ENHANCING IT SUPPORT IN ZIMBABWE THROUGH TICKETING SYSTEMS: Case of Kenac Computer Systems

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ENHANCING IT SUPPORT IN ZIMBABWE THROUGH TICKETING
SYSTEMS: Case of Kenac Solutions

BY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
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Abstract

The rapid advancement of information technology (IT) highlights the need for efficient IT support systems to ensure smooth business operations. Many organizations in Zimbabwe face challenges such as delayed response times, disorganized workflows, and ineffective issue resolution. This research examines the role of ticketing systems in enhancing IT support services, focusing on Kenac Computer Systems, a leading IT service provider in Zimbabwe. By employing a mixed-methods approach, the study combines qualitative data from semi-structured interviews and observations with quantitative data from IT support databases and system logs. Findings indicate that ticketing systems significantly improve response times, issue resolution, and overall service delivery, leading to higher customer satisfaction. Recommendations include adopting advanced ticketing systems with features like automated ticket categorization, prioritization, and real-time updates to boost IT support efficiency. Additionally, the study emphasizes the importance of user training, infrastructure upgrades, and data security measures to ensure successful implementation. These insights contribute to the broader discussion on improving IT services in developing nations, offering practical solutions for businesses seeking to enhance their support infrastructure.

Key words: Customer Satisfaction, Ticketing systems, IT Support

Declaration

I, Lunga Kimberly Nandi declare that this dissertation is my original work except where sources have been cited and acknowledged. The work has never been submitted, nor will it ever be submitted to another university for the award of a degree. This was done with the close supervision of my supervisor.

27 MARCH 2025

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Acknowledgment

Dedication

I dedicate this thesis to my beloved father, the late great Denson Juwao Lunga whose memory and guidance still inspires me every day, and to my incredible mother, Rumbidzayi Lunga, whose love, encouragement, and strength have been my rock throughout this journey. This work is a testament to the both of you, and I am forever grateful for everything you have done for me.

List of Acronyms and Abbreviations

IT-Information Technology

ATTS- Advanced Technology Based-Ticketing Systems

ID – Identification or Identity

AI- Artificial intelligence

NLP- Natural Language Processing

SMEs- Small and Medium Enterprises

FAQs- Frequently Asked Questions

KPI-Key Performance Indicators

CRM- Client Relationship Management

MFA- Multi-Factor Authentication

IDPS - Intrusion Detection and Prevention System

GDPR - General Data Protection Regulation

SLA - Service Level Agreement

NGO - Non-Governmental Organization

Definition of Key Terms

IT support services: This refers to the vital technological help and solutions that businesses need to guarantee the seamless operation of their IT infrastructure. This is especially important as technology usage rises across a range of industries.

Ticketing Systems: A piece of software that businesses use to track and manage issues or requests for customer support. Users can submit "tickets" for issues or questions, and support teams will track, assign, and manage them to guarantee prompt responses and solutions.

Custom Ticketing System: A software program created to specifically address the requirements of a company, especially small firms.

Advanced IT Support Systems: Complex systems that incorporate contemporary technology like data analytics and algorithms.

IT Support Efficiency: The capacity of IT support systems to address technical difficulties raised by clients or staff members in a timely and efficient manner, lowering response times and enhancing service quality.

Implementation bottlenecks: Roadblocks or challenges that could occur when implementing innovative technologies, such as problems with system integration, data security, local regulatory compliance, and other logistical difficulties.

User Adoption and Training: The process of ensuring that end-users (IT support teams, employees, etc.) are willing and able to effectively use the new ticketing system, including addressing the need for training and support to facilitate smooth integration.

Informed Consent: An essential ethical principle that mandates that researchers fully disclose to participants the goals, methods, risks, advantages, and their freedom to discontinue participation at any moment without incurring penalties.

Autonomy: The idea that study participants should be free to choose whether to participate, including the option to withdraw from the study at any time without facing repercussions or being forced to do so.

Issue resolution: the process of addressing and resolving technical issues or concerns brought up by users; it is a crucial component of user satisfaction with IT assistance.

Response Times: The duration for the IT support staff to recognize and start working on a user's request or problem.

Proactive support: involves foreseeing and resolving any problems before users encounter them, as opposed to waiting for concerns to be reported. This type of service has the potential to increase customer happiness.

Personalized Support: Tailoring assistance to individual user needs, which can increase user satisfaction by making interactions more relevant and responsive to their specific situations.

Infrastructure Investments: The funds and resources needed to upgrade and maintain the technological and physical infrastructure that supports sophisticated systems, such as boosting server capacity, modernizing ticketing systems, and enhancing networks.

Automation and machine learning: These technologies help the ticketing system improve efficiency and response times by allowing it to do activities like routing and classification automatically based on data trends.

Cloud-based solutions: IT systems that are housed on the cloud and give IT support teams flexibility, scalability, and remote access. These technologies might be particularly helpful for supporting remote teams and managing heavier demands.

Redundancy solutions: Failover protocols and backup systems that automatically transition to backup systems to maintain operations in the event of technological disturbances, such as hardware failures or cyberattacks.

Non-governmental organizations (NGOs): Charitable organizations that function separately from governments. With the goal of enhancing lives and advancing development, they concentrate on social, environmental, or humanitarian issues. NGOs provide services, advocacy, and help locally or internationally with funding from donations or grants.

Contents

CHAPTER 1 INTRODUCTION

1.1Introduction

In the modern world, IT support services are considered one of the key dependencies in organizations. As technology advances rapidly across many industries, there is a growing need for strong and efficient IT solutions. However, the supporting systems in the country often fail to meet this increasing demand. Slow response times are a major concern, leading to high operational costs, which frequently frustrate users and, in turn, affect a company's productivity and innovation. This issue is particularly relevant to companies that provide small-scale application services, such as internet or cable TV. To offer their clients a ticketing system, such a system must be specially developed to meet their requirements and remain affordable.

1.2Background to the study

The field of IT support services plays a crucial role in ensuring business continuity and operational efficiency in Zimbabwe. As technology evolves rapidly across various industries, the demand for efficient and reliable IT support solutions increases significantly. However, many traditional support systems in the country are plagued by inefficiencies, including slow response times, high operational costs, and ineffective issue resolution. These challenges lead to user dissatisfaction, disrupt workflows, and hinder business growth and innovation.

Many organizations, including Kenac Computer Systems, encounter difficulties in maintaining streamlined IT support services. Traditional IT support relies heavily on manual processes, making issue tracking and resolution cumbersome. This often results in disorganized workflows, prolonged downtime, and a lack of accountability in service delivery. As service demands grow, these outdated support systems struggle to keep pace, further exacerbating inefficiencies and reducing overall effectiveness.

To address these challenges, businesses are exploring the implementation of ticketing systems as a means of optimizing IT support operations. Ticketing systems provide a structured approach to issue tracking and resolution, allowing for better organization, prioritization, and accountability. More advanced ticketing solutions incorporate artificial intelligence (AI), particularly machine

learning (ML) and natural language processing (NLP), to enhance the speed and accuracy of IT support services. These AI-driven systems automate issue categorization, analyze user queries, and facilitate faster responses, significantly reducing downtime and improving operational efficiency.

This study investigates the current state of IT support in Zimbabwe, with a particular focus on Kenac Computer Systems, and examines the potential benefits of integrating ML-based ticketing systems. It seeks to evaluate how these systems improve efficiency, accountability, and service quality within IT support frameworks. Additionally, the research explores how modern IT support solutions contribute to the broader development of Zimbabwe's technology sector, enabling businesses to remain competitive in an increasingly digital economy.

By analyzing the impact of AI-powered ticketing systems, this study provides valuable insights into how Zimbabwean organizations can enhance their IT support structures. The findings aim to guide businesses in making informed decisions about adopting innovative IT solutions that drive improved customer satisfaction, reduced operational costs, and long-term sustainability in IT service management.

1.3. Statement of Problem

Customer service is a fundamental aspect of the technological industry, playing a vital role in ensuring user satisfaction and operational efficiency. However, conventional helpdesk and ticketing systems are often inefficient, costly, and inconvenient for both customers and employees. These shortcomings result in reduced productivity, higher operational costs, and hinder overall business growth. Junior-Ladeira, Wittmann, and Lubeck (2009) note that as the demand for IT support and customer service grows, automated systems encounter significant challenges in maintaining efficiency, particularly in managing workflow and response times. The inefficiency of traditional support systems leads to delays in resolving customer issues, affecting customer satisfaction and business performance.

