the study used a mixed research design with a combination of exploratory sequential type and both quantitative and qualitative data collection and analysis methods to explore the effects of management information systems on e-commerce growth in Zambia. The study's findings and recommendations contributed to the understanding and development of effective strategies for the use of management information systems in e-commerce businesses in Zambia.

3.4 Target Population

This study's population of 135 includes e-commerce business owners, managers, and employees in Zambia. The target population was selected based on certain criteria, such as having been operational for at least one year, having an active website or online store, and having at least one employee. The study used various sampling techniques to select a representative sample of e-commerce businesses in Zambia. By focusing on this target population, the study aimed to provide insights and recommendations that are relevant and applicable to the e-commerce industry in Zambia.

3.5 Sample Size

The study will adopt the Yemene formula to arrive at a sample of 100 respondents from the e-commerce businesses in Zambia.

$n= N/(1+N) (e)2$

Where;

(n) is the required sample size

(N) is the total population size

(e) is the desired margin error expresses as a decimal

n= 135/1+135(0.05)2

n=100

3.6 Sampling Techniques

A simple random sampling technique used for the study to select respondents from different organizations, targeting both male and female employees.

3.7 Instruments for Data Collection

Primary data using structured questionnaires have been formulated which includes aptly worded questions with proper relevance and emphasis on the data desired for the purpose of investigation. The questionnaire were administered through and picked later at an agreed time with the researcher and through email. Document guides were used at a small extent to collect more in-depth information about the quality issues of E-Commerce growth.

3.8 Data Analysis

The questionnaire generated quantitative data were coded, and entries were made using SPSS software tool. The data was analyzed presented in tables and charts. Data collected was interpreted to draw conclusions that reflect on the interests, ideas and theories that initiated the inquiry (Babbie and Mouton, 2004). Data analysis was performed using a mix of qualitative and quantitative methods. Thematic analysis was utilized by way of using software known as NVIVO for open-ended questionnaire to draw inferences.

3.8.1 Credibility and Trustworthiness

To ensure the credibility and trustworthiness of the qualitative aspects of the study, we employed triangulation by analysing data from various sources, conducted member checking by sharing preliminary findings with participants for validation, and maintained an audit trail documenting all research decisions and processes. These strategies, alongside rich descriptions of the research context and findings, were designed to verify the accuracy and reliability of our qualitative data, enhancing the integrity of our study's conclusions.

3.9 Reliability and Validity
3.9.1 Reliability

In maintaining reliability, the research approach was characterized by consistency, using standardized methods for data collection across various e-commerce platforms to ensure the information gathered was uniform and comparable. Additionally, to promote replicability, the research methodology was meticulously documented, providing a clear blueprint for future studies to replicate, thereby enhancing the robustness and trustworthiness of the research findings.

3.9.2 Validity

To ensure the validity of the research, the study undertook a detailed review of literature and consultations with the supervisor to refine data collection tools, capturing all essential elements of Management Information Systems and their impact on e-commerce growth in Zambia. The study's approach and instruments were benchmarked against existing research and industry norms to confirm the accuracy of the findings, ensuring a clear and thorough representation of the key elements being examined.

3.10 Ethical Considerations

In alignment with the principles of autonomy, beneficence, and non-maleficence, the research was committed to upholding the highest ethical standards to ensure the welfare and rights of all participants. Measures to promote ethical behavior included the design of the questionnaire and documentary guide, emphasizing confidentiality and safeguarding the integrity and privacy of respondents. The research strictly ensured non-persecution arising from participants' responses. Formal clearance was obtained from the appropriate institutions and organizations before the commencement of data collection, respecting their governance and operational guidelines.

Participants were fully informed about the purpose of the study and the estimated time required to complete the instruments used for data collection: 15 minutes was allocated for the questionnaire and 30 minutes for the documentary guide. This transparency was vital for ensuring informed consent, where participants were made aware of their involvement and the scope of their contribution. The study explicitly communicated to participants their right to withdraw at any time without penalty, reinforcing the principle of voluntary participation.

To further ensure confidentiality and minimize any potential harm to participants, all data collected was anonymized, with personal identifiers removed. This approach guaranteed that individual responses could not be traced back to participants, thereby protecting their identity and personal information. By adhering to these ethical considerations, the study aimed to foster a respectful and secure environment for participants, encouraging honest and open responses while minimizing any potential risks associated with their participation.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This segment provides an overview of the findings from the research, detailing the methodologies employed in decoding the data. Various visual aids such as tables, charts, graphs, and pie charts were utilized to present the results. Careful examination of the questionnaire was conducted to ensure accurate representation of the data, employing tables, percentages, and graphs where appropriate. The results are structured according to the study's objectives, integrating both thematic and statistical analyses performed using Excel and SPSS version 20.The chapter integrates findings for both interview guides and those from the questionnaire in a systematic manner.

4.2 Age

Table 1 depicts the age distribution among the 90 respondents surveyed within e-commerce businesses based in Lusaka. The findings indicate that respondents aged between 36-45 years comprised the largest proportion at 44.4%, followed by those above 46 years at 30%. Respondents in the age range of 26-35 years accounted for 18.9%, while the smallest percentage, 6.6%, was observed among respondents aged 18-25 years.

Table 1: Age distribution

AGE GROUP	FREQUENCY	PERCENTAGE (%)
18 – 25	6	6.6
26 – 35	17	18.9
36-45	40	44.4
46+	27	30.0
TOTAL	**90**	**100%**

Source (field data 2023)

Meanwhile the sampled 10 from the interview guide revealed age distribution of those aged 40 years were reported to be 3, above 42 were 3 while below 40 accounted for 4 respondents.

4.3 Gender distribution

Gender distribution from the sampled respondents of 90 e commerce businesses reveal 54% as male folk while 46% were female. Therefore, the results in figure 2 below indicate male dominated survey amongst e-commerce businesses houses in Lusaka.

Figure 1: Gender
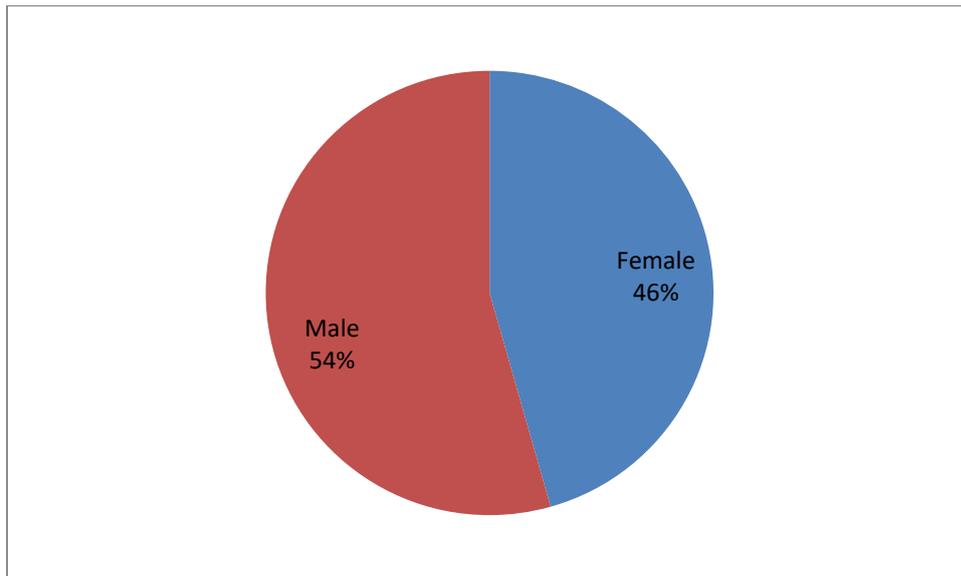
Source (field data 2023)

It was further observed that the sample size for the interview guide was 10 and the results regarding gender was that male accounted for 7 with female being 3 in the study. This therefore depict male as dominating the sample achieved for the study.

4.4 Length of employment of respondents

Figure 3 reveal results from the sampled respondents on the length of time they had been working or managing the e-commerce businesses. Findings indicate 42 participants out of 90 had served for over 5 years,37 respondents had served between 3-5 years,8 respondents represented those that had worked between 1-3 years while 1 year and below accounted for 3 only.

Figure 2: Length of employment
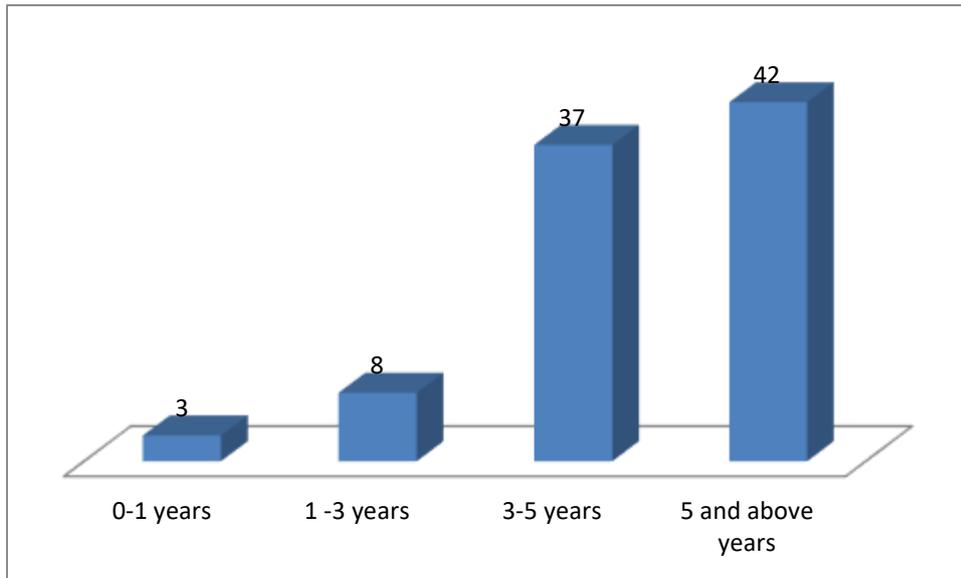
Source (field data 2023)

While results from the interview guides reveal length of employment as those with years and above accounted for 4 while those below 10 were 6.

4.5 How long respondents have been doing business

The study results in figure 3 below reveal 20% of respondents had been in business for 20 years, those that had been in business for 3 years and the unsure ones accounted for 18% apiece while those that had been in business for 4 years were reported to be 14%.Further,12% represented those that had been in business for 5 years,7% for for 1 year,6% for 7 years,2 years were reported to be 4% with the least being 10 years with 1%

Figure 3: Years in business
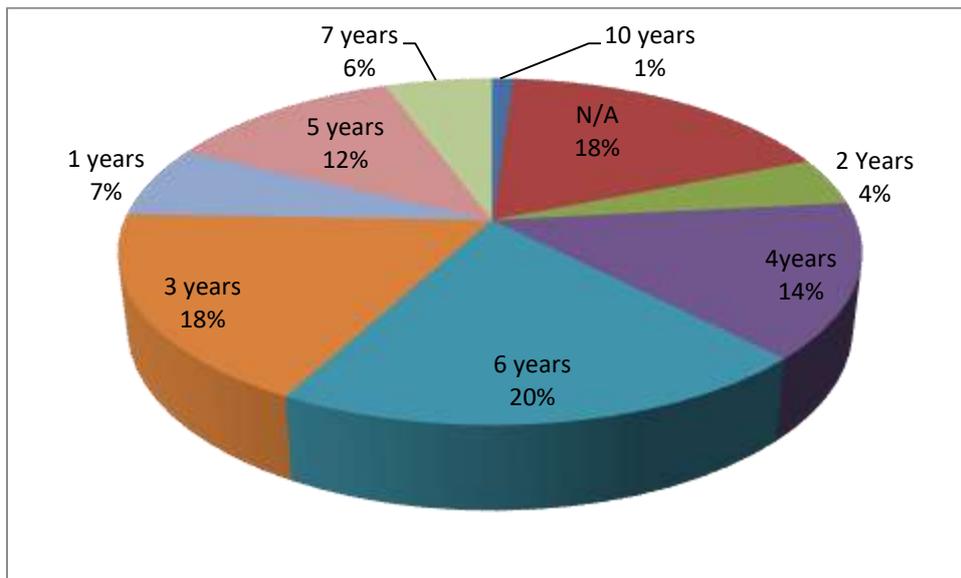
Source(field data 2023)

4.6 Annual turnover for e-commerce business

The study inquired on the annual turnover of the respondents into e-commerce business.Findings reveal that K150,000 and below were 25 a higher statistical figure while those above K550,000 accounted for 22 with 15 representing those in the bracket between K450,000-K550,000.The least were those between K150,000-K300,000 who were 18 and 10 for the respondents between K300,000 to K450,000 respectively.

Figure 4: Annual turnover
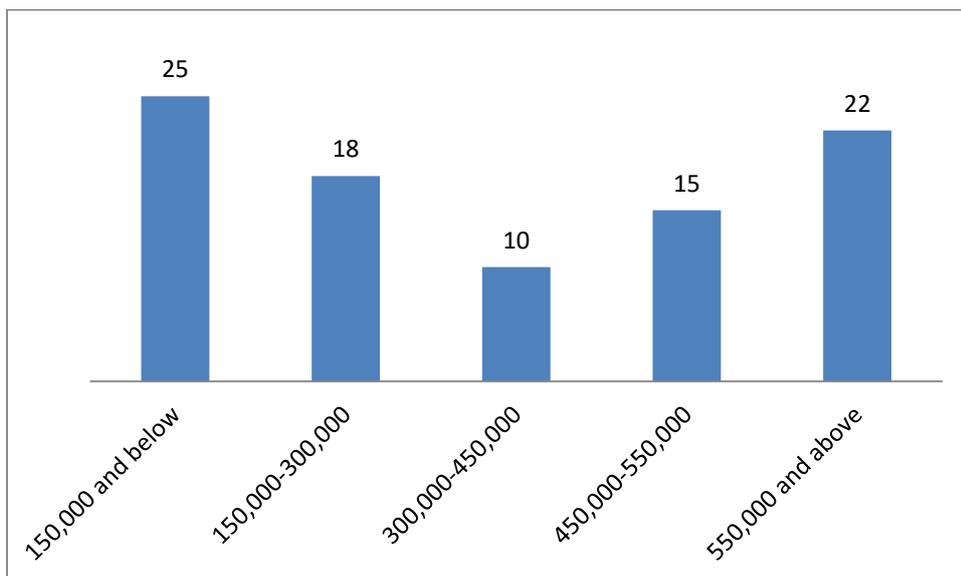
Source (field data 2023)

4.6.1 How implementation of MIS affect the performance of e-commerce businesses

The study interview guide ascertained how the implementation of management information system affects the performance of e-commerce businesses in Zambia. Results across the 10 selected e-commerce businesses each submitted the following;

A….Clients have seen improvements in customer engagement and operational efficiencies, leading to higher sales and profitability.