Organizations that provide extensive customer support to a particular group of clients often find it difficult to maintain service quality while keeping costs manageable. While large corporations can afford comprehensive commercial software solutions, small and medium-sized enterprises

(SMEs) find such solutions expensive and often unsuitable for their specific operational needs. Bardin (1977) points out that most commercial software applications are designed for large-scale enterprises and include an array of features that smaller businesses rarely require. As a result, smaller organizations face a dilemma: either invest in costly software packed with unnecessary functions or continue relying on outdated and inefficient support systems.

A more practical solution is the development of customized ticketing systems tailored to an organization's specific requirements. Unlike commercial software, which often contains excessive features irrelevant to smaller businesses, custom-built applications focus on essential functionalities, making them both cost-effective and efficient. These tailored solutions ensure that only relevant tools are integrated into the system, thereby reducing complexity and lowering expenses. With a customized approach, businesses can enhance their IT support services while maintaining financial sustainability.

In Zimbabwe, many companies, including Kenac Computer Systems, struggle with inefficient IT support systems characterized by slow response times, ineffective issue-tracking mechanisms, and high maintenance costs. These challenges hinder the smooth operation of businesses and negatively impacto customer service. As technology continues to evolve, there is an increasing need for an advanced ticketing system that improves efficiency, accountability, and service delivery. By incorporating modern technologies such as machine learning and natural language processing, businesses can develop intelligent ticketing systems capable of automatically categorizing and prioritizing issues. This results in faster response times, enhanced service quality, and improved overall operational performance.

Thus, this study seeks to examine the limitations of existing IT support systems in Zimbabwe, with a particular focus on Kenac Computer Systems, and to explore how implementing a more sophisticated ticketing system can address these inefficiencies. The research aims to highlight how an advanced system can streamline IT support services, improve customer service operations, and contribute to overall business development by ensuring that IT support services meet the growing demands of an increasingly digital landscape.

1.4 Research Objectives.

1.To assess the impact of modern technology-powered ticketing systems on improving IT support efficiency in **Kenac Computer Systems**.

2.To identify how sophisticated technology enhances customer satisfaction and overall service delivery in the context of IT support.

3.To recommend possible solutions associated with the introduction of advanced technology-powered ticketing systems, including budgetary implications, data management issues, and talent requirements.

1.5 Research Questions

1. How do modern technology-driven ticketing systems improve the effectiveness of IT support activities within Kenac Computer Systems?

2. How does the integration of advanced technology in ticketing systems contribute to improved customer satisfaction and service delivery in IT support?

3. What are the potential solutions to address the challenges (budgetary, data management and talent requirements) associated with the implementation of advanced technology-powered ticketing systems?

1.6 Assumptions/Hypothesis

1. Implementing innovative technology-driven ticketing systems is expected to significantly improve the efficiency of IT support operations.
2. It is projected that the implementation of advanced technology-driven solutions would result in a significant reduction in the time required to resolve IT issues within organizations.
3. Advanced technologies are expected to improve user satisfaction with IT support services, resulting in more effective service delivery.

1.7 SIGNIFICANCE OF STUDY

1.7.1 Significance of the study to the researcher

The study provides the researcher with updated information to understand the various institutional, technical, and socio-economic factors essential for implementation. It also offers insights that policymakers and legislators may have previously overlooked in their role of guiding the formulation of policies for the introduction of Advanced Technology-Based Ticketing Systems (ATTS) in Zimbabwe. The research findings help bridge the gap between ATTS innovations and their practical application, enhancing IT support utilization and improving user satisfaction. Additionally, the study assists Kenac Computer Systems, an IT consulting organization in Zimbabwe, in identifying the opportunities and challenges associated with high-tech ticketing systems.

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1.7.2 Significance of study to the business industry.

The study provides business researchers with useful insights, including a thorough understanding of the critical prerequisites for successful implementation. It also provides practical advice on making strategic decisions and implementing operational procedures to integrate advanced technology-based ticketing systems (ATTS) into business operations. These findings may help bridge the gap between ATT innovation and its practical use in improving IT support performance and customer satisfaction in enterprise environments.

In addition, the project promotes interdisciplinary collaboration by encouraging conversations between people from diverse backgrounds to solve complex problems at the intersection of technology, business strategies, and customer experience. Finally, the study of ATTS in business environments enables researchers to significantly contribute to the optimization of IT support systems, the improvement of service delivery, and the promotion of enterprise spiritual growth.

1.8 Delimitation of study

Some findings within the research do not apply to firms located in other regions or countries with different conditions. While this targeted approach provides specific insights into how various challenges and perspectives differ, it limits the study's broader applicability. Furthermore, the study primarily examines the impact of high-tech ticketing system management on support efficiency and user satisfaction. Although these aspects are significant, other crucial factors, such as cost reduction, workforce expansion, and the long-term development of technology and its benefits, are overlooked.

As a result, the investigation of the impact of advanced technology on business performance, employee motivation, and IT department strategies provides a more comprehensive understanding of the benefits and drawbacks of such technologies. While the research offers extensive information on efficiency and user satisfaction, the lack of consideration for other organizational factors means that it is limited in presenting a holistic view.

Compared to small businesses or startups, larger organizations typically have more resources and face more complex demands on IT support. Therefore, the barriers and benefits identified in the study might not be directly applicable to smaller firms due to their unique resource constraints and operational needs. The findings are more suited to larger firms, making it difficult to generalize the study's conclusions about smaller enterprises. Consequently, limiting the study to only two firms restrict its applicability to a broader range of businesses.

1.9 Limitations of the Study

The software does not address failovers or redundancy deployments, making it vulnerable to downtime in the event of a system failure. As a result, if a problem occurs, there is no backup mechanism to ensure continuity, leading to inevitable service disruptions. This limitation highlights the need for more robust IT support solutions that incorporate failover strategies and redundancy measures to enhance system reliability and minimize downtime.

This project aims to understand and develop JAVA and database technologies, such as Model-View-Controller (MVC) Architecture, to improve IT support systems. By leveraging these technologies, the study seeks to enhance the efficiency and organization of IT support operations. However, by focusing solely on powered ticketing systems, the research overlooks alternative applications or technologies that could potentially improve IT support productivity (Johnson, 2023). Other advanced solutions, such as cloud-based service management, artificial intelligence-driven support automation, and predictive analytics, may offer additional benefits that are not considered within the scope of this study.

This narrow focus may disregard the advantages of integrating multiple technologies, thereby limiting the scope of recommendations for IT support enhancement (Johnson, 2023). A broader approach that incorporates emerging innovations could provide a more comprehensive framework for IT service management, addressing inefficiencies beyond just ticketing systems. Nevertheless, this approach maintains the requirements at a minimal functional level for the ticketing system, ensuring adequate time for development, testing, and documentation. By keeping the system design streamlined, the project ensures that the core functionalities of issue tracking, response management, and service resolution are effectively implemented without unnecessary complexity.

CHAPTER 2: REVIEW OF RELATED LITERATURE.

2.1 Introduction

The integration of sophisticated technology into IT support systems had garnered widespread interest due to its potential to enhance operational efficiency and service delivery. Modern ticketing systems, which utilized algorithms and data analytics, represented a significant advancement in the field. These solutions improved IT assistance by automating issue categorization, prioritization, and resolution, leading to faster response times and increased customer satisfaction.

The development of IT support systems could be traced back to early experiments that emphasized their transformative impact on client service operations. According to Gartner (2020)**,** advanced IT support systems reduced resolution times by over 50%, demonstrating significant improvements over traditional, manual approaches. Additionally, McKinsey (2018) reported that companies that adopted advanced technologies in their IT support experienced substantial productivity gains and lower operational costs.

However, deploying modern ticketing systems presented several challenges. Bessen (2019) indicated that while technology significantly improved operational efficiency, it required substantial investments in infrastructure and training. Data management, privacy concerns, and the need for specialized skills were major obstacles to adoption, particularly in developing nations like Zimbabwe. As tickets moved through the system, they were often classified based on issue type, determining the required skill set and expertise level of the assigned agents. Until resolved, the "open ticket" remained in the workflow queue, with higher-priority issues receiving precedence.

This section provided a thorough examination of existing research on advanced ticketing systems in IT support services. It reviewed various research articles and industry reports, systematically assessing the potential benefits, significant challenges, and overall impact of implementing such technologies. By synthesizing this body of research, the review aimed to present a comprehensive overview of both current and future opportunities for technology-driven solutions in the IT support sector. This detailed analysis sought to offer valuable insights that could shape

future discussions and assessments, as well as provide strategic guidance and informed perspectives for stakeholders navigating the evolving landscape of IT support.

2.2 Theoretical Framework

2.2.1 Data-Driven Decision-Making Framework (KPMG, 2019; Gartner, 2021).

The Data-Driven Decision-Making Framework (KPMG, 2019; Gartner, 2021) highlights the significance of real-time data analytics in enhancing IT service management by utilizing both historical and live data for improved decision-making. In the context of IT support, this approach enables organizations to examine ticketing patterns, detect recurring technical issues, and implement initiative-taking measures to boost efficiency.

2.2.2 Technology Acceptance Model (2020)

The Technology Acceptance Model (TAM), originally developed by Davis (1989), has been widely used to explain how users adopt and interact with modern technology. Recent advancements (2020 onwards) have expanded the model to accommodate emerging technologies like AI-driven IT support, automation, and cloud-based ticketing systems. The model now considers factors such as AI-assisted decision-making, system interoperability, and user adaptability to automation. Additionally, TAM has been integrated with other frameworks, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), to better assess modern IT environments. These updates make TAM highly relevant for evaluating the adoption of AI-powered ticketing systems in organizations like Kenac Computer Systems, where efficiency and user acceptance are critical for success.

2.3 Relevance of theoretical frame to the study

The Technology Acceptance Model (TAM) plays a crucial role in analyzing how employees and IT personnel at Kenac Computer Systems adopt and interact with a ticketing system. Since the effectiveness of IT support depends on user engagement, perceived usefulness (PU) and perceived ease of use (PEU) are key determinants of system adoption. If users find the system intuitive, efficient, and beneficial for IT issue resolution, its acceptance will increase, leading to better service delivery. With advancements in AI-driven ticketing and automation, TAM helps assess how features like automated ticket categorization, machine learning-based prioritization,

and user-friendly interfaces contribute to system efficiency. By applying TAM, Kenac can develop user training programs and awareness campaigns to facilitate seamless adoption, ensuring that the system is effectively utilized to minimize downtime and enhance customer satisfaction.

The Data-Driven Decision-Making Framework complements TAM by optimizing IT support operations at Kenac Computer Systems through real-time and historical data analysis. By monitoring ticketing trends, identifying recurring IT issues, and predicting potential system failures, the company can make informed decisions that enhance service efficiency. This framework enables automated ticket prioritization, ensuring that critical IT concerns receive immediate attention, thereby improving response times. Additionally, analyzing performance indicators such as average resolution time, ticket volume fluctuations, and user satisfaction levels provides actionable insights to refine IT support strategies. For Kenac, operating in a developing IT sector, a data-driven approach ensures proactive issue resolution, minimizes service disruptions, and enhances long-term IT system improvements, fostering trust and reliability in IT support services.

By integrating TAM and the Data-Driven Decision-Making Framework, Kenac Computer Systems can ensure the effective adoption and continuous improvement of its ticketing system, leading to greater efficiency, enhanced service delivery, and more effective IT support operations in Zimbabwe.

2.4 Summary

The study applies two theoretical frameworks to enhance IT support at Kenac Computer Systems the Data-Driven Decision-Making Framework and the Technology Acceptance Model (TAM). The Data-Driven Decision-Making Framework highlights the role of real-time and historical data in optimizing IT service management. By analyzing ticketing trends, identifying recurring issues, and predicting potential system failures, Kenac can implement initiative-taking solutions that enhance response times, minimize downtime, and improve overall IT efficiency.

By combining TAM and the Data-Driven Decision-Making Framework, Kenac Computer Systems can ensure the effective adoption and continuous improvement of its IT support

infrastructure. This integration fosters initiative-taking issue resolution, streamlined workflows, and enhanced IT service quality, positioning the company for greater operational efficiency and improved customer satisfaction in Zimbabwe's IT sector.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The study targeted Zimbabwe's IT support workers and stakeholders, particularly those familiar with advanced ticketing systems. This included IT support staff from various organizations, stakeholders involved in IT decision-making processes, and users of ticketing systems such as Zendesk. Furthermore, the research sought input from a wide range of professionals, including technical support agents, system administrators, IT managers, and other key individuals responsible for implementing or overseeing IT solutions within organizations.

It also involved decision-makers, such as senior IT executives, who played a crucial role in the adoption and integration of these technologies. By engaging a diverse group of stakeholders, ranging from those who managed and supported the systems to the end-users who interacted with them daily, the study offered a well-rounded perspective on the real-world challenges, user experiences, and potential benefits of advanced ticketing systems in the Zimbabwean context.

3.3.2 Sampling procedure

Purposive sampling was employed to identify participants with relevant expertise in implementing and utilizing advanced ticketing systems. This method facilitated the selection of individuals with substantial experience in IT support, enabling the study to gather valuable insights into enhancing IT support efficiency in Zimbabwe through the adoption of ticketing systems.

This approach proved to be highly suitable for the research, as it allowed for the identification of participants who possessed in-depth knowledge of both the advantages and challenges associated with these technologies. By focusing on individuals directly involved in IT support operations, decision-making, and system integration, the study ensured the collection of rich and insightful data.

Additionally, purposive sampling made it possible to engage key stakeholders, including IT managers, system administrators, and helpdesk personnel, who had firsthand experience managing and utilizing ticketing frameworks. By incorporating perspectives from both technical professionals and decision-makers, the research provided a well-rounded understanding of the practical impacts and potential enhancements of advanced ticketing systems within Zimbabwe's IT landscape.

3.3.3 Sample Size

To determine the sample size, the study **utilized** the formula for calculating sample size in qualitative research, ensuring the collection of detailed and in-depth data:

n=Z2×p×(1−p) E2n = \frac {Z^2 \times p \times (1 - p)} {E^2} n=E2Z2×p×(1−p)

Where:

- **N** represented the sample size.
- **Z** was the Z-value (e.g., 1.96 for a 95% confidence level).
- **P** was the estimated proportion of the population (typically 0.5 for maximum sample size).
- **E** was the margin of error.

For example:

- **Z** = 1.96 (for a 95% confidence level)
- **P** = 0.5 (for maximum variability)
- **E** = 0.1 (10% margin of error)

As a result, the study **determined** that a sample size of approximately 96 participants **was** necessary to ensure a thorough understanding of the subject matter while minimizing potential non-responses. To further enhance the reliability of the findings, the study **aimed** to target 100 participants.

3.4 Data collection instruments

Qualitative data was gathered through semi-structured interviews with IT support experts, stakeholders, and users of ticketing software. These interviews offered key insights into their experiences, challenges, and viewpoints regarding the implementation and efficiency of advanced ticketing systems. Additionally, direct observations of IT support operations and system interactions were conducted to gain a more in-depth understanding of how these technologies were applied in practical settings. This method enabled the researcher to observe firsthand how IT professionals managed support requests, how tickets were classified and processed, and the overall efficiency of workflow operations.

Quantitative data, including ticket resolution times, response rates, and user satisfaction scores, was collected to provide measurable indicators of the impact of ticketing systems on IT support effectiveness. These numerical findings were analyzed to identify patterns, assess system

efficiency, and determine whether the integration of advanced ticketing solutions enhanced service quality. By utilizing both qualitative and quantitative research methods, the study ensured a thorough evaluation of the effectiveness, challenges, and potential improvements of ticketing systems in Zimbabwe's IT support industry.

3.5 Data Collection Procedure

The project collected qualitative data through semi-structured interviews with IT support staff, stakeholders, and users of ticketing systems. These interviews provided valuable insights into their experiences, perceptions, and challenges associated with the implementation and usage of advanced ticketing solutions. Additionally, systematic observations were conducted throughout the IT support cycle to analyze user interactions with the system and identify potential areas for improvement. By observing real-time IT support operations, the study gained a deeper understanding of how service requests were processed, how users engaged with the ticketing system, and the obstacles they encountered in daily operations.

Quantitative data was acquired from IT support databases, system logs, and incident reports to determine the impact of ticketing systems on incident response and resolution times. The study examined metrics such as average ticket resolution times, response efficiency, and customer satisfaction ratings to evaluate the overall effectiveness of the ticketing system in improving IT support services. Statistical analyses were performed to identify trends, correlations, and areas requiring optimization.