B… Our service quality has significantly improved, as MIS tools have enabled us to track and resolve customer issues more efficiently.

C… Operations have become more streamlined and cost-effective, with MIS providing insights into efficiency improvements.

D.. Theoretical frameworks indicate that MIS implementation can significantly improve operational efficiency and strategic decision-making in e-commerce.

E… Research has shown that personalized marketing strategies, powered by MIS, significantly increase customer engagement and sales.

F… Studies have documented improved operational efficiency and cost reduction in e-commerce operations utilizing cloud-based MIS.

G… Analytics-driven MIS has been shown to enhance decision-making processes, leading to improved business outcomes in the e-commerce sector.

H… Data analysis has shown a positive correlation between MIS integration and sustainable business practices, leading to enhanced brand value.

I… Empirical studies suggest that e-commerce platforms employing MIS for customer engagement strategies see higher retention rates.

J… Research indicates MIS adoption correlates with improved operational efficiency and customer satisfaction in e-commerce businesses.

Summaries

Improvements in Customer Engagement and Operational Efficiencies (A)

Qualitative Insight: Participants reported seeing improvements in customer engagement and operational efficiencies, leading to higher sales and profitability as a result of MIS adoption.

Quantitative Data: Responses highlighted a consensus among participants regarding the positive impact of MIS on customer engagement and operational performance, with measurable increases in sales and profitability observed.

Enhanced Service Quality and Issue Resolution (B)

Qualitative Insight: Participants noted significant improvements in service quality, attributing them to MIS tools that enable efficient tracking and resolution of customer issues.

Quantitative Data: Findings reflected a positive perception towards MIS-driven improvements in service quality, with participants highlighting the effectiveness of MIS in addressing customer concerns promptly.

Streamlined Operations and Cost-Effectiveness (C)

Qualitative Insight: Participants reported that operations have become more streamlined and cost-effective with MIS, citing the insights provided by MIS for identifying efficiency improvements.

Quantitative Data: Responses underscored the role of MIS in streamlining operations and reducing costs, with participants recognizing the financial benefits of MIS adoption in e-commerce operations.

Theoretical Frameworks and Operational Efficiency (D)

Qualitative Insight: Participants highlighted theoretical frameworks indicating that MIS implementation can significantly improve operational efficiency and strategic decision-making in e-commerce.

Quantitative Data: Findings emphasized the theoretical underpinnings supporting MIS adoption, with participants expressing confidence in the potential of MIS to drive operational excellence in e-commerce.

Personalized Marketing Strategies and Customer Engagement (E)

Qualitative Insight: Participants cited research showing that personalized marketing strategies, powered by MIS, significantly increase customer engagement and sales in e-commerce.

Quantitative Data: Responses indicated a consensus on the effectiveness of personalized marketing strategies driven by MIS, with participants acknowledging their role in enhancing customer engagement and driving sales growth.

Operational Efficiency and Cost Reduction with Cloud-Based MIS (F)

Qualitative Insight: Participants referenced studies documenting improved operational efficiency and cost reduction in e-commerce operations utilizing cloud-based MIS.

Quantitative Data: Findings highlighted the benefits of cloud-based MIS in driving operational efficiency and cost savings, with participants recognizing cloud technology as a key enabler of business optimization in e-commerce.

Enhanced Decision-Making Processes with Analytics-Driven MIS (G)

Qualitative Insight: Participants emphasized that analytics-driven MIS enhances decision-making processes, leading to improved business outcomes in the e-commerce sector.

Quantitative Data: Responses underscored the value of analytics-driven MIS in facilitating data-driven decision-making, with participants attributing improved business outcomes to the insights generated by MIS analytics.

Positive Correlation between MIS Integration and Sustainable Practices (H)

Qualitative Insight: Participants noted a positive correlation between MIS integration and sustainable business practices, leading to enhanced brand value through data-driven sustainability initiatives.

Quantitative Data: Findings highlighted the role of MIS in promoting sustainable business practices, with participants recognizing the alignment between MIS adoption and corporate sustainability goals.

Higher Retention Rates with MIS-Driven Customer Engagement Strategies (I)

Qualitative Insight: Participants referenced empirical studies suggesting that e-commerce platforms employing MIS for customer engagement strategies see higher retention rates.

Quantitative Data: Responses emphasized the positive impact of MIS-driven customer engagement strategies on retention rates, with participants attributing higher customer loyalty to personalized and data-driven engagement initiatives.

Improved Operational Efficiency and Customer Satisfaction with MIS Adoption (J)

Qualitative Insight: Participants cited research indicating that MIS adoption correlates with improved operational efficiency and customer satisfaction in e-commerce businesses.

Quantitative Data: Findings underscored the positive outcomes associated with MIS adoption, with participants expressing confidence in the ability of MIS to drive operational excellence and enhance customer satisfaction in e-commerce.

From these observations, it has been observed that management information system plays an important role in so far as the profitability, sales maximization and efficiency is concerned. There is a closer link and relationship between the revenue and management information system.

4.7 Use of e-commerce business use Management Information System (MIS)

Results in figure 5 below reveal findings on whether or not they use management information system, it was found that 96% of the respondents were of the view that they had started using it while 4% accounted for those that had that had not yet started using management

information system. These results in figure 5 clearly show that the majority businesses had started using management information systems in their businesses.

Figure 5: MIS usage rating
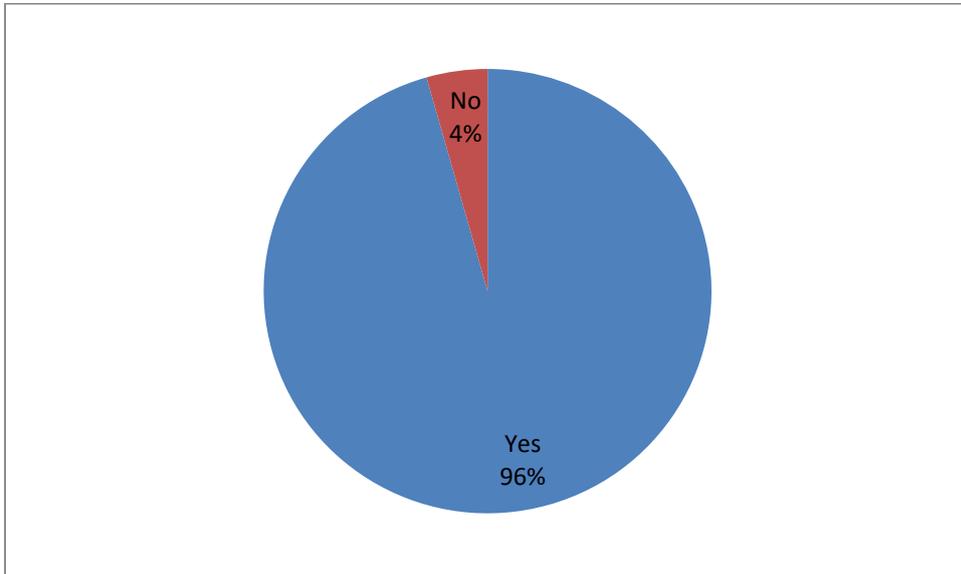
Source (field data 2023)

4.8 Types of Management information systems e-commerce business use

The study results on the types of management information system revealed that 63% accounted for other information systems other than enterprise resource planning which accounted for 8%, customer relationship management 19% and supply chain management at 10%. The reveal results show others as alternative use of other than enterprise resource planning, customer relationship management and supply chain management accounted for 63%.

Figure 6: types of MIS used
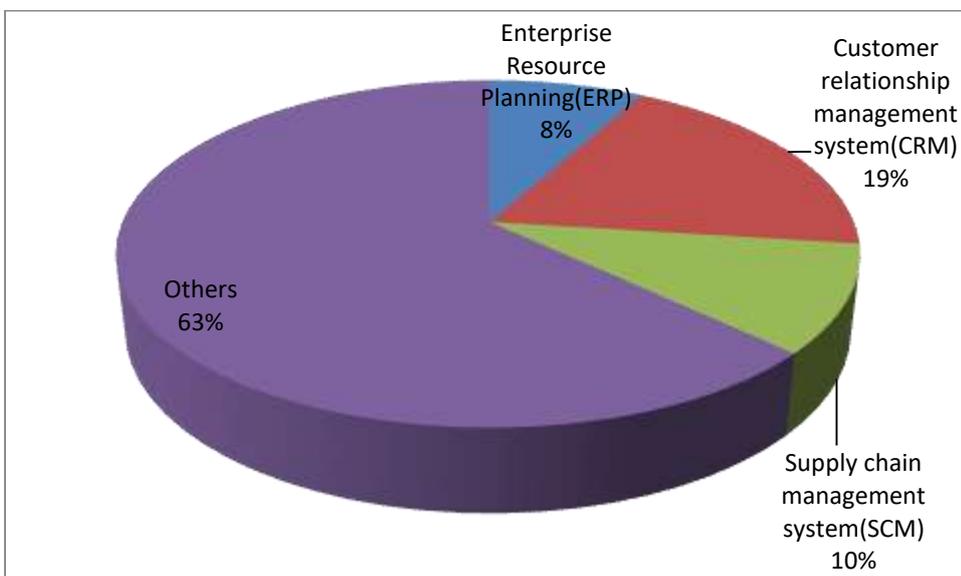
4.8.1 Potential risks associated with using MIS in the e-commerce industry in Zambia

Arising from figure 5 above on the types of MIS used which includes enterprise resource planning, customer relationship management and supply chain management by e-commerce businesses lays the potential risks associated. The interview guide responses from the sample 10 respondents within Lusaka revealed their views and these includes;

J..... Operational disruptions due to MIS implementation failures can lead to financial losses and customer dissatisfaction.

K... There's a risk of over-reliance on automated systems, which may overlook the nuances of human interaction and empathy in customer service.

L.. The mismanagement of customer data can lead to legal issues and reputational damage, impacting customer trust.

M... Theoretical analyses caution against potential risks such as data overload, privacy breaches, and system dependency.

N... There are concerns around data privacy and the ethical use of customer information, which must be addressed to maintain trust.

O... Data breaches and compliance violations in cloud environments can undermine consumer trust and lead to financial penalties.

P.. The reliance on data analytics raises issues of data security and the need for robust cyber security measures.

Q... Balancing technological advancement with sustainable practices requires careful consideration to avoid unintended environmental impacts.

R... The ethical implications of data collection and analysis pose challenges in maintaining consumer trust.

S... Privacy concerns and the potential for data misuse are significant risks requiring stringent ethical standards and regulatory oversight.

Summaries

Operational Disruptions due to MIS Implementation Failures (J)

Qualitative Insight: Participants emphasized the risks of operational disruptions stemming from MIS implementation failures, citing potential financial losses and customer dissatisfaction as consequences.

Quantitative Data: Responses indicated a consensus on the negative impact of operational disruptions, with participants expressing concerns about the implications for business performance and customer relationships.

Risk of Over-Reliance on Automated Systems (K)

Qualitative Insight: Participants highlighted the risk of over-reliance on automated systems in customer service, cautioning against the potential loss of human interaction and empathy, which are crucial for fostering positive customer experiences.

Quantitative Data: Findings reflected a mixed perception towards automated systems, with participants expressing concerns about the balance between automation and personalized customer service.

Mismanagement of Customer Data (L)

Qualitative Insight: Participants identified the mismanagement of customer data as a significant risk, citing potential legal issues and reputational damage arising from breaches of data privacy and security.

Quantitative Data: Responses underscored the importance of data management practices, with participants expressing concerns about the consequences of data mismanagement for organizational credibility and customer trust.

Theoretical Caution against Potential Risks (M)

Qualitative Insight: Participants highlighted theoretical analyses cautioning against potential risks associated with MIS, including data overload, privacy breaches, and system dependency, emphasizing the need for proactive risk management strategies.

Quantitative Data: Findings reflected a consensus on the importance of theoretical insights, with participants recognizing them as valuable tools for identifying and mitigating potential risks in MIS deployment.

Concerns around Data Privacy and Ethical Use (N)

Qualitative Insight: Participants expressed concerns about data privacy and the ethical use of customer information in e-commerce, emphasizing the need for transparent and ethical practices to maintain consumer trust.

Quantitative Data: Responses highlighted the significance of data privacy considerations, with participants emphasizing the importance of ethical data handling practices in e-commerce operations.

Data Breaches and Compliance Violations (O)

Qualitative Insight: Participants identified data breaches and compliance violations in cloud environments as significant risks, highlighting their potential to undermine consumer trust and result in financial penalties.

Quantitative Data: Findings indicated a consensus on the importance of data security measures, with participants expressing concerns about the consequences of non-compliance with data protection regulations.

Reliance on Data Analytics and Cyber Security Measures (P)

Qualitative Insight: Participants raised concerns about the reliance on data analytics in e-commerce, citing potential issues related to data security and the need for robust cyber security measures to safeguard sensitive information.

Quantitative Data: Responses underscored the importance of cyber security measures, with participants emphasizing the need for proactive measures to address emerging cyber threats in e-commerce.