By employing a mixed-methods approach, the study offered a holistic perspective on the implementation and performance of ticket management systems. The integration of qualitative and quantitative data ensured a comprehensive evaluation of both the operational benefits and the practical challenges associated with ticketing system adoption. The findings provided critical insights into how these technologies enhanced IT support efficiency, reduced resolution delays, and contributed to a more streamlined and effective service delivery model.

3.6 Analysis and Organization of Data

Interviews with IT professionals and stakeholders were carefully transcribed and analyzed to identify recurring themes, trends, and key insights regarding the adoption and impact of ticketing systems. This qualitative analysis offered a deeper understanding of participants' experiences,

challenges, and perspectives on how these systems influenced IT support efficiency. By recognizing common patterns, the study provided valuable insights into the attitudes of IT specialists and decision-makers toward the integration of ticketing solutions in IT service management.

Simultaneously, a thorough quantitative analysis was conducted to evaluate IT support performance before and after the deployment of ticketing systems. The study examined variations in ticket resolution times, service request backlogs, and user satisfaction levels to measure the effectiveness of these technologies. Key indicators, such as response speeds, the number of resolved tickets, and customer feedback ratings, were analyzed to determine improvements in service quality and operational effectiveness.

To ensure accurate assessment, statistical techniques were applied to detect significant patterns or trends in IT support performance. Methods such as regression analysis and hypothesis testing were utilized to establish whether observed improvements were statistically significant or resulted from other external factors. The research adopted a mixed-methods approach, integrating both qualitative and quantitative data, to deliver a comprehensive evaluation of the impact of ticketing systems on IT support operations.

By merging qualitative insights with empirical data, the study provided a well-rounded perspective on how ticketing systems contribute to enhanced IT service management. Additionally, it identified key challenges such as system integration complexities, training needs, and potential resistance from IT staff. These findings offered practical recommendations for improving the adoption and effectiveness of ticketing solutions, supporting better decision-making in IT support management.

3.7 Ethical Considerations

Ensuring the rights and welfare of study participants was essential for ethical research, and this responsibility was typically guided by ethics committees. Central to ethical research was the principle of informed consent, which required that participants were fully informed about the study's purpose, procedures, risks, and benefits and were made aware of their right to withdraw at any time without penalty. Respecting participants' autonomy included ensuring that they felt free to discontinue participation at any point without negative consequences. Privacy and

confidentiality were also critical considerations, especially when managing sensitive data, which had to be securely stored, anonymized, and shared only as necessary, in compliance with legal and institutional standards.

Researchers were also responsible for minimizing any potential harm to participants, whether physical, emotional, or psychological, and took steps to safeguard participants' well-being, particularly when studying vulnerable populations such as children, individuals with disabilities, or marginalized communities. Additionally, maintaining objectivity in research design and execution was essential, and researchers were expected to be transparent about any conflicts of interest, ensuring that their findings were reported honestly and without bias. In cases where results had significant implications, researchers communicated their findings clearly to participants and relevant stakeholders, upholding both scientific integrity and respect for those involved. Ethical research not only protected participants but also strengthened the credibility and reliability of scientific findings, reinforcing public trust in research practices.

3.8 Summary

Chapter 3 explored the research methodology, and the various approaches used to assess the effectiveness of ticketing systems in improving IT support efficiency in Zimbabwe. It provided a comprehensive discussion of the study's objectives, emphasizing the use of both qualitative and quantitative research methods to ensure a well-rounded analysis. The chapter also outlined the research design, explaining the justification for the chosen methods and their relevance to the study's overall aims.

The study examined the adoption and integration of ticketing systems within Zimbabwe's IT infrastructure, assessing their compatibility with existing frameworks and compliance with legal and regulatory standards. Additionally, it investigated the challenges associated with implementing these systems and the strategies organizations employed to enhance IT support services.

The chapter further described the demographic profile of the target population, and the sampling techniques used to select participants. It detailed the data collection process, including surveys, interviews, and document reviews, as well as the tools and instruments utilized to gather relevant

information. Moreover, it explained the methods used for processing and analyzing the collected data, ensuring that both qualitative and quantitative findings were systematically interpreted.

Ethical considerations were also a key focus, with the chapter outlining the steps taken to protect participants' rights, such as obtaining informed consent, maintaining confidentiality, and adhering to institutional and regulatory ethical guidelines. By covering these methodological aspects, Chapter 3 established a strong framework for the study, ensuring the credibility, reliability, and ethical integrity of the research findings.

CHAPTER 4: DATA REPRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

In this chapter, the data collected throughout the study was presented and interpreted to address the study's objectives. It began with an overview of the methods and procedures that were employed to gather both qualitative and quantitative data, detailing the steps taken to ensure accuracy, reliability, and validity in the research findings. The processes used to clean, organize, and prepare the data for analysis were also discussed, highlighting efforts to minimize errors and biases in data interpretation.

Following this, the chapter provided an in-depth analysis of the findings, examining their alignment with the research objectives and identifying significant trends, patterns, and correlations. The results were systematically explored, offering insights into the extent to which ticketing systems had improved IT support efficiency in Zimbabwe. Key themes emerging from the data were highlighted, along with any unexpected findings or discrepancies that required further consideration.

4.2 Sample Profile

4.2.1 Response Rate Analysis

<u>**Table 1: Response Rates**</u>

Those who were invited to fill in the questionnaire	Those who filled in the questionnaire	Completed responses
50	40	40

The table outlined the response rates for the questionnaires sent to participants in the study. A total of 50 individuals, all working in the helpdesk sector, were invited to participate. The goal was to gain insights from professionals actively involved in the field to understand how

advanced ticketing systems had been utilized and their effectiveness in IT support environments. However, not all individuals invited chose to respond to the survey.

Out of the 50 individuals invited, 40 completed and submitted the questionnaire, resulting in a response rate of 80%. This meant that 80% of the invited participants took part in the survey, while 20% (equivalent to 10 individuals) did not respond. Several factors could have contributed to this non-response, including time constraints, lack of interest in the study, personal commitments, or other reasons. While the response rate was lower than expected, such non-participation was common, particularly among individuals with heavy workloads or competing priorities.

Despite the 20% non-responses, all 40 completed questionnaires were returned, providing sufficient data for the study to proceed. The responses from these 40 participants were valuable, ensuring that the research could continue, and that the data collected was meaningful. The information gathered from these respondents allowed the researcher to move forward with the analysis and draw relevant conclusions about the use and impact of advanced ticketing systems in helpdesk environments.

Although a higher response rate would have been preferred, the 40 complete responses provided ample insights. These responses revealed how ticketing systems had been used, their benefits, and the challenges associated with their implementation. The researcher found the responses encouraging, as they offered useful and relevant perspectives for the study.

In conclusion, even though the response rate was lower than initially hoped, the data gathered from the 40 fully completed questionnaires was sufficient to advance the research and generate valuable insights. These responses served as the foundation for the next steps in the study, providing crucial information on the role of advanced ticketing systems in IT support while contributing to the broader understanding of their effects on helpdesk services. The researcher remained confident that the findings would help advance discussions in the field and inform future research.

4.2.2 Sample Adequacy, Reliability and Validity.

The 66.7% participation rate, though not reaching full participation, still represented a significant response level for the study. This level of engagement ensured the inclusion of diverse perspectives, which was crucial for developing a well-rounded understanding of the subject. However, the potential for non-response bias had to be considered, as the views of those who chose not to participate might have differed from those who did, potentially influencing the study's conclusions. Despite this limitation, the insights obtained from the respondents remained valuable and contributed meaningfully to the overall findings.

To enhance the credibility and accuracy of the data, the study utilized established research instruments and adhered to standardized data collection procedures. This approach helped minimize errors and ensured that the findings were as precise and dependable as possible. Any discrepancies or irregularities encountered during data collection were carefully managed to preserve the integrity of the results.

The study also gained depth from the involvement of participants with diverse professional backgrounds within the IT support sector. This diversity was instrumental in ensuring content validity, as the findings reflected a broad range of perspectives. Participants included technical support agents, system administrators, IT managers, and organizational decision-makers, all of whom contributed unique insights based on their roles and expertise. This range of viewpoints enriched the research, offering a more comprehensive analysis of how ticketing systems had impacted IT support in Zimbabwe.

Furthermore, many respondents had direct experience with widely used ticketing platforms such as Zendesk, allowing them to provide practical, first-hand insights into the effectiveness of these systems. Their contributions played a key role in shaping the study's recommendations for the successful integration of ticketing systems within Zimbabwe's IT support framework. The inclusion of participants from various levels of IT operations ranging from end-users to senior IT professionals ensured that the study captured a diverse set of perspectives, offering valuable knowledge on the role of advanced ticketing systems in improving IT support services in Zimbabwe.