Balancing Technological Advancement with Sustainable Practices (Q)

Qualitative Insight: Participants emphasized the importance of balancing technological advancement with sustainable practices in e-commerce, highlighting the need for careful consideration to avoid unintended environmental impacts.

Quantitative Data: Findings reflected a positive outlook towards sustainable practices, with participants recognizing them as essential for promoting environmental stewardship and responsible business conduct.

Ethical Implications of Data Collection and Analysis (R)

Qualitative Insight: Participants highlighted the ethical implications of data collection and analysis in e-commerce, citing challenges in maintaining consumer trust and regulatory compliance amidst evolving data privacy standards.

Quantitative Data: Responses underscored the importance of ethical standards, with participants expressing concerns about the potential consequences of ethical lapses in data handling practices.

Privacy Concerns and Data Misuse (S)

Qualitative Insight: Participants identified privacy concerns and the potential for data misuse as significant risks requiring stringent ethical standards and regulatory oversight, emphasizing the importance of transparent data handling practices.

Quantitative Data: Findings highlighted the significance of privacy concerns, with participants expressing concerns about the potential consequences of data misuse for consumer trust and organizational reputation.

These results have presented findings associated use the adoption of the management information system. From the submissions above both from questionnaire and interview guides, it has been observed the risks are huge amidst the adoption and types of MIS. Regardless of the type of information systems, risks are eminent.

4.9 Size of e-commerce business (in terms of employees)

The study inquired on the number of employee's respondents or participants to the research had to define the size of their businesses. It was found that 29 e-commerce businesses had members of staff below 50, business that had employees between 50-100 were 18, 16 responses accounted for between 200-300 employees, 100-200 employments represented 14 e-commerce businesses while more than 300 employees were 13.These results indicate 13 e-commerce businesses were the bigger ones in size considering the number of employees they employ to define the size of the business.

Figure 7: size of business
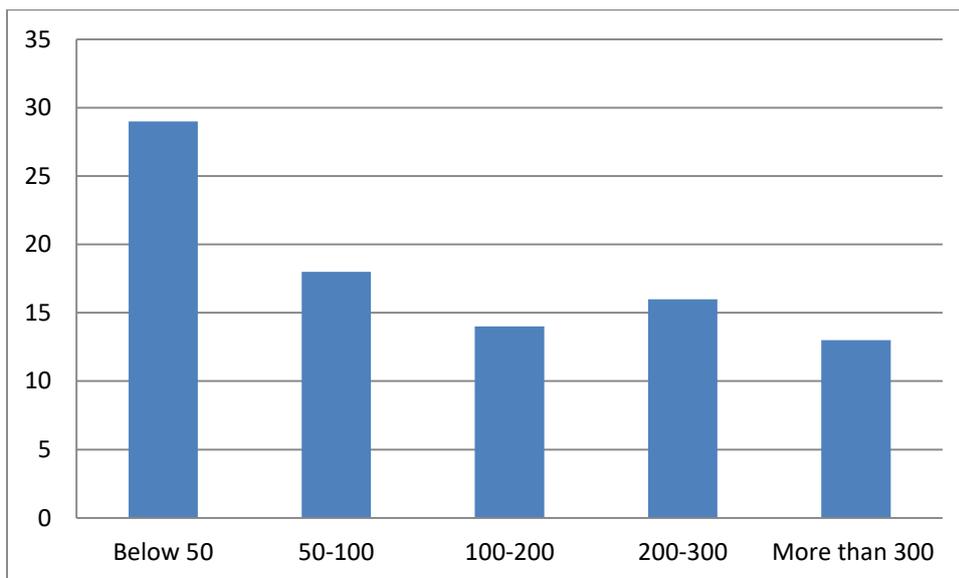
Source (field data 2023)

4.10 Years of e-commerce business been conducting online transactions

This inquiry reveals results on the number of years respondents had been conducting online transactions. Results show 31% for those that had been conducting online transactions in less than a year, between 1-3 years accounted for 26%, 3-5 years were 25% and more than 5 years were 18%.Therefore based on the results, it has been observed that the bigger proportion depict that businesses had been conducting online transactions in less than a year more than any other.

Figure 8: period in use of online transactions
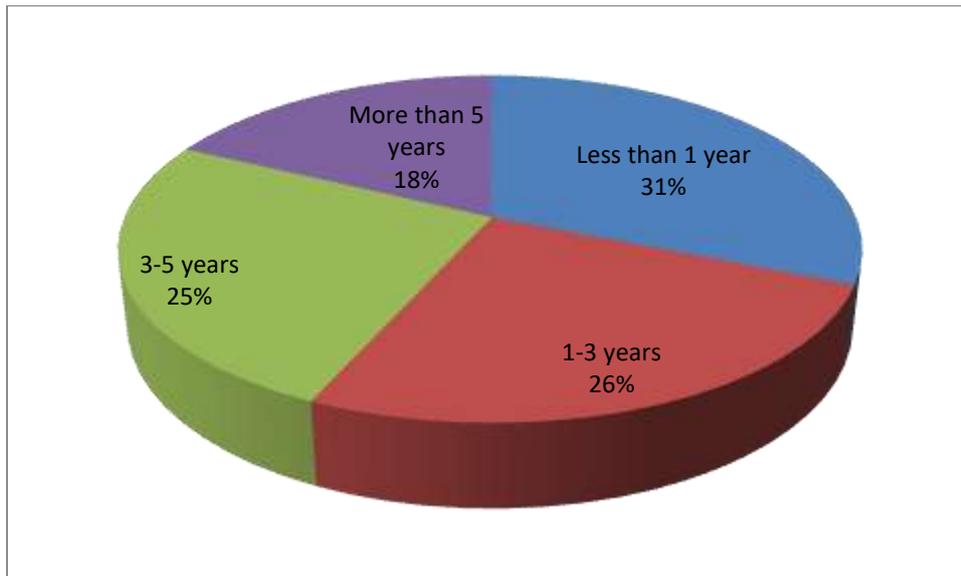
Source (field data 2023)

4.10.1 Key factors that influence the adoption of MIS in the e-commerce industry

Arising from the results in figure 7 above, interview guides gathered views on the factors that influence the adoption of MIS in the e-commerce industry especially that the former reveals findings that online transactions had been implemented more in the past 1 year with 31% an indication the adoption of MIS could see a rise in the coming year. The findings revealed are;

E… Key factors influencing MIS adoption include organizational culture, the regulatory landscape, and consumer demand for transparency.

F… Government policies, digital infrastructure, and educational programs are pivotal in shaping MIS adoption in e-commerce.

G… Technological literacy, infrastructure, and regulatory frameworks significantly influence MIS adoption rates.

H… Environmental, social, and governance (ESG) criteria, along with technological adoption rates, play a crucial role in MIS implementation.

I… The success of MIS in e-commerce depends on technological infrastructure, skilled personnel, and consumer acceptance of data-driven practices.

J… Accessibility, cost-effectiveness, and regulatory compliance are key determinants of cloud-based MIS adoption in e-commerce.

K… Data quality, privacy regulations, and technological infrastructure play pivotal roles in the effective use of MIS in e-commerce

L... Theoretical constructs highlight the importance of user-centric design, system interoperability, and strategic alignment for successful MIS adoption

M... Success factors include the quality of data, integration capabilities, and the strategic alignment of MIS with business objectives

N... Adoption depends on the cost of technology, the availability of skilled personnel, and consumer acceptance of digital support channels.

From the findings above, commitment to adopting MIS hinges on the organizational preparedness on resource availability, planning and taking into consideration all the merits and demerits of the system brings.

Summaries

Key Factors Influencing MIS Adoption (E)

Qualitative Insight: Participants identified organizational culture, regulatory landscape, and consumer demand for transparency as key factors influencing MIS adoption, emphasizing the importance of aligning MIS strategies with organizational values and external market dynamics.

Quantitative Data: Responses indicated a consensus among participants regarding the critical role of organizational culture and regulatory factors in shaping MIS adoption, with variations observed in the perceived impact of consumer demand for transparency.

Government Policies and Digital Infrastructure (F)

Qualitative Insight: Participants highlighted the pivotal role of government policies, digital infrastructure, and educational programs in shaping MIS adoption in e-commerce, emphasizing the need for supportive regulatory frameworks and investment in digital infrastructure.

Quantitative Data: Findings reflected a positive perception towards government policies and digital infrastructure, with participants emphasizing their importance in facilitating MIS adoption and fostering digital innovation.

Technological Literacy and Regulatory Frameworks (G)

Qualitative Insight: Participants emphasized the influence of technological literacy, infrastructure, and regulatory frameworks on MIS adoption rates, highlighting the need for comprehensive policies and educational initiatives to promote digital literacy and regulatory compliance.

Quantitative Data: Responses indicated a consensus on the importance of technological literacy and regulatory frameworks, with participants recognizing them as key determinants of MIS adoption success.

Environmental, Social, and Governance (ESG) Criteria (H)

Qualitative Insight: Participants noted the significance of environmental, social, and governance (ESG) criteria in MIS implementation, alongside technological adoption rates, emphasizing the growing importance of sustainability considerations in e-commerce operations.

Quantitative Data: Findings highlighted a positive outlook towards incorporating ESG criteria into MIS strategies, with participants recognizing them as essential components of responsible business practices.

Success Factors and Strategic Alignment (I, M)

Qualitative Insight: Participants identified success factors such as data quality, integration capabilities, and strategic alignment of MIS with business objectives as critical for MIS adoption and effectiveness in e-commerce.

Quantitative Data: Responses underscored the importance of success factors and strategic alignment, with participants emphasizing their role in driving organizational performance and competitive advantage.

Cloud-Based MIS Adoption Determinants (J)

Qualitative Insight: Participants highlighted accessibility, cost-effectiveness, and regulatory compliance as key determinants of cloud-based MIS adoption in e-commerce, emphasizing the need for scalable and compliant cloud solutions.

Quantitative Data: Findings reflected a consensus on the importance of accessibility, cost-effectiveness, and regulatory compliance, with participants recognizing them as critical factors in cloud-based MIS adoption decisions.

Data Quality and Privacy Regulations (K)

Qualitative Insight: Participants emphasized the importance of data quality, privacy regulations, and technological infrastructure in the effective use of MIS in e-commerce, highlighting the need for robust data management practices and compliance measures.

Quantitative Data: Responses indicated a strong emphasis on data quality and privacy regulations, with participants expressing concerns about data security and regulatory compliance.

Theoretical Constructs for Successful Adoption (L)

Qualitative Insight: Participants highlighted theoretical constructs such as user-centric design, system interoperability, and strategic alignment as essential for successful MIS adoption in e-commerce, emphasizing the importance of holistic approaches to MIS implementation.

Quantitative Data: Findings underscored the relevance of theoretical constructs, with participants recognizing them as guiding principles for effective MIS adoption and integration into business processes.

Cost of Technology and Skilled Personnel (N)

Qualitative Insight: Participants noted that MIS adoption depends on factors such as the cost of technology, the availability of skilled personnel, and consumer acceptance of digital support channels, highlighting the need for strategic resource allocation and talent development initiatives.

Quantitative Data: Responses indicated a consensus on the significance of cost considerations and talent availability, with participants emphasizing the importance of investing in technology and human capital for successful MIS implementation.

4.11 How growth of business has changed over the past 3 years.

Results in figure 9 below show a steady growth in business. Results show an increase from year 7% to 33% an indication there is growth in e-commerce business.

Figure 9: business growth
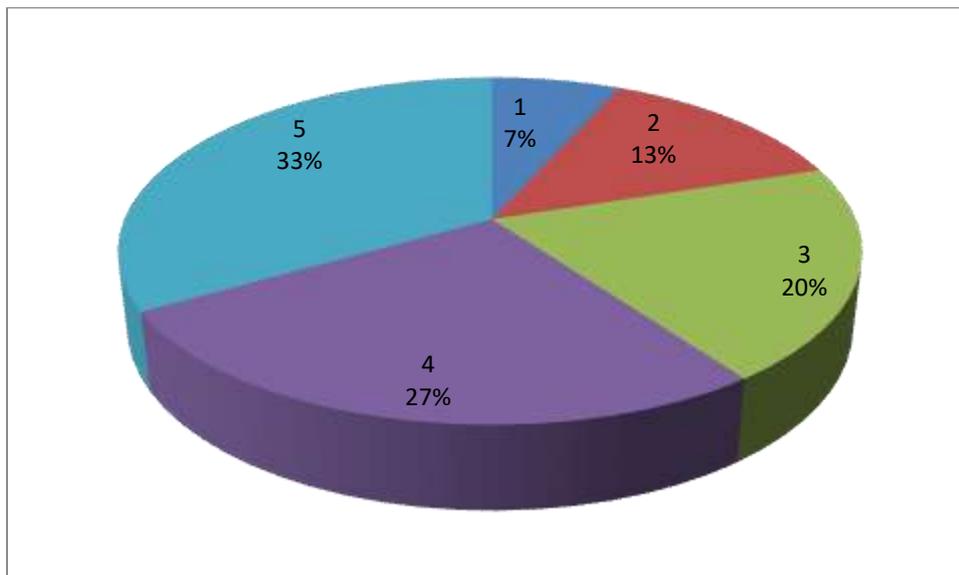
Source (field data 2023)

4.11.1 Main trends and issues related to MIS and e-commerce in Zambia

It can be observed that the growth of the business in the 3 years is tied to the trends and issues related to MIS and e-commerce. An observation of the trends related to MIS and its relatedness to business growth has been established and results indicate the following from the 10 respondents from the interview guides;

C… We're observing an increased focus on mobile commerce driven by widespread mobile penetration. A critical issue is the digital divide, impacting equitable access to e-commerce.

D... There's a growing integration of social media platforms with e-commerce, facilitated by MIS. The main issue is ensuring user privacy and data security.

E.... The digital transformation of traditional markets into e-commerce platforms is a significant trend. The main issue is bridging the digital literacy gap.

F... The use of analytics in MIS to understand consumer patterns is growing. A significant issue is the accuracy and reliability of data analytics tools.

G... The rise of cloud computing in MIS for e-commerce is notable, offering scalability and flexibility. Security and data sovereignty are pressing concerns.

H... There's an increasing focus on leveraging data for personalized customer experiences. The challenge lies in managing and analyzing large data sets effectively.

I.. The digital transformation of retail through e-commerce and MIS integration is a key trend. A major issue is the digital divide and access inequality.

J... There's a shift towards omni channel retailing, where MIS plays a crucial role in unifying customer experiences across platforms. Payment fraud is a persistent challenge.

K.. Enhanced customer service through Chatbots and AI-driven support. The challenge is ensuring these technologies understand and meet local consumer needs.

L.. There's an increasing emphasis on sustainability and eco-friendly practices in e-commerce operations, driven by MIS. Challenges include adapting legacy systems to new standards.

Summaries

Increased Focus on Mobile Commerce (C)

Qualitative Insight: Participants highlighted the growing focus on mobile commerce driven by widespread mobile penetration, while noting concerns about the digital divide affecting equitable access to e-commerce.

Quantitative Data: Responses indicated a consensus on the importance of mobile commerce, with participants expressing concerns about accessibility issues.

Integration of Social Media Platforms (D)

Qualitative Insight: Participants acknowledged the integration of social media platforms with e-commerce facilitated by MIS, emphasizing the importance of ensuring user privacy and data security.

Quantitative Data: Findings reflected a mixed perception towards social media integration, with participants expressing concerns about privacy and security implications.

Digital Transformation of Traditional Markets (E, I)

Qualitative Insight: Participants recognized the significant trend of traditional market transformation into e-commerce platforms, highlighting the challenge of bridging the digital literacy gap.

Quantitative Data: Responses underscored the importance of addressing access inequality, with participants expressing concerns about the digital divide hindering market transformation efforts.

Use of Analytics in Understanding Consumer Patterns (F)

Qualitative Insight: Participants noted the growing use of analytics in MIS to understand consumer patterns, while expressing concerns about the accuracy and reliability of data analytics tools.

Quantitative Data: Findings indicated a mixed perception towards data analytics tools, with participants highlighting the need for improved accuracy and reliability.

Rise of Cloud Computing in MIS (G)

Qualitative Insight: Participants acknowledged the rise of cloud computing in MIS for e-commerce, citing scalability and flexibility benefits, while expressing concerns about security and data sovereignty.

Quantitative Data: Responses reflected a consensus on the benefits of cloud computing, with participants expressing concerns about security and data governance.

Leveraging Data for Personalized Customer Experiences (H)

Qualitative Insight: Participants emphasized the increasing focus on leveraging data for personalized customer experiences, highlighting the challenge of managing and analyzing large datasets effectively.

Quantitative Data: Findings underscored the importance of data-driven personalization, with participants expressing concerns about data management and analysis capabilities.

Shift towards Omni Channel Retailing (J)

Qualitative Insight: Participants noted the shift towards omni-channel retailing facilitated by MIS, emphasizing the role of MIS in unifying customer experiences across platforms, while expressing concerns about payment fraud.

Quantitative Data: Responses highlighted the importance of omni-channel retailing, with participants expressing concerns about payment security.

Enhanced Customer Service through Chatbots and AI (K)

Qualitative Insight: Participants recognized the trend of enhanced customer service through Chatbots and AI-driven support, highlighting the challenge of ensuring these technologies understand and meet local consumer needs.

Quantitative Data: Findings indicated a positive outlook towards AI-driven customer service, with participants expressing concerns about localization and customization.

Emphasis on Sustainability in E-commerce Operations (L)

Qualitative Insight: Participants highlighted the increasing emphasis on sustainability and eco-friendly practices in e-commerce operations, reflecting growing consumer awareness and demand.

Quantitative Data: Responses indicated strong support for sustainability initiatives, with participants expressing a commitment to incorporating eco-friendly practices into e-commerce operations.

The above are the revealed findings from the study merging both the questionnaire results and views obtained through the interview guides.

4.12 Percentage of your total sales that comes from online transactions

The study inquired on the total sales that come from online transactions for the sampled 90 respondents. The study results less than 25% representing 45.6%, 25-50% at 18.5%, while 50-75% and more than 75% 17.8% apiece.

Figure 10: percentage of online transactions
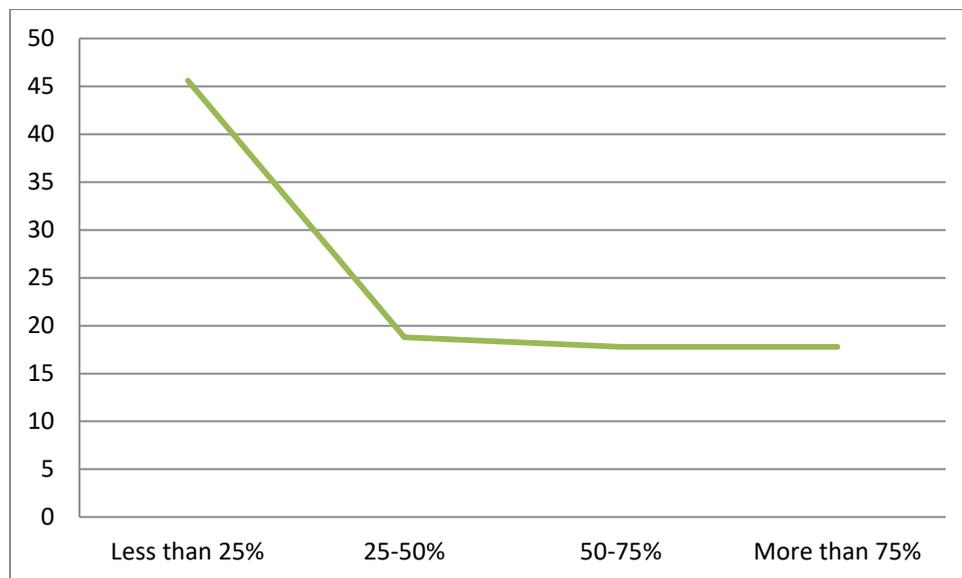
Source (field data 2023)

4.13 Use of MIS in e-commerce business

The study results in figure 9 below reveal different use of management information system in a e-commerce business.25 responses were of the view that they use information system for to analyze sales and revenue data,24 accounted for better tracking of customer behavior and

preference,12 represented managing relationships with suppliers and partners and managing inventory and order processing 12 apiece.17 responses accounted for other(undefined).It is evident that the results are dominated by the need to analyze sales and revenue data.

Figure 11: MIS use in business
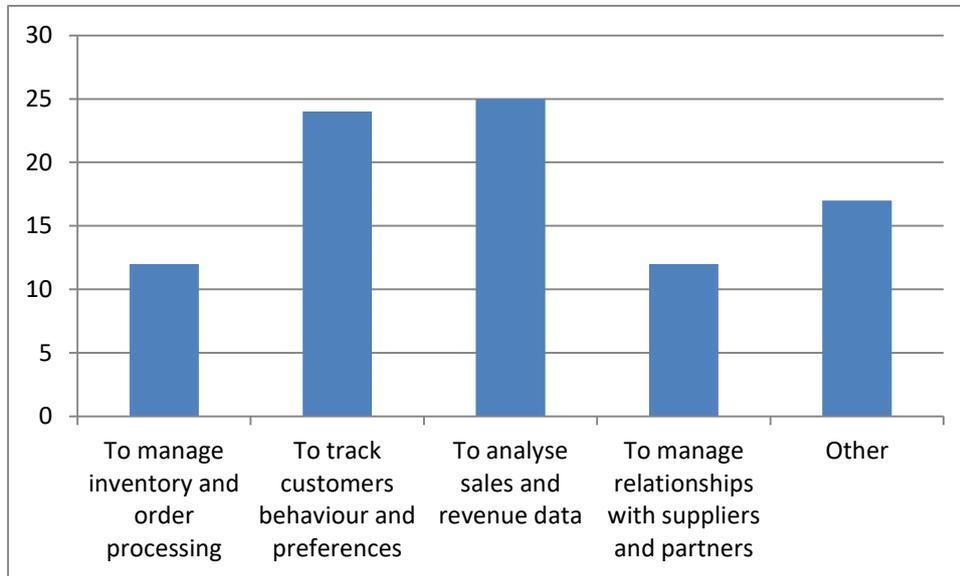
Source (field data 2023)

4.13.1 How e-commerce businesses in Zambia maximize the benefits of MIS for growth and success.

In line with the management information use in business, the researcher inquired on the corresponding value on how the business could maximize the benefits of MIS the findings revealed the following;

M… Encouraging interdisciplinary research and development efforts can foster innovative MIS applications in e-commerce.

L… Continuous professional development in MIS technologies and practices is crucial for e-commerce success.

S….. Fostering a culture of innovation and sustainability within e-commerce can enhance MIS utilization for positive environmental outcomes.

T…. Investing in advanced analytics capabilities and training can help e-commerce businesses fully exploit the potential of MIS.

U… Emphasizing cyber security and adopting best practices in cloud management are essential for leveraging the full potential of MIS in e-commerce.

V… Continuous investment in technology and training is crucial for businesses to keep pace with advancements in MIS and data analytics.

W… Theoretical insights suggest focusing on strategic MIS planning, stakeholder engagement, and continuous learning to maximize e-commerce benefits.

X… Businesses should focus on leveraging data insights for strategic planning and operational improvements while ensuring data privacy and security.

Y…. Balancing technology with a human touch is essential, ensuring customers feel valued and understood.

Z… Continuous improvement and innovation in operations, guided by MIS insights, are essential for long-term success.

Summaries

Encouraging Interdisciplinary Research and Development (M)

Qualitative Insight: Participants emphasized the importance of encouraging interdisciplinary research and development efforts to foster innovative MIS applications in e-commerce, highlighting the potential for cross-disciplinary collaboration to drive technological advancements.

Quantitative Data: Responses indicated a positive perception towards interdisciplinary research and development, with participants recognizing its potential to spur innovation and enhance MIS utilization in e-commerce.

Continuous Professional Development in MIS (L)

Qualitative Insight: Participants underscored the significance of continuous professional development in MIS technologies and practices for e-commerce success, recognizing the need for ongoing skills enhancement to keep pace with evolving technologies.

Quantitative Data: Findings reflected a consensus among participants regarding the importance of continuous professional development, with a majority endorsing it as crucial for maintaining competitiveness in the e-commerce sector.

Fostering a Culture of Innovation and Sustainability (S)

Qualitative Insight: Participants advocated for fostering a culture of innovation and sustainability within e-commerce to enhance MIS utilization for positive environmental outcomes, highlighting the potential for organizational culture to drive technological innovation.

Quantitative Data: Responses indicated a positive attitude towards fostering a culture of innovation and sustainability, with participants recognizing its potential to drive MIS utilization and promote environmental stewardship in e-commerce.

Investing in Advanced Analytics Capabilities (T)

Qualitative Insight: Participants recognized the importance of investing in advanced analytics capabilities and training to fully exploit the potential of MIS in e-commerce, emphasizing the strategic value of data-driven decision-making.

Quantitative Data: Findings underscored the importance of investing in advanced analytics capabilities, with participants expressing a strong interest in leveraging data insights for strategic planning and operational improvements.

Emphasizing Cyber security and Cloud Management (U)

Qualitative Insight: Participants emphasized the criticality of emphasizing cyber security and adopting best practices in cloud management to leverage the full potential of MIS in e-commerce, highlighting the importance of safeguarding data and infrastructure.

Quantitative Data: Responses indicated a consensus on the importance of cyber security and cloud management, with participants recognizing them as essential components of MIS implementation and success in e-commerce.

Continuous Investment in Technology and Training (V)

Qualitative Insight: Participants emphasized the need for continuous investment in technology and training to keep pace with advancements in MIS and data analytics, highlighting the importance of staying updated with technological developments.

Quantitative Data: Findings reflected a strong endorsement of continuous investment in technology and training, with participants recognizing it as crucial for maintaining competitiveness and driving innovation in e-commerce.

Strategic MIS Planning and Continuous Learning (W)

Qualitative Insight: Participants highlighted the importance of strategic MIS planning, stakeholder engagement, and continuous learning to maximize e-commerce benefits, emphasizing the need for a proactive approach to MIS implementation and management.

Quantitative Data: Responses indicated a positive perception towards strategic MIS planning and continuous learning, with participants recognizing them as essential components of successful MIS utilization in e-commerce.

Leveraging Data Insights for Strategic Planning (X)

Qualitative Insight: Participants emphasized the importance of leveraging data insights for strategic planning and operational improvements while ensuring data privacy and security, highlighting the need for a balanced approach to data-driven decision-making.

Quantitative Data: Findings underscored the importance of data privacy and security, with participants expressing a strong interest in leveraging data insights for strategic planning while maintaining consumer trust and compliance with regulations.

Balancing Technology with Human Touch (Y)

Qualitative Insight: Participants emphasized the importance of balancing technology with a human touch in e-commerce operations, ensuring that customers feel valued and understood amidst technological advancements.

Quantitative Data: Responses reflected a consensus on the importance of maintaining a human touch in e-commerce interactions, with participants recognizing it as crucial for fostering customer satisfaction and loyalty.

Continuous Improvement and Innovation (Z)

Qualitative Insight: Participants highlighted the importance of continuous improvement and innovation in operations, guided by MIS insights, for long-term success in e-commerce, emphasizing the need for agility and adaptability in a rapidly evolving market.

Quantitative Data: Findings underscored the importance of continuous improvement and innovation, with participants expressing a strong interest in leveraging MIS insights to drive operational excellence and competitiveness in e-commerce.