4.2.3 Sample Demographic Characteristics

4.2.3.1 Respondents Distribution by Satisfaction and Issue Resolution.

1. How satisfied are you with the IT support services in terms of response time and issue resolution at your organization?

- 42.4% Very satisfied
- 57.6% Somewhat satisfied
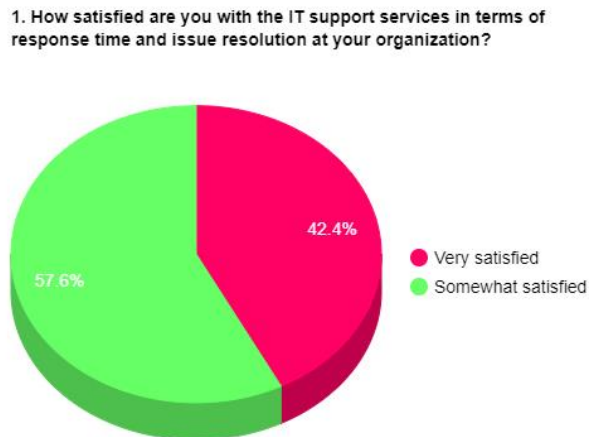
According to the results, two primary factors contributed to satisfaction with the organization's IT support services. A total of 42.4% of participants reported being "very satisfied" with the level of service, particularly in terms of issue resolution and response time. This indicated that a substantial portion of respondents believed their needs had been effectively met, underscoring the efficiency of the IT support team in addressing technical concerns promptly. The prominent level of satisfaction suggested that the IT team had been well-trained, responsive, and capable of resolving issues efficiently, fostering confidence among users in their ability to provide reliable support.

Most respondents, accounting for 57.6%, stated that they were "somewhat satisfied," implying that while they considered the service acceptable, they identified areas where improvements could have been made. This group of participants viewed IT support as meeting basic expectations but believed that enhancements, such as faster resolution times, more proactive assistance, or better communication, could have further improved their experience. Some

respondents may have desired additional training on specific systems or tools, while others may have hoped for more consistency in service quality. Their responses indicated that although the IT department had been performing adequately, there had been opportunities to refine and optimize its support strategies to enhance user satisfaction further.

Notably, none of the respondents reported being "not satisfied," indicating that all participants at least perceived the IT support services as sufficient. This was a positive outcome, reflecting the IT team's ability to meet users' fundamental needs and ensuring that no major service gaps were present. However, the considerable proportion of participants in the "somewhat satisfied" category suggested that there was room for improvement. To increase overall satisfaction, the IT department could have explored initiatives such as streamlining communication channels, implementing more advanced ticketing solutions, or offering more personalized support.

Despite variations in responses, the overall sentiment toward IT support services had been favorable, with users acknowledging the team's efforts. Moving forward, addressing the concerns of the "somewhat satisfied" respondents could have been a strategic priority, helping to elevate more users into the "very satisfied" category. By refining response times, enhancing customer interactions, and expanding service capabilities, the IT department could have worked toward achieving a higher level of overall satisfaction among its users.

4.2.3.2 Respondents Distribution by Gender
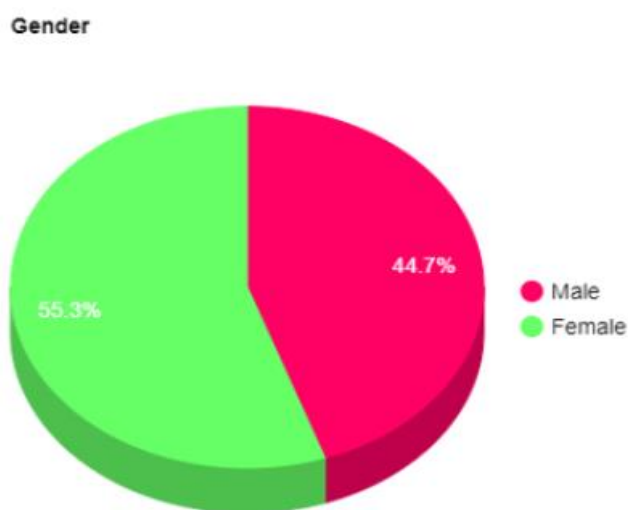
With 55.6% of respondents identifying as female and 44.4% as male, the study featured a slightly higher representation of women. Although the difference was not substantial, this distribution indicated that women had been more prominent in the sample. While the results may have incorporated a slightly more female-oriented perspective, the difference was not significant enough to introduce notable gender bias in the overall findings.

The higher percentage of female participants could have suggested that women were more inclined to engage in studies related to IT support services. Alternatively, this trend may have simply mirrored the demographic composition of the surveyed organization or community, where women might have occupied a greater share of IT support roles. Workplace culture, job responsibilities, or personal interest in improving IT services could have also influenced participation rates among different genders.

This gender distribution provided an opportunity to explore whether there were any patterns in how adults perceived IT support services. If such trends emerged, the research could have investigated whether differences existed in expectations, experiences, or satisfaction levels. For instance, female respondents might have prioritized factors such as communication, service accessibility, or responsiveness, while male respondents could have placed greater emphasis on technical depth or self-service options. These insights would have been valuable for identifying ways to enhance IT service delivery to better cater to diverse user needs.

However, given the minor gap between female and male respondents, it was unlikely that gender alone had a major influence on overall satisfaction with IT services. Other variables, such as job role, professional experience, or technical proficiency, were likely to have played a more significant role in shaping user perceptions. Nonetheless, the study's gender distribution appeared balanced enough to ensure that the analysis remained comprehensive and reflective of diverse viewpoints.

In summary, the gender composition of the study provided a well-rounded basis for analyzing IT support satisfaction while allowing for the consideration of any gender-related differences. By acknowledging this demographic factor, the research maintained a broad and inclusive approach to understanding user experiences with ticketing systems and IT support services.

4.2.3.3. Respondents Distribution by Age
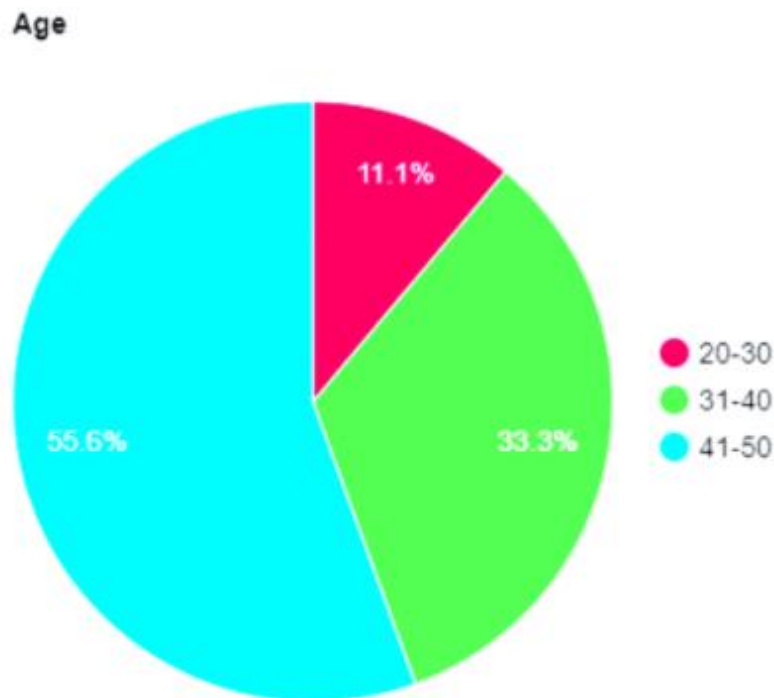
Most respondents (55.6%) were between the ages of 41 and 50, making this age group the largest representation in the study. This group brought a considerable amount of professional experience to the table, which may have significantly influenced their perspectives on IT support services. Individuals in the 41-50 age range were typically well-established in their careers, with years of experience in their respective industries. As a result, their expectations for IT support had been shaped by a strong understanding of the importance of reliability, consistency, and problem-solving capabilities within technology solutions. They prioritized service reliability, seamless issue resolution, and solutions that minimized downtime, as they were accustomed to working in environments where business continuity was essential. This demographic may have also been more focused on ensuring that IT support aligned with established best practices and industry standards, reflecting a preference for proven methods rather than experimental or untested solutions.