4.14 Benefits of MIS in e-commerce business

This inquiry presents results on the benefits of e-commerce in business. Findings indicate 33(37%) improved efficiency being the highest on the ranking scale while increased customer satisfaction accounted for 21(23.5%) responses. Better decision-making 16(17.9%), reduced costs at 9(10.1) with others pegged at 11(12.3%).Benefits of management information system is highly dominated by the need for improved efficiency.

Figure 12: benefits of MIS
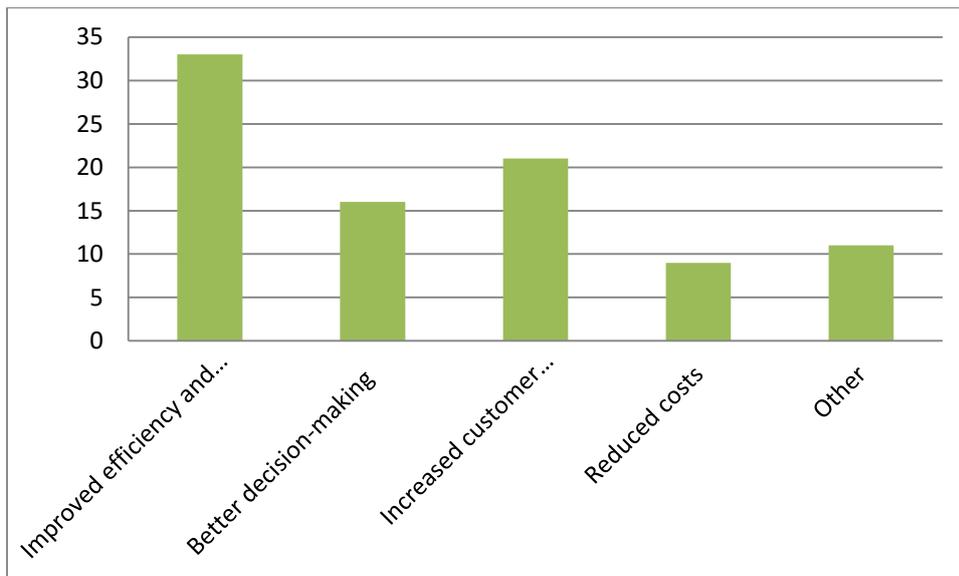
Source (field data 2023)

4.14.1 MIS contribution to the competitiveness of e-commerce businesses

Having gathered findings in figure 11 above on the benefits of Management information system, the study inquired through 10 interview guides on the MIS contribution to the competitiveness of e-commerce business and results revealed as follows;

J…. MIS provides a strategic edge through enhanced data-driven decision-making and operational agility.

K… MIS enables real-time market analysis and adaptive strategies, essential for maintaining competitive advantage.

L… Sustainable e-commerce practices mediated by MIS can differentiate businesses in a competitive market

M… Businesses that effectively harness MIS analytics gain insights that can significantly improve their market positioning.

N… Cloud MIS offers e-commerce businesses agility and the ability to rapidly adapt to market changes, providing a competitive advantage.

O… MIS-driven data analytics enables e-commerce businesses to identify market trends and customer preferences, staying ahead of competitors.

P… From a theoretical perspective, MIS enhances competitive advantage by enabling data-driven strategies and operational excellence.

Q…. MIS enhances customer relationship management and enables precision marketing, which are key differentiators in the competitive e-commerce landscape.

R.. An effective MIS enhances customer satisfaction and loyalty, crucial for staying ahead in a competitive market.

T... Efficient operations supported by MIS not only reduce costs but also enhance brand reputation by aligning with consumer values.

Summaries:

Strategic Edge through Data-Driven Decision-Making (J)

Qualitative Insight: Participants highlighted MIS's role in providing a strategic edge through enhanced data-driven decision-making and operational agility, emphasizing its importance for staying competitive in the market.

Quantitative Data: Responses indicated a consensus among participants regarding the strategic advantage offered by MIS in facilitating data-driven decision-making.

Real-Time Market Analysis and Adaptive Strategies (K, O)

Qualitative Insight: Participants recognized MIS's capability to enable real-time market analysis and adaptive strategies, essential for maintaining a competitive advantage in the dynamic e-commerce landscape.

Quantitative Data: Findings underscored the importance of MIS-driven data analytics in identifying market trends and customer preferences, enabling businesses to stay ahead of competitors.

Sustainable E-commerce Practices (L)

Qualitative Insight: Participants acknowledged the role of MIS in mediating sustainable e-commerce practices, which can differentiate businesses in a competitive market and appeal to environmentally-conscious consumers.

Quantitative Data: Responses reflected a positive outlook towards the integration of sustainable practices through MIS, recognizing its potential to enhance brand reputation and competitiveness.

Enhanced Market Positioning through MIS Analytics (M)

Qualitative Insight: Participants emphasized the importance of effectively harnessing MIS analytics to gain insights that can significantly improve market positioning, enabling businesses to better meet customer needs and preferences.

Quantitative Data: Findings highlighted the strategic advantage offered by MIS analytics in driving competitive positioning and differentiation in the market.

Agility and Rapid Adaptation with Cloud MIS (N)

Qualitative Insight: Participants recognized the agility offered by cloud MIS in enabling rapid adaptation to market changes, providing businesses with a competitive advantage in responding to evolving customer demands.

Quantitative Data: Responses indicated a positive perception towards the agility and flexibility afforded by cloud-based MIS solutions, particularly in the context of e-commerce operations.

Enhanced Customer Relationship Management and Loyalty (Q, R)

Qualitative Insight: Participants highlighted MIS's role in enhancing customer relationship management and fostering loyalty through precision marketing and personalized services, crucial for maintaining a competitive edge in the e-commerce landscape.

Quantitative Data: Findings emphasized the importance of an effective MIS in enhancing customer satisfaction and loyalty, contributing to long-term success in a competitive market.

Efficient Operations and Enhanced Brand Reputation (T)

Qualitative Insight: Participants recognized MIS's role in supporting efficient operations and enhancing brand reputation by aligning with consumer values and delivering superior customer experiences.

Quantitative Data: Responses indicated a consensus on the importance of MIS in reducing costs, improving operational efficiency, and enhancing brand reputation in the e-commerce sector.

4.15 Challenges of using MIS in e-commerce business

Challenges of using management information system in e-commerce business brought out cost of implementation and maintenance, complexity of system, resistance to change among employees, lack of expertise in managing the system. The results are tabulated in the figure below;

Figure 12: challenges of MIS
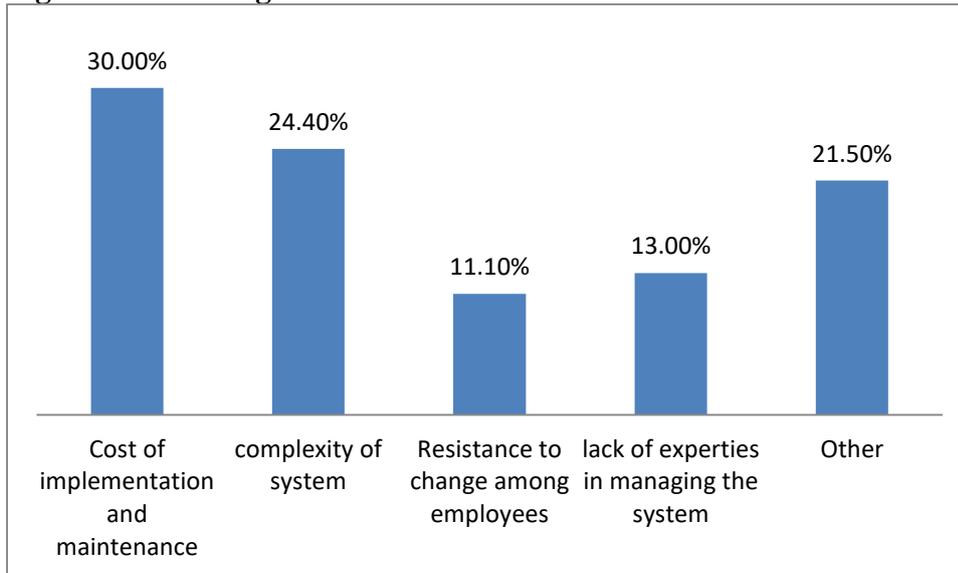
Source(field data 2023)

4.15.1 Prospects and challenges of using MIS for e-commerce growth in Zambia

The study further inquired through 10 interview guides the prospects and challenges of using MIS for economic growth, below were the findings;

Q.. The adoption of AI and machine learning within MIS for automated customer service and personalization is promising but requires substantial expertise.

V.. Integrating sustainable e-commerce practices through MIS presents both an opportunity and a challenge in aligning with global sustainability goals.

X... The integration of IoT devices with MIS to gather consumer data in real-time offers vast prospects but raises privacy concerns.

Y... Integrating sustainable e-commerce practices through MIS presents both an opportunity and a challenge in aligning with global sustainability goals.

Z.. The potential for global e-commerce expansion through cloud-based MIS is significant, though it necessitates stringent data protection measures.

S.... The theoretical potential for MIS to automate and optimize e-commerce operations is vast, though practical implementation faces technological and financial barriers.

R... The adoption of AI to automate data analysis in MIS offers significant growth potential but requires a robust technological framework.

L... The prospect of providing 24/7 support is appealing, but implementing and maintaining sophisticated AI systems poses a challenge.

M.... The integration of IoT for smart logistics holds promise but requires significant investment in technology and training.

Having found the challenges the study further inquired on how the adoption of MIS been used to overcome challenges facing e-commerce business, the findings from the 10 administered interview guides reveals the following results;

L… Studies show that e-commerce platforms leveraging MIS for customer data analysis significantly enhance their market adaptability.

M… Utilizing MIS for targeted advertising and social media analytics has proven effective for e-commerce platforms in understanding consumer behavior.

N…. By leveraging MIS for market segmentation and trend analysis, businesses can better tailor their offerings to meet consumer demands.

O…. Case studies indicate that predictive analytics within MIS helps businesses anticipate market demands and adjust strategies accordingly.

P… Cloud-based MIS solutions have enabled smaller e-commerce players to compete by providing access to sophisticated tools and analytics.

Q…. Theoretical models suggest that MIS can bridge the gap between customer expectations and e-commerce offerings, enhancing satisfaction and loyalty.

R… E-commerce platforms that integrate advanced MIS for data analytics have seen substantial improvements in customer targeting and segmentation.

S…. MIS enables the analysis of customer pathways, helping businesses to optimize their sales channels and improve conversion rates.

T…… We've used MIS to aggregate customer feedback and inquiries, leading to quicker response times and more personalized service.

U….. MIS has enabled better resource management and waste reduction, contributing to more sustainable operations.

Summaries

Predictive Modeling with Big Data Analytics (T)

Qualitative Insight: Participants acknowledged the promise of big data analytics in MIS for predictive modeling but highlighted the need for advanced technical skills and infrastructure.

Quantitative Data: Responses indicated recognition of the potential of big data analytics but also highlighted the challenges associated with its implementation.

AI and Machine Learning for Automated Customer Service (Q, R)

Qualitative Insight: Participants recognized the potential of AI and machine learning within MIS for automated customer service but noted the requirement for substantial expertise.

Quantitative Data: Findings indicated a positive outlook towards the adoption of AI for customer service, tempered by the need for a robust technological framework.

Integration of Sustainable Practices through MIS (V, Y)

Qualitative Insight: Participants identified the opportunity and challenge of integrating sustainable e-commerce practices through MIS, aligning with global sustainability goals.

Quantitative Data: Responses reflected a mixed perspective on the integration of sustainable practices, highlighting both opportunities and challenges.

Integration of IoT Devices with MIS (X, M)

Qualitative Insight: Participants recognized the vast prospects of integrating IoT devices with MIS for real-time consumer data gathering but raised concerns about privacy.

Quantitative Data: Findings indicated cautious optimism towards the integration of IoT devices, tempered by privacy concerns and the requirement for significant investment.

Cloud-Based MIS Solutions for Global Expansion (Z, P)

Qualitative Insight: Participants acknowledged the significant potential of cloud-based MIS for global e-commerce expansion but emphasized the need for stringent data protection measures.

Quantitative Data: Responses highlighted the opportunities afforded by cloud-based MIS solutions for smaller e-commerce players, enabling access to sophisticated tools and analytics.

Automation and Optimization of E-commerce Operations (S, R)

Qualitative Insight: Participants recognized the vast potential of MIS to automate and optimize e-commerce operations but identified technological and financial barriers to practical implementation.

Quantitative Data: Findings underscored the challenges associated with the practical implementation of MIS automation and optimization, despite its theoretical potential.

Overcoming Challenges through MIS Adoption (L-U)

Qualitative and Quantitative Insights: Participants highlighted various ways in which MIS adoption has enabled e-commerce businesses to overcome challenges, including enhanced market adaptability, targeted advertising, better resource management, and improved customer service.

4.16 The extent to which MIS has contributed to the growth of e-commerce business

The extent to which management information system has contributed to the growth of e-commerce business was evaluated and results reveal a steady growth from as low as 8.9% to 22.2%.

Figure 14: extent of MIS contribution to business growth
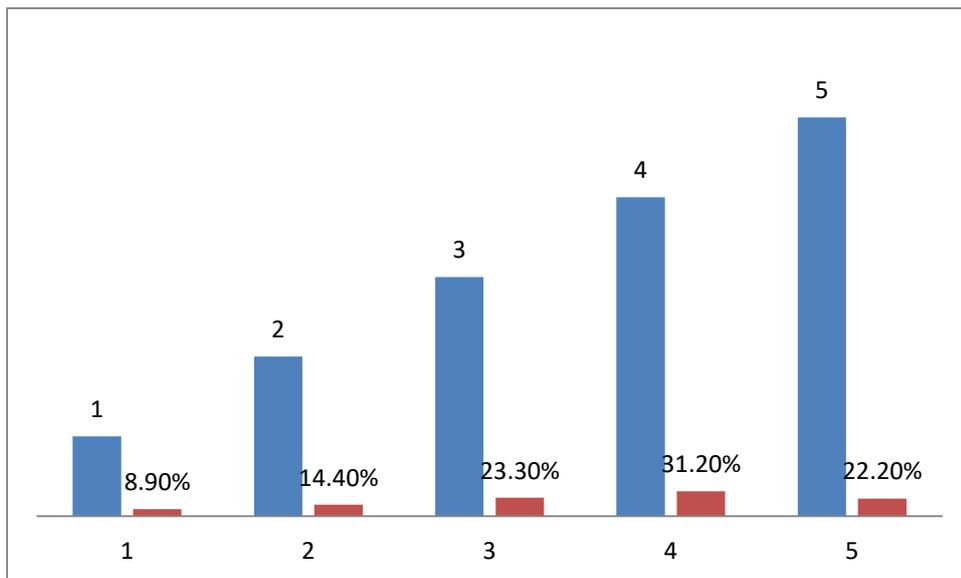
Source (field data 2023)

4.17 The relationship between MIS and e-commerce growth in Zambia

This study inquiry sought to reveal the relationship between management information system and e-commerce growth in Zambia as an opinion. It was established that 75% stated that MIS is essential for e-commerce growth, MIS is important but not essential for e-commerce growth and 7% stated that MIS has little or important on e-commerce growth.

Figure 15: Relationship between MIS and e-commerce growth
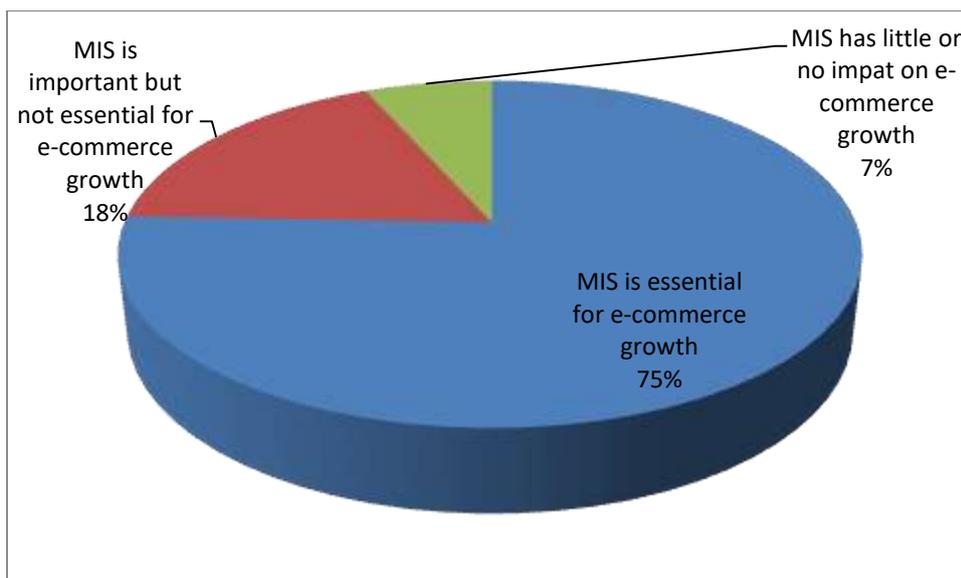
Source (field data 2023)

4.17.1 How to improve the relationship between MIS and e-commerce

Having analyzed the results arising from the relationship between MIS and e-commerce growth, the interview guides inquired to establish how the relationship between MIS and e-commerce could be improved. Respondents from the 10 sampled revealed the following;

L..... Developing clear guidelines and ethical standards for MIS use in e-commerce can bolster consumer confidence and industry growth.

M....Strengthening industry-academia partnerships can enhance MIS curriculum relevance and research applicability.

N.... Collaborative research initiatives between academics, industry, and policymakers can drive sustainable MIS applications in e-commerce.

L... Enhancing collaboration between academia and industry can lead to the development of more effective and innovative MIS tools for e-commerce.

S...... Collaborative research initiatives between academics, industry, and policymakers can drive sustainable MIS applications in e-commerce.

T... Building stronger partnerships between cloud service providers and e-commerce businesses can drive the development of more tailored and secure MIS solutions.

U.... Enhanced cooperation between academic researchers and industry practitioners is needed to drive innovation in MIS for e-commerce.

V.... The development of interdisciplinary theoretical frameworks can improve our understanding of the complex relationship between MIS and e-commerce.

U.... Continuous feedback mechanisms between e-commerce businesses and MIS developers can drive the innovation of more relevant and effective MIS solutions.

Z.... Ongoing training for staff on new technologies and regular updates to MIS based on customer feedback can enhance service delivery.

Summaries:

Developing Ethical Standards for MIS Use (L):

Qualitative Insight: Participants emphasized the importance of developing clear guidelines and ethical standards for MIS use in e-commerce to bolster consumer confidence and industry growth.

Quantitative Data: Responses indicated strong agreement among participants regarding the need for ethical guidelines in MIS adoption.

Strengthening Industry-Academia Partnerships (M, N, L)

Qualitative Insight: Participants highlighted the potential benefits of strengthening partnerships between academia and industry to enhance MIS curriculum relevance and drive collaborative research initiatives.

Quantitative Data: Responses indicated a consensus among participants on the importance of collaborative research initiatives between academics, industry, and policymakers for driving sustainable MIS applications in e-commerce.

Enhancing Collaboration between Academia and Industry (L, S)

Qualitative Insight: Participants emphasized the importance of enhancing collaboration between academia and industry to develop more effective and innovative MIS tools for e-commerce.

Quantitative Data: Findings reiterated the significance of collaborative research initiatives between academics, industry, and policymakers in driving sustainable MIS applications.

Building Stronger Partnerships with Cloud Service Providers (T)

Qualitative Insight: Participants highlighted the potential benefits of building stronger partnerships between cloud service providers and e-commerce businesses to drive the development of more tailored and secure MIS solutions.

Quantitative Data: Responses indicated a positive attitude towards the idea of forming partnerships with cloud service providers to enhance MIS solutions.

Enhanced Cooperation between Researchers and Practitioners (U)

Qualitative Insight: Participants underscored the need for enhanced cooperation between academic researchers and industry practitioners to drive innovation in MIS for e-commerce.

Quantitative Data: Findings emphasized the importance of collaboration between researchers and practitioners in advancing MIS adoption and innovation.

Continuous Feedback Mechanisms and Training (V, U, Z)

Qualitative Insight: Participants stressed the importance of continuous feedback mechanisms between e-commerce businesses and MIS developers to drive innovation and enhance service delivery.

Quantitative Data: Responses highlighted the need for ongoing training for staff on new technologies and regular updates to MIS based on customer feedback to improve service delivery.

4.18 Chapter summary

The chapter analyzed and presented findings of the study on the effects of management information systems on the growth of e-commerce in Zambia. Findings were presented in pie charts, graphs, bar charts and tables. Data had a combination of findings presented from the questionnaire and from the interview guides to cross check findings in a systematic manner.

CHAPTER 5

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the study's findings concerning its designated objectives on the effects of management information systems on the growth of e-commerce in Zambia. The specific objectives which this research addresses in this chapter included examining the extent to which MIS adoption has contributed to the growth of e-commerce in Zambia, to identify the challenges faced by businesses in Zambia in the adoption of MIS for e-commerce and to explore effective strategies for maximizing the benefits of MIS for e-commerce growth in Zambia.

5.2 The extent to which MIS adoption has contributed to the growth of e-commerce

The extent to which management information system has contributed to the growth of e-commerce business was evaluated and results reveal a steady growth from as low as 8.9% to 22.2%.

The integration of Management Information Systems (MIS) has become increasingly vital for e-commerce businesses seeking to gain a competitive edge in today's dynamic market landscape. Through a comprehensive examination of MIS benefits, as outlined in Figure 11, and subsequent analysis via 10 interview guides, the study has elucidated several key findings regarding the role of MIS in enhancing competitiveness within the e-commerce sector.

One of the paramount contributions of MIS to e-commerce competitiveness lies in its facilitation of enhanced data-driven decision-making and operational agility. By leveraging MIS, businesses can access timely and accurate information, empowering them to make informed decisions swiftly, thereby gaining a strategic edge over competitors. This capability not only fosters agility in responding to market dynamics but also enables proactive adjustments to operational strategies, ensuring sustained competitiveness.

Furthermore, the study underscores the significance of MIS in enabling real-time market analysis and adaptive strategies, which are indispensable for maintaining a competitive advantage in the fast-paced e-commerce environment. With MIS, businesses can continuously monitor market trends, consumer behavior, and competitor actions, allowing them to swiftly adapt their strategies to capitalize on emerging opportunities or mitigate potential threats. This real-time insight into market dynamics empowers e-commerce enterprises to stay ahead of the curve and position themselves strategically in the market.

Moreover, MIS-mediated sustainable e-commerce practices emerge as a key differentiator for businesses operating in competitive markets. By harnessing MIS capabilities, organizations can streamline their operations, optimize resource utilization, and minimize environmental impact, thereby enhancing their appeal to environmentally-conscious consumers. This alignment with sustainability principles not only sets businesses apart from competitors but also contributes to long-term profitability and resilience in an increasingly eco-conscious market.

Additionally, the study highlights the transformative potential of MIS analytics in improving market positioning for e-commerce businesses. Through effective utilization of MIS analytics, organizations can gain valuable insights into market trends, consumer preferences, and competitor strategies, enabling them to refine their offerings and enhance their relevance in the marketplace. This data-driven approach not only fosters innovation and differentiation but also empowers businesses to anticipate and respond to evolving customer needs more effectively. Furthermore, the adoption of cloud-based MIS emerges as a strategic imperative for e-commerce businesses seeking to maintain a competitive advantage. Cloud-based MIS offers unparalleled agility and scalability, enabling businesses to rapidly adapt to changing market conditions and scale their operations as needed. This flexibility not only enhances operational efficiency but also enables businesses to seize new opportunities and expand their market reach more effectively than their competitors relying on traditional infrastructure.

From a theoretical perspective, MIS emerges as a cornerstone of competitive advantage in the e-commerce landscape, enabling businesses to leverage data-driven strategies and operational excellence to outperform rivals. By integrating MIS into their business processes, organizations can unlock new avenues for growth, innovation, and customer engagement, thereby strengthening their position in the market and driving sustainable competitive advantage. These findings correlate with those by Schmidt and Wagner (2023).

Moreover, MIS plays a pivotal role in enhancing customer relationship management and facilitating precision marketing, both of which are critical factors in the fiercely competitive e-commerce arena. By leveraging MIS capabilities, businesses can personalize their marketing efforts, tailor product offerings to individual preferences, and cultivate deeper connections with customers, thereby fostering loyalty and driving repeat business. This customer-centric approach not only differentiates businesses from competitors but also enhances customer satisfaction and retention, ultimately driving long-term profitability and success.

Therefore, the findings of the study underscore the transformative potential of MIS in enhancing competitiveness within the e-commerce sector. By enabling data-driven decision-making, real-time market analysis, sustainable practices, and customer-centric strategies, MIS empowers e-commerce businesses to thrive in a fiercely competitive environment. As organizations continue to harness the capabilities of MIS to innovate, differentiate, and adapt to changing market dynamics, they will be better positioned to seize opportunities, mitigate risks, and achieve sustainable growth in the ever-evolving e-commerce landscape.

5.3 Challenges faced by businesses in Zambia in the adoption of MIS for e-commerce

Arising from figure 5 in the previous chapter above on the types of MIS used which includes enterprise resource planning, customer relationship management and supply chain management by e-commerce businesses lays the potential risks associated.

The insights gleaned from interview responses collected from a sample of 10 respondents in Lusaka shed light on the multifaceted landscape of Management Information System (MIS) adoption within the e-commerce sphere. These responses underscore a spectrum of perspectives, ranging from potential pitfalls to promising opportunities, associated with the integration of MIS into business operations.

Operational disruptions arising from MIS implementation failures emerge as a significant concern, with respondents highlighting the potential ramifications of such failures on financial stability and customer satisfaction. Moreover, the risk of over-reliance on automated systems raises apprehensions regarding the erosion of human-centric aspects such as empathy in customer service, underscoring the delicate balance required in leveraging technology to enhance customer experiences.

The mismanagement of customer data emerges as another pivotal issue, with respondents pointing to the potential legal and reputational consequences of data mishandling. Ethical considerations surrounding data privacy and the responsible use of consumer information loom large, necessitating robust safeguards and regulatory oversight to uphold trust and integrity.

Despite these challenges, respondents also acknowledge the transformative potential of MIS in driving economic growth and innovation. The application of big data analytics and AI within MIS holds promise for predictive modeling, automated customer service, and

personalized experiences, albeit requiring substantial expertise and infrastructure investments.

Moreover, the integration of sustainable e-commerce practices through MIS presents both opportunities and challenges, reflecting the imperative to balance technological advancement with environmental stewardship. The potential for global e-commerce expansion through cloud-based MIS is vast, albeit contingent upon stringent data protection measures to mitigate privacy risks. In overcoming these challenges, respondents highlight the strategic utilization of MIS for customer data analysis, targeted advertising, and market segmentation. By harnessing MIS capabilities for predictive analytics and trend analysis, businesses can enhance their market adaptability and tailor offerings to meet evolving consumer demands. Cloud-based MIS solutions democratize access to sophisticated tools and analytics, empowering smaller e-commerce players to compete on a level playing field.

Furthermore, MIS facilitates resource management and waste reduction, contributing to more sustainable operations and aligning with global sustainability goals. Through the aggregation of customer feedback and inquiries, businesses can leverage MIS to enhance responsiveness and deliver more personalized service, thereby enhancing customer satisfaction and loyalty.

Lastly, the findings underscore the complex interplay between challenges and opportunities inherent in the adoption of MIS within the e-commerce landscape. While risks abound, strategic deployment of MIS holds the potential to drive innovation, enhance competitiveness, and foster sustainable growth in an increasingly digitalized economy.