Following closely behind, 33.3% of participants had been between the ages of 31 and 40, representing individuals in the early to mid-stages of their careers. This group had combined a solid foundation of professional expertise with a strong comfort level with technology. Many in

this demographic had been highly familiar with emerging technological trends, having grown up alongside rapid advancements in digital tools and systems. As a result, their expectations for IT support had reflected a desire for faster, more efficient service, preferring solutions that offered both reliability and innovation. They may have been particularly open to using new IT support technologies, such as automated ticketing systems, AI-powered troubleshooting tools, or real-time chat support. Individuals in this age range were often very tech-savvy, which meant they were less likely to have been satisfied with slow, outdated support methods and more likely to have sought solutions that were intuitive, fast, and user-friendly. This group had also been more inclined to appreciate support systems that incorporated self-service options, such as FAQs or automated response systems, which could quickly address common issues without the need for live intervention.

Participants aged 20-30 had made up a smaller portion of the sample at just 11%, yet their inclusion remained significant, especially considering the characteristics and preferences of younger adults regarding technology. As digital natives, individuals in this age group had grown up with technology embedded into every aspect of their lives. They had tended to be highly proficient in using digital tools and had a natural inclination toward adopting innovative technologies. For younger adults, expectations around IT support had often been driven by a desire for speed, convenience, and ease of use. They had expected real-time, on-demand support that provided instant solutions to their problems. This could have included self-service portals, knowledge bases, chatbots, or automated systems that resolved issues quickly without the need for human interaction. Additionally, younger respondents had placed a high value on the accessibility of IT support, expecting round-the-clock availability and multiple communication channels, such as mobile apps, live chat, and social media, to access help whenever and wherever needed.

The preference for fast and intuitive support had often been linked to the expectation that IT services should have been seamlessly integrated into the overall digital experience, with minimal friction. Given that younger adult had been more accustomed to on-demand services from industries like entertainment, retail, and customer service, they may have expected IT support to mirror these experiences with similarly seamless, frictionless interactions. This age group's greater comfort with technology also meant they were more likely to have quickly adopted new

tools and systems and had been more open to IT support solutions that leveraged innovative technologies, such as AI, machine learning, or predictive analytics, to anticipate and resolve issues before they became problems.

Incorporating feedback from these younger participants was crucial because it offered insights into the evolving expectations of IT support services. As the workforce became more digitally savvy and younger generations entered the workplace, IT support needs and expectations had continued to shift toward faster, more technology-driven solutions. Their input had also helped organizations plan for future developments in IT support infrastructure, ensuring that services remained relevant and responsive to the needs of an increasingly tech-dependent workforce.

By analyzing the responses from participants across these various age groups, the study captured a broad spectrum of opinions and preferences regarding IT support services. This diversity was important because it highlighted how expectations could vary not only due to professional experience but also based on generational factors and technological comfort levels. The feedback from each age group had helped organizations better tailor their IT support services to meet the needs of employees at different career stages, ensuring that the support provided was both effective and aligned with the preferences of a diverse workforce. This comprehensive approach had allowed for a more nuanced understanding of the evolving landscape of IT support, making it easier for companies to adapt their strategies to meet the expectations of employees from all generations.

Respondents Distribution by observations improvements in IT service delivery

Pie Chart

100

● Yes
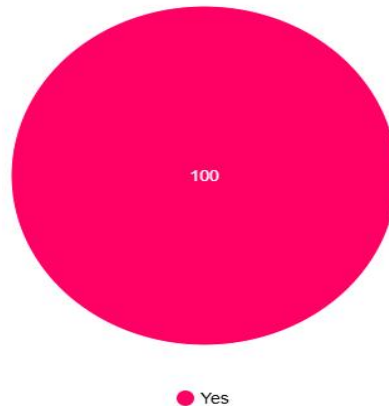
All respondents (100%) had selected "Yes" in the pie chart, demonstrating a broad consensus that the implementation of ticketing systems had improved response times and the overall delivery of IT services. This unanimous agreement underscored the significant role that ticketing systems had played in streamlining IT support procedures by providing a structured approach to logging, tracking, and resolving issues.

The results indicated that ticketing systems had allowed IT teams to respond more efficiently, reducing delays and enhancing the quality of service provided. By facilitating better prioritization of tasks and systematically managing support requests, these systems enabled IT personnel to address technical issues in a more organized and time-sensitive manner. As a result, end-users experienced a noticeable improvement in the speed and effectiveness of IT support, leading to greater overall satisfaction with the services rendered.

Furthermore, the unanimity in responses suggested that the benefits of ticketing systems had been widely recognized across distinct roles and levels of IT support. Whether among technical support agents, IT managers, or end-users, there appeared to have been a shared understanding that these systems had contributed to smoother workflows, reduced backlogs, and minimized instances of unresolved or forgotten issues. By ensuring that every request had been documented and tracked, ticketing systems had also promoted accountability within IT departments,

preventing support requests from being overlooked and guaranteeing that all reported problems had been addressed in a timely manner.

In addition to improving response times, ticketing systems had enhanced transparency and communication between IT teams and users. End-users were able to track the status of their reported issues, receive timely updates, and gain a clearer understanding of the support process. This had not only improved user satisfaction but had also fostered a sense of trust in the IT department, as employees had felt more assured that their concerns were being managed efficiently.

Moreover, the systematic nature of ticketing systems had provided valuable data insights that IT teams could leverage to optimize service delivery. By analyzing trends in support requests, recurring issues, and response time metrics, IT managers were able to make informed decisions on resource allocation, staff training, and process improvements. This data-driven approach had further contributed to the overall efficiency and effectiveness of IT support operations.

The unanimous response in favor of ticketing systems highlighted their essential role in modern IT environments. The results of the study reinforced the notion that such systems were not only beneficial but necessary for organizations striving to enhance their IT support frameworks. Despite potential challenges in implementation, such as the need for initial training or integration with existing infrastructure, the overwhelming agreement among respondents suggested that the long-term advantages of ticketing systems had far outweighed any temporary difficulties.

In conclusion, the findings confirmed that the use of ticketing systems had been instrumental in improving IT support services, particularly in terms of response times, issue resolution, and communication. The widespread acknowledgment of their effectiveness suggested that organizations looking to refine their IT support mechanisms should consider further investments in ticketing technologies, ensuring that their IT departments remained efficient, accountable, and user focused.

4.3 Findings

4.3.1   Features of Ticketing Systems Beneficial for IT Support
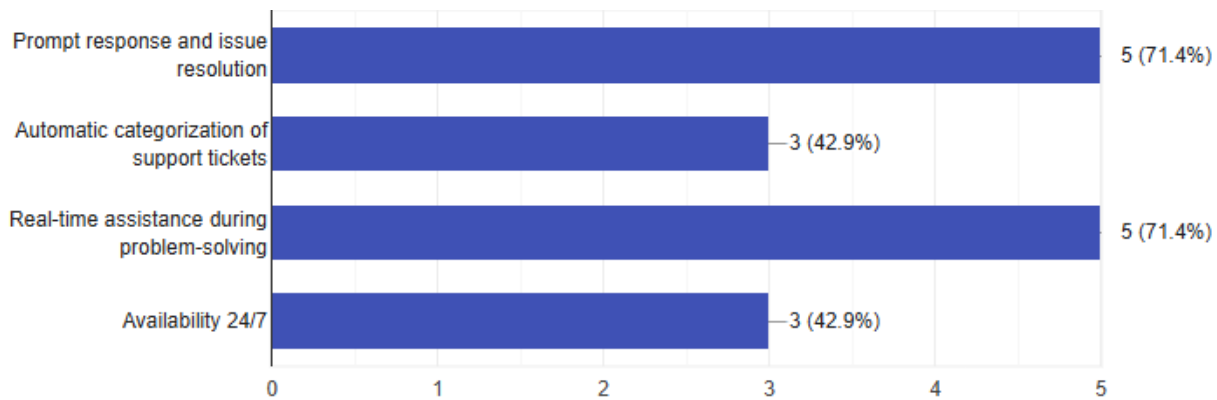
The survey findings offered important insights into the key benefits and functions of IT support services, which had played a crucial role in improving organizational efficiency and productivity. One of the most notable conclusions was that a significant majority of respondents (74.1%) had emphasized the importance of prompt response times and effective problem-solving in IT support. This aspect had been regarded as essential since it had directly influenced an organization's ability to minimize downtime and sustain business operations without major interruptions. In today's business landscape, where technology had been integral to most workflows, swift resolutions to IT issues had determined whether operations continued smoothly or faced delays. When technical problems had been addressed in a timely manner, employees were able to resume their work with minimal disruptions, ensuring steady productivity and enabling teams to collaborate efficiently while meeting deadlines. Reducing downtime, particularly in environments reliant on critical systems, had been instrumental in maintaining workflow continuity and boosting overall organizational performance.