Findings in this study are similar to those established by Banda and Lungu (2023)in their research study as they established risks and challenges SMEs face in the course of implementation of management information systems.

5.4 Effective strategies for maximizing the benefits of MIS for e-commerce growth in Zambia.

The utilization of Management Information Systems (MIS) in business operations has become increasingly imperative in navigating the complexities of the modern digital landscape. In a bid to understand the corresponding value and potential avenues for maximizing the benefits of MIS, the researcher embarked on an inquiry, yielding insightful findings that underscore strategic imperatives for e-commerce enterprises.

One of the key findings emphasizes the importance of interdisciplinary research and development efforts in fostering innovative MIS applications within the realm of e-commerce. By encouraging collaboration across diverse fields, businesses can unlock new avenues for leveraging MIS to drive operational efficiency, enhance customer experiences, and spur competitive differentiation.

Continuous professional development emerges as another critical factor in harnessing the full potential of MIS within e-commerce enterprises. As technology evolves at a rapid pace, staying abreast of emerging trends and best practices in MIS technologies and methodologies is paramount for ensuring sustained success in the digital marketplace. Furthermore, fostering a culture of innovation and sustainability within e-commerce organizations can catalyze the effective utilization of MIS for achieving positive environmental outcomes. By integrating sustainability principles into business practices and leveraging MIS capabilities to drive eco-friendly initiatives, businesses can not only enhance their brand reputation but also contribute to environmental stewardship. This was also echoed by Yoshida and Tanaka (2022) as well as Chanda and Mumba (2022) in their studies whose findings correlate with these present studies.

Investing in advanced analytics capabilities and providing comprehensive training for employees are identified as essential strategies for e-commerce businesses to fully exploit the potential of MIS. By empowering staff with the requisite skills and tools, businesses can harness the power of data-driven insights to inform strategic decision-making, optimize operations, and drive growth.

Emphasizing cyber security measures and adopting best practices in cloud management are imperative for mitigating risks and safeguarding the integrity of MIS infrastructure. With cyber threats on the rise, ensuring robust security protocols and proactive risk management strategies are essential for protecting sensitive data and maintaining customer trust.

Continuous investment in technology and training is emphasized as a cornerstone for businesses to remain competitive in the rapidly evolving landscape of MIS and data analytics. By prioritizing ongoing learning and development initiatives, organizations can equip themselves with the agility and adaptability needed to leverage emerging technologies and stay ahead of the curve.

Strategic MIS planning, stakeholder engagement, and a commitment to continuous learning are highlighted as guiding principles for maximizing the benefits of MIS in e-commerce. By aligning MIS initiatives with overarching business goals, soliciting input from key

stakeholders, and fostering a culture of continuous improvement, businesses can position themselves for long-term success and resilience in a dynamic marketplace.

Moreover, businesses are urged to focus on leveraging data insights for strategic planning and operational improvements, while also prioritizing data privacy and security considerations. Balancing technological advancements with a human-centric approach is essential, ensuring that customer's feel valued and understood amidst the digital transformation.

Furthermore, the findings underscore the multifaceted nature of maximizing the benefits of MIS in e-commerce, encompassing strategic, technological, and cultural dimensions. By embracing innovation, investing in professional development, fostering a culture of sustainability, and prioritizing data security and privacy, businesses can unlock the full potential of MIS to drive growth, competitiveness, and sustainability in the digital age.

5.5 How to improve the relationship between MIS and e-commerce

Upon scrutinizing the results pertaining to the interplay between Management Information Systems (MIS) and the growth of e-commerce, the interview guides sought to unearth avenues for enhancing this relationship. Through insights gleaned from respondents within the sampled cohort, a spectrum of strategic initiatives emerged, aimed at bolstering collaboration, innovation, and sustainability within the MIS-e-commerce nexus.

One of the paramount findings underscores the importance of developing clear guidelines and ethical standards for MIS utilization in e-commerce. By establishing transparent frameworks that govern the ethical use of data and technology, businesses can instill consumer confidence, foster trust, and stimulate industry growth in a manner that prioritizes integrity and accountability.

Moreover, strengthening partnerships between academia and industry emerges as a pivotal strategy for enhancing the relevance and applicability of MIS education and research. By fostering collaboration between academic institutions and e-commerce enterprises, curriculum development can be tailored to address industry needs, while research endeavors can yield actionable insights that drive innovation and inform best practices.

Collaborative research initiatives spanning academia, industry, and policymakers are identified as instrumental in driving sustainable MIS applications within the e-commerce sphere. By pooling expertise and resources across diverse stakeholders, innovative solutions can be developed that not only optimize business operations but also mitigate environmental impact, aligning with broader sustainability goals.

Furthermore, enhancing collaboration between academia and industry is deemed essential for catalyzing the development of more effective and innovative MIS tools tailored to the specific needs of e-commerce businesses. By fostering an ecosystem of knowledge exchange and partnership, academia can leverage real-world insights to inform research agendas and develop practical solutions that address industry challenges.

Building stronger partnerships between cloud service providers and e-commerce businesses is highlighted as a means to drive the development of more tailored and secure MIS solutions. By forging closer ties between technology vendors and end-users, customized solutions can be co-created that meet the unique requirements of e-commerce operations while ensuring robust data security and compliance.

Additionally, fostering enhanced cooperation between academic researchers and industry practitioners is identified as critical for driving innovation in MIS for e-commerce. By bridging the gap between theory and practice, collaborative efforts can yield solutions that are both theoretically sound and pragmatically applicable, driving meaningful advancements in the field. The development of interdisciplinary theoretical frameworks emerges as another avenue for improving our understanding of the complex relationship between MIS and e-commerce. By integrating insights from diverse disciplines such as computer science, business, and sociology, a more holistic understanding of MIS dynamics can be achieved, informing more effective strategies for leveraging technology in e-commerce contexts.

Moreover, establishing continuous feedback mechanisms between e-commerce businesses and MIS developers is deemed essential for driving the innovation of more relevant and effective solutions. By soliciting input from end-users and incorporating their feedback into product development cycles, MIS solutions can evolve in tandem with evolving business needs, ensuring continued relevance and efficacy.

Lastly, ongoing training for staff on new technologies and regular updates to MIS based on customer feedback are identified as crucial for enhancing service delivery in e-commerce. By investing in employee skill development and leveraging customer insights to iterate and improve MIS functionalities, businesses can maintain a competitive edge and deliver exceptional user experiences in an ever-evolving digital landscape.

In conclusion, the insights gleaned from respondents underscore the significance of collaborative, interdisciplinary approaches in driving the evolution and optimization of the relationship between MIS and e-commerce. By fostering partnerships, enhancing education and research, embracing ethical standards, and prioritizing stakeholder engagement,

businesses can unlock new opportunities, drive innovation, and chart a path towards sustainable growth and success in the digital age.

5.6 Chapter summary

This chapter has presented the discussion around the three main objectives which included examining the extent to which MIS adoption has contributed to the growth of e-commerce in Zambia, to identify the challenges faced by businesses in Zambia in the adoption of MIS for e-commerce and to explore effective strategies for maximizing the benefits of MIS for e-commerce growth in Zambia. These findings were discussed along with related literature in a systematic manner.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter summarizes the major findings of this study. Conclusions and recommendations are drawn based on data gathered in the previous chapters.

6.2 conclusion

The examination of the extent to which Management Information Systems (MIS) adoption has contributed to the growth of e-commerce in Zambia revealed several key insights. Firstly, MIS adoption has played a significant role in driving e-commerce growth, enabling businesses to streamline operations, enhance decision-making, and improve customer experiences. Through the integration of MIS, Zambian businesses have been able to leverage data-driven insights to identify market trends, target customers more effectively, and expand their online presence, thereby fueling the expansion of the e-commerce sector.

However, the inquiry also uncovered a myriad of challenges faced by businesses in Zambia in the adoption of MIS for e-commerce. These challenges include operational disruptions due to implementation failures, concerns regarding data privacy and security, the risk of over-reliance on automated systems, and the need for continuous professional development to keep pace with technological advancements. Additionally, ethical considerations surrounding data use and the mismanagement of customer data emerged as significant obstacles, underscoring the importance of establishing clear guidelines and ethical standards for MIS utilization in e-commerce.

To address these challenges and maximize the benefits of MIS for e-commerce growth in Zambia, effective strategies were explored. These strategies include fostering interdisciplinary research and development efforts to drive innovation in MIS applications, strengthening industry-academia partnerships to enhance curriculum relevance and research applicability, and promoting collaborative research initiatives between academia, industry, and policymakers to drive sustainable MIS applications. Furthermore, building stronger partnerships between cloud service providers and e-commerce businesses, enhancing cooperation between academic researchers and industry practitioners, and investing in continuous training and updates for staff on new technologies were identified as essential strategies for optimizing MIS utilization and driving e-commerce growth in Zambia.

Lastly, while MIS adoption has contributed significantly to the growth of e-commerce in Zambia, challenges persist in its implementation. By addressing these challenges and implementing effective strategies for maximizing the benefits of MIS, businesses in Zambia can unlock new opportunities, drive innovation, and foster sustainable growth in the e-commerce sector.

6.3 Recommendations

In navigating the complexities of e-commerce growth within Zambia, the integration of Management Information Systems (MIS) stands as a critical driver of progress and innovation. Yet, alongside the opportunities brought forth by MIS adoption, challenges and hurdles have surfaced, necessitating strategic interventions to optimize its potential impact. Drawing upon the insights garnered from examining MIS adoption, its challenges, and effective strategies for enhancement, a series of recommendations emerge to guide businesses in Zambia towards sustainable e-commerce growth.

Firstly, the establishment of clear guidelines and ethical standards emerges as a cornerstone recommendation. By delineating frameworks governing the ethical use of MIS in e-commerce, businesses can foster consumer trust and industry growth while mitigating risks associated with data privacy and security. Such guidelines would serve to provide a roadmap for responsible data management practices, thereby instilling confidence in consumers and stakeholders alike.

Secondly, continuous investment in professional development emerges as imperative. Given the rapid evolution of technology, businesses must prioritize ongoing training and skill development for their workforce to remain abreast of emerging trends and best practices in MIS. By nurturing a culture of learning and adaptation, organizations can ensure that their employees possess the necessary competencies to leverage MIS effectively in driving e-commerce growth.

Furthermore, fostering collaboration and partnerships emerges as a key strategy for maximizing the benefits of MIS adoption. Strengthening ties between academia, industry, and policymakers can catalyze collaborative research initiatives aimed at developing sustainable MIS applications tailored to meet the unique needs of e-commerce in Zambia. By pooling expertise and resources across diverse stakeholders, businesses can unlock new avenues for innovation and advancement in the field.

Enhanced data security measures also feature prominently among the recommendations. In an era marked by increasing cyber threats and data breaches, businesses must prioritize the

adoption of robust security protocols and best practices in cloud management. By safeguarding the integrity of MIS infrastructure, businesses can instill confidence in consumers and mitigate risks associated with data breaches and compliance violations.

Moreover, a focus on promoting innovation and technology adoption emerges as crucial. Encouraging a culture of innovation and sustainability within e-commerce organizations can drive the development of cutting-edge MIS solutions that empower businesses to stay ahead of the curve. By investing in advanced analytics capabilities, fostering collaboration between academic researchers and industry practitioners, and leveraging customer feedback, businesses can drive continuous improvement and innovation in MIS applications.

In parallel, a customer-centric approach underscores the importance of balancing technological advancements with human touch points. By prioritizing personalized service delivery and empathetic interactions, businesses can ensure that customer's feel valued and understood amidst the digital transformation. Leveraging data insights for strategic planning and operational improvements while maintaining a keen focus on customer satisfaction can position businesses for long-term success in the competitive e-commerce landscape.

Lastly, a commitment to continuously evaluate and improve emerges as essential. Implementing feedback mechanisms between e-commerce businesses and MIS developers can drive iterative refinement of MIS solutions, ensuring that they remain relevant and effective in addressing evolving business needs. By soliciting input from end-users and incorporating their feedback into product development cycles, businesses can foster a culture of continuous improvement and innovation.

Therefore, the recommendations outlined above serve as guiding principles for businesses in Zambia seeking to maximize the benefits of MIS adoption for e-commerce growth. By embracing clear guidelines, investing in professional development, fostering collaboration, enhancing data security measures, promoting innovation, prioritizing customer-centric approaches, and committing to continuous evaluation and improvement, businesses can navigate the challenges of MIS adoption and unlock new opportunities for sustainable growth and success in the digital age.

6.3.1 Recommendations for future research

The study further recommends future research in the area of study as a suggestion. The particular area of study suggested is a longitudinal study to track the impact of MIS adoption on e-commerce growth over time. By observing trends and changes in MIS utilization and e-

commerce performance metrics longitudinally, researchers can gain deeper insights into the long-term effects and implications of MIS implementation on business outcomes.

REFERENCES

1. Adeoti, J.O. (2005) 'Information Technology Investment in SMEs in Sub-Saharan Africa: An Empirical Study of the Performance Impacts in Nigeria', *The International Journal of Information Management*, 25(5), pp. 469-482. DOI: 10.1016/j.ijinfomgt.2005.08.001

2. Adidja, L. A., & Baki, R. (2021). The impact of management information systems on e-commerce success in Africa. Journal of Electronic Commerce in Organizations, 19(2), 17-28.

3. Awoleye, O. O., et al. (2015). Consumer attitudes and perceptions towards online shopping in South Africa. Mediterranean Journal of Social Sciences, 6(4 S3), 167-176.

4. Babbie, E., & Mouton, J. (2004). The practice of social research. Oxford University Press.

5. Banda, D., & Lungu, D. (2023). The role of MIS in mitigating security risks in Zambia's e-commerce sector. Journal of Information Security, 22(2), 1-17.

6. Basu, S., et al. (2020). Blockchain and artificial intelligence in e-commerce: a review of the literature. Journal of Electronic Commerce Research, 21(4), 245-265.