Beyond quick issue resolution, 71.4% of respondents acknowledged the value of automatically categorizing and prioritizing support requests as a crucial feature of IT support services. The ability to systematically sort and prioritize incoming tickets had allowed organizations to optimize their support processes and allocate resources more effectively to urgent matters. This structured approach had helped prevent delays in resolving critical issues that could have had

serious business implications if left unaddressed. By organizing requests based on urgency, IT teams were able to allocate their time and expertise more efficiently, ensuring that high-priority concerns received immediate attention while lower-priority tasks were still managed in a timely manner. This automated system had not only accelerated response times but had also improved the overall quality of IT support. It had minimized the risk of overlooking important requests, fostering a more initiative-taking and responsive IT support environment. As companies had expanded and their IT requirements had become more complex, automating these processes had ensured that support services remained effective even as demand increased.

Additionally, 42.9% of participants stressed the need for immediate assistance when dealing with complex technical issues. These types of problems had often required advanced troubleshooting, specialized expertise, and urgent intervention to prevent them from escalating into more severe disruptions. For organizations that had heavily depended on technology to drive their daily operations, quick access to expert support for complicated issues had been a critical factor. Delays in receiving assistance in such matters had led to prolonged downtime, causing frustration among employees, and hindering essential business functions. The faster these intricate problems were resolved, the less likely they had been to develop into major operational setbacks. By ensuring swift access to skilled support personnel, businesses had been able to minimize disruptions and maintain operational efficiency. Moreover, timely assistance with complex challenges had prevented workflow bottlenecks, allowing employees to remain focused on their responsibilities without being hindered by unresolved technical difficulties.

Another major aspect highlighted by the survey was the significant importance of 24/7 IT support, with 71.4% of respondents expressing its necessity. For companies with global teams or operations spanning multiple time zones, continuous IT assistance had been indispensable. Given the demands of modern businesses, employees had often worked at all hours, and technical issues could have arisen at any time. In such cases, immediate support had been essential to maintaining business continuity. Without round-the-clock assistance, employees working outside of regular business hours or in different time zones had faced delays in resolving IT problems, potentially leading to disruptions in the workflow and missed deadlines. For industries operating in high-pressure environments or critical sectors, these delays have had profound consequences, impacting both productivity and customer satisfaction. Ensuring constant IT support enabled

organizations to address issues promptly, regardless of when they had occurred, helping to sustain efficiency and uninterrupted workflows. Moreover, providing 24/7 IT assistance reassured employees that help was always available, reinforcing their confidence in the reliability of IT support services, no matter their location or working hours.

In summary, the survey underscored the critical role that effective, responsive, and easily accessible IT support services had in enhancing organizational productivity, reducing disruptions, and fostering a more efficient work environment. By prioritizing key aspects such as swift response times, automated ticket prioritization, immediate assistance for complex issues, and 24/7 availability, organizations had significantly improved the efficiency of their IT support systems. These enhancements had not only increased employee satisfaction but had also strengthened the organization's overall operational framework. A well-supported IT infrastructure had allowed employees to concentrate on their tasks without being hindered by unresolved technical issues, contributing to smoother business operations.

4.3.2 Challenges or concerns do you see in the integration of ticketing systems in IT support within Zimbabwe.

The chart highlighted several significant challenges that had needed to be addressed to successfully enhance IT support in Zimbabwe through the adoption of ticketing systems. Data security and privacy, noted by 80% of respondents, had emerged as a primary concern due to the sensitive nature of the information managed by these systems. Ticketing systems often stored critical data, such as user details, issue logs, and resolution history, making them potential targets for breaches and unauthorized access. In a context where cybersecurity measures and data

protection regulations had still been developing, organizations had faced difficulties implementing effective safeguards, such as encryption and security audits, which had required both financial and technical resources.

Eighty percent of respondents had mentioned user adoption and training as another significant obstacle. Effective usage of the platforms by end users and IT personnel had been essential to the success of ticketing systems. However, proper use had often been hampered by factors such as insufficient digital literacy, a lack of training opportunities, and reluctance to adopt new tools. The overall effectiveness of the system had been diminished when users had found it difficult to log, monitor, or resolve issues. To ensure that all stakeholders had maximized the benefits of these technologies, it had been essential to offer regular training sessions, workshops, and user support.

Another obstacle to the successful implementation of ticketing systems was infrastructure limitations, which had been mentioned by 60% of respondents. For these systems to have operated efficiently, they had required a sophisticated IT infrastructure, a reliable power supply, and consistent internet access. However, issues such as power outages, unstable internet connections, and outdated hardware had frequently caused operational disruptions in Zimbabwe, limiting the effectiveness of ticketing systems, especially those hosted in the cloud. To overcome these challenges and ensure smooth system operation, investments in improved infrastructure, including enhanced connectivity and power solutions, had been crucial.

Furthermore, 60% of respondents had expressed concerns about the cost of implementation, particularly for smaller businesses with tighter budgets. Adopting ticketing systems had entailed upfront expenditures for hardware upgrades, software licenses, and system configuration, in addition to ongoing costs for staff training, maintenance, and updates. In contexts with limited resources, these financial demands had posed a significant obstacle, making it difficult for enterprises to commit to such systems. Exploring cost-effective alternatives, such as open-source platforms, and providing financial support or incentives had been potential solutions to mitigate this burden and make ticketing systems more accessible.

4.3.3 Recommendations for Improving Ticketing Systems

1. Adopt a Cloud-Based Helpdesk Solution

Cloud-based ticketing platforms offer greater accessibility**,** scalability, and uptime, ensuring IT support remains available anytime and anywhere. Unlike systems that require expensive infrastructure and maintenance, cloud-based solutions are cost-effective and easily scalable to accommodate business growth. Additionally, they offer automatic backups, security enhancements, and real-time data synchronization, ensuring seamless operation even during high-demand periods or unexpected downtimes.

2. **Utilize Business Intelligence and Data Analytics**

Integrating data analytics tools into the ticketing system will allow real-time tracking and monitoring of key performance indicators (KPIs) such as ticket resolution times, agent productivity, customer satisfaction levels, and recurring IT issues**.** These insights will help businesses identify patterns, predict future problems, and make data-driven decisions**. For** example, if a specific issue frequently arises, IT teams can proactively develop a long-term solution instead of handling individual cases repeatedly. Additionally, analytics can help measure the impact of system improvements **over time.**

3. **Introduce an Automated Ticket Escalation Process**

A well-designed ticketing system should automatically escalate unresolved or high-priority tickets to senior IT staff based on pre-set urgency levels. This eliminates bottlenecks where tickets remain in the queue for too long without action. By implementing automated escalation, critical IT problems can be resolved faster, preventing potential disruptions to business operations. Furthermore, an intelligent system can assign tickets based on technician expertise**,** ensuring the right personnel handle specific issues efficiently.

4. Conduct Regular IT Support Audits

To ensure continuous improvement, businesses should conduct periodic IT support audits that evaluate efficiency, response times, and service effectiveness**.** These audits can **identify** bottlenecks, recurring technical issues, and inefficiencies in the support process. Based on the findings, companies can make necessary adjustments, such as improving staff training, refining

AI automation, or upgrading ticketing features. Regular reviews also help ensure compliance with industry standards and best practices for IT service management.

5. Deploy Self-Service Portals and AI Chatbots

A self-service portal allows customers to resolve common IT issues independently without waiting for IT support assistance. AI-driven chatbots can answer frequently asked questions, guide users through troubleshooting steps, and create tickets when necessary. This reduces the workload on IT teams by managing basic inquiries automatically. Additionally, a well-structured knowledge base containing FAQs, how-to guides, and troubleshooting articles can empower users to find solutions without needing direct IT support, enhancing efficiency and user experience.

6. Implement an Omni-Channel Support System

A modern IT support system should allow customers to **engage through multiple channels** such as **email, live chat, social media, phone calls, and mobile apps**. This flexibility ensures customers can report issues in the most convenient way for them. Furthermore, **centralized ticket management** across these channels will provide a seamless experience, preventing miscommunication and ensuring that tickets submitted through different platforms are managed efficiently.