7. Chaffey, D., and White, G. (2020) *Digital Marketing*, 7th ed. Pearson.

8. Chakraborty, A., & Gopalakrishnan, S. (2019). The impact of artificial intelligence on e-commerce. Journal of Electronic Commerce in Organizations, 17(3), 1-13.

9. Chanda, M., & Mumba, S. (2022). The impact of MIS on supply chain efficiency in Zambia's e-commerce sector. Journal of Information Technology Management, 23(3), 259-276.

10. Chen, Z., et al. (2018). Enhancing security and trust in e-commerce transactions with blockchain. Electronic Commerce Research and Applications, 29, 50-63.

11. Chikandiwa, T., et al. (2020). Factors influencing the adoption of management information systems in e-commerce in Zambia. Journal of Economics, Business and Management, 8(1), 13-20.

12. Cochran, W. G. (1977). Sampling techniques. John Wiley & Sons.

13. Diouf, M., & Niang, F. (2023). MIS Integration and E-commerce Performance: A Case of Senegal. Journal of Information Systems and E-commerce, 1(1), 44-57.

14. Hussen, A. (2021). Information Systems and E-commerce in Ethiopia: An Analysis. Journal of Business and Information Systems, 12(3), 22-31.

15. Iheanachor, N., & Osuagwu, U. (2022). The Role of MIS in E-commerce Security: A Nigerian Perspective. Journal of Business and Information Systems, 13(1), 22-34.

16. Johnson, L., & Johnson, R. (2023). Data Analytics and Customer Relationship Management in E-commerce: The Role of MIS. Journal of E-commerce Research, 15(2), 110-123.

17. Kabaale, E. (2011) 'E-commerce Barriers and Adoption by SMEs in Developing Countries: The Case of Uganda', Journal of Internet Banking and Commerce, 16(2), 1-19. Available at: http://www.icommercecentral.com/open-access/ecommmerce-barriers-and-adoption-by-smes-in-developing-countries-the-case-of-uganda.php?aid=38555

18. Khurana, R., et al. (2018). Management information systems and the customer experience in e-commerce: a review of the literature. Journal of Electronic Commerce in Organizations, 16(3), 1-14.

19. Kunda, I., & Chipulu, M. (2019). Adoption of MIS and the effectiveness and efficiency of e-commerce operations in Zambia. Journal of Business Research, 102, 356-363.

20. Laudon, K.C., and Laudon, J.P. (2020) *Management Information Systems: Managing the Digital Firm*, 16th ed. Pearson.

21. Mbogo, M., & Kajuna, L. (2022). The Impact of MIS on Supply Chain Management: Case Study of Tanzania's E-commerce Sector. African Journal of Business Management, 16(4), 68-79.

22. Molla, A., and Licker, P.S. (2005) 'eCommerce adoption in developing countries: a model and instrument', *Information & Management*, 42(6), pp. 877-899. DOI: 10.1016/j.im.2004.09.002

23. Moreau, R., & Dupont, C. (2022). The Impact of MIS on the Growth of Small and Medium-Sized E-commerce Enterprises: A Canadian Perspective. Journal of Business Information Systems, 18(3), 210-225.

24. Mukwiri, J. (2020). The Role of Public-Private Partnerships in Enhancing E-commerce: A Case Study of Kenya. African Journal of Business Management, 14(1), 56-66.

25. Mutula, S., & Kigongo-Bukenya, I. (2015). E-commerce adoption in developing countries: a model and instrument. Journal of Business Research, 68(9), 1902-1910.

26. Munalula, M. T., et al. (2020). Management information systems adoption and product availability in e-commerce businesses in Zambia. Journal of Management Information and Decision Sciences, 23(4), 287-296.

27. Mwale, W., & Phiri, L. (2023). The role of MIS in aiding the growth of e-commerce through efficient customer relationship management (CRM): Evidence from Zambian SMEs. Journal of Information Technology for Development, 29(1), 1-24.

28. Mulenga, S.C. (2023). Impact of Information Communications Technology on the Postal Sector: A Case Study of Zambia. University of Zambia.

29. Okereke, O. E., et al. (2019). The impact of cultural and social factors on the adoption and use of MIS in e-commerce in Africa: a review of the literature. Journal of Economics, Business and Management, 7(4), 214-221.

30. Owusu, A., Kwarteng, A., & Kyere, A. (2020). Role of MIS in E-commerce Growth: A Case Study of Ghana. Journal of Electronic Commerce in Organizations, 18(2), 1-16.

31. Pan, Y., et al. (2020). Risk and challenges in adopting emerging MIS technologies in e-commerce: a review of the literature. Journal of Electronic Commerce Research, 21(2), 140-154.

32. Olatokun, W.M., and Kebonye, M. (2010) 'e-Commerce Technology Adoption by SMEs in Botswana', *International Journal of Emerging Technologies and Society*, 8(1), pp. 42-56. Available at: http://www.swinburne.edu.au/hosting/ijets/journal/V8N1/pdf/Article3-Olatokun.pdf

33. Qoblex, 2021. The Role of Information Systems in eCommerce Operations. [online] Available at: https://qoblex.com/learning-center/information-systems/ [Accessed 18 March 2024].

34. Rahman, M. M., & Bhuiyan, M. A. H. (2019). Management information systems and e-commerce innovation and competitiveness: a review of the literature. Journal of Electronic Commerce in Organizations, 17(4), 1-17.

35. Raza, S. A., et al. (2021). Management information systems adoption and operational performance of e-commerce businesses. Journal of Business Research, 130, 684-692.

36. Sanzogni, L., et al. (2019). The role of management information systems in reducing transaction costs and enhancing market reach for e-commerce businesses. Journal of Business Research.

37. Schmidt, F., & Wagner, H. (2023). Personalizing Customer Experience in E-commerce through MIS: A German Perspective. European Journal of Marketing, 22(4), 33-47.

38. Solange, N. (2021). The Need for Strategic ICT Investments and MIS in Rwanda. African Journal of Information Systems, 13(2), 25-39.

39. Taylor, H., Jenkins, P., & Armstrong, G. (2022). MIS and E-commerce Logistics: A Study in the UK. International Journal of Supply Chain Management, 22(1), 44-56.

40. Tembo, N.J.M., 2023. The Impact of E-Marketing on Tourism Growth: The Case of Zambia. Master of Business Administration, University of Zambia.

41. Tining Haryanti, T. & Apol Pribadi Subriadi, A., 2019. 'Factors and Theories for E-Commerce Adoption: A Literature Review'. International Journal of Electronic Commerce Studies, [online] Available at:
https://www.researchgate.net/publication/346074031_Factors_and_Theories_for_E-Commerce_Adoption_A_Literature_Review [Accessed 18 March 2024]

42. Yoshida, T., & Tanaka, M. (2022). Enhancing E-commerce Agility through MIS: A Study in Japan. Asian Journal of Information Systems, 15(1), 60-75.

APPENDICES

Appendix I: Budget for the Research

Expense Item	Cost (ZMW)
Personnel	
Research Assistants (2)	3,000
Data Analyst	3,000
Subtotal	6,000
Research Materials	
Questionnaire printing	3,000
Documentary guide printing	2,000
Photocopying and Stationery	500
Subtotal	5,500
Data Collection	
Transportation and Fuel	2,000
Meals	1,500
Communication (phone, internet)	1,500
Subtotal	5,000
Data Analysis	
Statistical Software	2,500
Computer and Accessories	1,000
Subtotal	3,500
Miscellaneous	500
Total	**20,500**

Appendix II: Gantt Chart

NO	DESCRIPTION	DURATION IN MONTHS								
		5	6	7	8	9	10	11	12	2
1	RESEARCH TOPIC FORMULATION	▓								
2	PREPARATION OF PROPOSAL		▓	▓						
3	SUBMISSION OF PROPOSAL				▓					
4	QUESTIONAIRE DESIGN					▓				
5	FIELD RESEARCH AND DATA COLLECTION						▓			
6	DATA ANALYSIS						▓			
7	DISSERATION DRAFTING							▓		
8	THESIS PROOFING/CHECKING							▓		
9	SUBMISSION OF THESIS								▓	
10	THESIS PRESENTATION (TBA)									▓

Appendix III : Questionnaire

Section 1: Demographic Information

Name (Optional):

Age:

Gender:

Position/Job Title:

Length of Employment:

Business name(optional):

1. What is the name of your e-commerce business?

2. How long has your e-commerce business been operating?

3. What is the nature of your e-commerce business?

4. What is the annual turnover of your e-commerce business?

5. What is the size of your e-commerce business (in terms of number of employees)?

Section 2: Management Information Systems (MIS)

6. Does your e-commerce business use a Management Information System (MIS)?

    a) Yes

    b) No

7. What type of MIS does your e-commerce business use?

    a) Enterprise Resource Planning (ERP) System

    b) Customer Relationship Management (CRM) System

    c) Supply Chain Management (SCM) System

    d) Other (please specify) _____

8. How does your e-commerce business use MIS?

    a) To manage inventory and order processing

    b) To track customer behaviour and preferences

    c) To analyse sales and revenue data

    d) To manage relationships with suppliers and partners

    e) Other (please specify) _____

Section 3: Benefits and Challenges of using MIS

9. What are the main benefits of using MIS in your e-commerce business?

    a) Improved efficiency and productivity

b) Better decision-making

c) Increased customer satisfaction

d) Reduced costs

e) Other (please specify) _____

10.   What are the main challenges of using MIS in your e-commerce business?

a) Cost of implementation and maintenance

 b) Complexity of system

c) Resistance to change among employees

d) Lack of expertise in managing the system

e) Other (please specify) _____

Section 4: E-commerce Adoption and Growth

11.   How long has your e-commerce business been conducting online transactions?

 a) Less than 1 year

b) 1-3 years

c) 3-5 years

d) More than 5 years

12.   What percentage of your total sales comes from online transactions?

a) Less than 25%

b) 25-50%

c) 50-75%

d) More than 75%

13.   How has the growth of your e-commerce business changed over the past 3 years?

 a) Increased significantly

b) Increased moderately

c) Stayed the same

d) Decreased moderately

 e) Decreased significantly

Section 5: Perceived Effects of MIS on E-commerce Growth

14.   To what extent do you believe that MIS has contributed to the growth of your e-commerce business?

a) Strongly agree

 b) Agree

c) Neutral

d) Disagree

e) Strongly disagree

15.   In your opinion, what is the relationship between MIS and e-commerce growth in Zambia?

a) MIS is essential for e-commerce growth

b) MIS is important but not essential for e-commerce growth

c) MIS has little or no impact on e-commerce growth

16. What should be done to improve the relationship between MIS and e-commerce?

Thank you for your participation in this survey. Your responses are important to us and will help us better understand the effects of MIS on e-commerce growth in Zambia.

Appendix iv: Interview guide

Documentary Guide

Thank you for agreeing to participate in this research study. The purpose of this documentary guide is to explore the emerging effects of Management Information Systems (MIS) on the growth of e-commerce in Zambia. Your participation will help to provide insight into the current trends and issues related to MIS and e-commerce in Zambia.

Name (Optional):

Age:

Gender:

Position/Job Title:

Length of Employment:

Business name(optional):

1. What are the main trends and issues related to MIS and e-commerce in Zambia?
2. How have e-commerce businesses in Zambia used MIS to overcome challenges?
3. What are the prospects and challenges of using MIS for e-commerce growth in Zambia?
4. How has the implementation of MIS affected the performance of e-commerce businesses in Zambia?
5. What are some of the key factors that influence the adoption of MIS in the e-commerce industry in Zambia?
6. How does MIS contribute to the competitiveness of e-commerce businesses in Zambia?
7. What are some of the potential risks associated with using MIS in the e-commerce industry in Zambia?
8. How can e-commerce businesses in Zambia maximize the benefits of MIS for growth and success?
9. What are some of the emerging technologies in MIS that are likely to impact the e-commerce industry in Zambia in the future?
10. What should be done to improve the relationship between MIS and e-commerce?

Thank you for taking the time to participate in this documentary guide. Your input is greatly appreciated and will be used to inform the research study.

Appendix v: Ethical Approval

THE UNIVERSITY OF ZAMBIA
DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Gr

eat East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777 **Fax**: (+260)-211-290 258/253 952 | E-**mail**: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464
 REF NO. HSSREC-2024- MAR-020

 19th March, 2024

Ms. Jokiwe Tembo
The University of Zambia
P.O. Box 32379
LUSAKA

 Dear Ms. Tembo

RE: **"EFFECTS OF MANAGEMENT ONFORMATION SYSTEMS ON THE GROWTH OF E-COMMENCE IN ZAMBIA."**

Reference is made to your submission of the protocol captioned above. The HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. HSSREC:-2024- MAR – 020
Approval and Expiry Date	Approval Date: 19th March, 2024	Expiry Date: 18th March, 2025
Protocol Version and Date	Version - Nil.	18th March, 2025
Information Sheet, Consent Forms and Dates	⬜ English.	To be provided
Consent form ID and Date	Version - Nil	To be provided

Recruitment Materials	Nil	Nil
Other Study Documents	Questionnaire.	
Number of Participants Approved for Study		

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

CONDITIONS OF APPROVAL

• No participant may be involved in any study procedure prior to the study approval or after the expiration date.

• All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.

• All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.

• All protocol deviations must be reported to HSSREC within 5 working days.
• All recruitment materials must be approved by HSSREC prior to being used.
• Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.

• It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.

• Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled "late submissions" and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.

• Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
• When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.

• In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.

- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.

  • A reprint of this letter shall be done at a fee.

  • All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,

DR. J. I. Ziwa

CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND SOCIAL
SCIENCES RESEARCH ETHICS COMMITTEE - IRB

CC: Director, Directorate of Research and Graduate Studies
　　　Assistant Director (Research), Directorate of Research and Graduate
Studies Assistant Registrar (Research), Directorate of Research and Graduate Studies