7. Enhance Ticket Tracking and Communication

Transparency in ticket resolution is crucial for **customer satisfaction**. Automated notifications should **keep users informed about ticket status, expected resolution times, and progress updates**. This eliminates the frustration of waiting without feedback. Additionally, an interactive dashboard where users can **track ticket progress in real time** can further enhance their experience. A clear and consistent communication system ensures that customers feel valued and informed throughout the resolution process.

8. Collect and Analyze Customer Feedback

To continuously improve service quality, businesses should **actively collect and analyze customer feedback** after ticket resolutions. This can be done through **surveys, feedback forms, or sentiment analysis** on interactions. By assessing user responses, IT teams can **identify**

weaknesses, improve response strategies, and optimize service delivery. Additionally, feedback analysis can reveal common concerns and areas where additional training or automation may be required.

4.4 Conclusion

In conclusion, this study underscored the key strategies that had been essential for enhancing IT support in Zimbabwe, with a specific focus on the ticketing systems at Kenac Computer Systems. The survey responses emphasized the importance of quick issue resolution, clear communication, and straightforward features such as automated ticket routing, all of which had contributed to improved service delivery. To further increase efficiency, the need for flexible systems that could seamlessly integrate with other organizational platforms and adapt to the varied needs of different departments had been highlighted. These systems would have ensured that all aspects of the IT support process, from categorization to resolution, had been overseen more effectively across different contexts within the organization.

While there had certainly been room for improvement, the responses had indicated a high level of satisfaction with the existing support systems. Several respondents had also suggested leveraging artificial intelligence (AI) to streamline and enhance support procedures, pointing to AI's potential in automating more complex tasks and offering smarter solutions to recurring issues. However, optimizing ticketing systems and improving IT service delivery at Kenac Computer Systems had required an ongoing commitment to gathering feedback from users, ensuring that the systems had remained aligned with the evolving needs of the business. The incorporation of innovative technologies and the continuous adaptation of the systems had been essential in keeping pace with technological advancements and ensuring long-term improvements in IT support.

CHAPTER 5: Summary, Conclusion, and Recommendations

5.1 Introduction

This chapter presented a detailed overview of the key findings, conclusions, and recommendations from the study on improving IT support in Zimbabwe. The research focused on evaluating IT service management, particularly the role of ticketing systems in meeting user demands and optimizing support processes. By assessing user satisfaction, system performance, and areas needing improvement, the study identified both the advantages and challenges of implementing ticketing systems. Furthermore, it explored ways to enhance these systems to deliver better service, accelerate issue resolution, and boost overall organizational efficiency. The results emphasized the need for ongoing system enhancements, user training, and the integration of advanced technologies to establish a more efficient and responsive IT support structure.

5.2 Discussion

By outlining the essential components required to comprehend the research on improving IT support systems in Zimbabwe, with an emphasis on Kenac Computer Systems, chapter 1 established the framework for the investigation. It started by outlining the subject and highlighting how, in today's technologically advanced world, there is an increasing reliance on IT support services. The need for effective and responsive IT solutions grew as businesses depended more on technology to streamline operations. However, issues with Zimbabwe's current IT support systems included inefficiency, soaring prices, and long response times, which frustrated users and reduced organizational productivity. The chapter emphasized the significance of priced, specially designed ticketing systems that are suited to the requirements of small enterprises, such as those that offer cable TV and internet services, to address these problems.

Furthermore, the study's backdrop provided more context for the issue by outlining the shortcomings of Zimbabwe's present IT support infrastructure. Conventional support systems were viewed as insufficient, frequently ineffective, and harmful to the expansion and efficiency of organizations. User discontent resulted from these systems' inability to meet growing service needs. By automating processes like classification, priority, and ticket administration, the chapter suggested technology solutions like machine learning and natural language processing (NLP) as tools that may improve ticketing systems. Response times would be shortened, workflows would

be streamlined, and overall service efficiency would increase with the incorporation of these technologies. Therefore, the study's objectives were to assess Kenac Computer Systems' current state and investigate how innovative, technologically driven ticketing solutions might improve customer happiness and IT service delivery.

The research objectives, which provided precise, quantifiable goals for the investigation, were then presented in the chapter. These goals included assessing the impact of contemporary ticketing systems on customer satisfaction, assessing and recommending viable solutions associated with advanced technology powered ticketing systems. The study was directed by the accompanying research questions, which concentrated on the features, efficacy, and drawbacks of sophisticated ticketing systems. The goals and inquiries combined to provide a methodical strategy for comprehending how contemporary technology would solve Zimbabwe's IT support problems.

Delimitations were also covered in the chapter, which acknowledged that not all organizations, especially small ones with little funding, would find the results useful. The study did not examine other aspects like cost savings, employee motivation, or long-term technological growth, even though its primary focus was on increasing the effectiveness of IT support and customer happiness. Although useful for in-depth examination, the study's narrow emphasis made it less applicable to smaller businesses dealing with various difficulties and budget limitations.

Lastly, the study's limitations were outlined, emphasizing the constraints encountered during the research. The focus was specifically on powered ticketing systems and did not address failovers or redundancy measures, which could result in downtime during system failures. Furthermore, the narrow focus on ticketing systems may have overlooked the potential benefits of integrating multiple technologies to enhance IT support performance. This limited scope restricted the study's recommendations for comprehensive IT support improvements. Despite this, the study's emphasis on developing a functional system within the constraints of time and resources ensured feasibility, although it might have excluded more advanced features or broader considerations.

In Chapter 2, the goal was to give a thorough summary of the theories and studies that have been done on the integration and effects of advanced ticketing systems (ATTS) in IT support services. The chapter examined several technical developments and their applicability to the industry, with an emphasis on how these systems might boost operational effectiveness, enhance service delivery, and solve the problems that IT support teams—especially those in Zimbabwe—face. Using pertinent research, industry data, and theoretical frameworks, it provided a thorough examination of the advantages and disadvantages of putting these systems into place.

The increasing interest in incorporating advanced technologies into IT support systems was covered at the beginning of the chapter. It was believed that this integration was an essential step in raising operational effectiveness and service delivery. The use of algorithms, machine learning, and data analytics in contemporary ticketing systems was cited as a major advancement in this area. Critical functions like issue classification, prioritization, and resolution might be automated by these technologies, which would improve customer satisfaction and response times. Organizations that adopted these technologies reported notable increases in productivity and cost-efficiency as well as a considerable decrease in resolution times.

Given the benefits of sophisticated ticketing systems, the chapter also pointed out several implementation-related difficulties, especially in developing nations like Zimbabwe. For small and medium-sized businesses (SMEs) with limited funding, implementing modern technologies in IT support frequently necessitates significant investments in both technological infrastructure and staff training. Significant barriers to the widespread use of these systems were also found to be privacy, data management, and the requirement for specific technical knowledge. The chapter also highlighted the systematic procedure used to manage contemporary ticketing systems, which classify tickets based on issue category, severity, and priority. This strategy guarantees that problems are resolved quickly and by the best staff. As an example, high-priority tickets are escalated to senior agents, while lower-priority issues are assigned to other team members. The detailed tracking and categorization processes in these systems aim to enhance operational efficiency by reducing the time spent on sorting and managing tickets.

Additionally, the chapter gave a summary of the theoretical framework that served as the study's direction. The framework was essential for comprehending how sophisticated ticketing systems, specifically at Kenac Solutions in Zimbabwe, could be incorporated into IT support operations.

The analysis of how ATTS could improve the efficacy of IT support systems was based on the theoretical concepts of data management, customer service, and operational workflows. These guidelines made it possible to make sure that every facet of the ticketing process—data gathering, ticket routing, problem-solving, and communication—was carefully considered. The study was also able to identify essential elements that contributed to the effective implementation of ATTS, including data flow, system architecture, user training, and alignment with business objectives, thanks to the theoretical framework's structured approach.

The chapter traced the evolution of IT support systems from their early, basic forms to more advanced, technologically complex models. In the past, IT support systems were simple tools primarily used for monitoring and resolving issues. However, with the introduction of technologies like natural language processing (NLP), artificial intelligence (AI), and machine learning, IT support systems have transformed into sophisticated platforms that not only address problems but also proactively prevent them. This shift has been crucial in enhancing service delivery and accelerating response times. These technological advancements have enabled IT support staff to streamline processes, automate repetitive tasks, and address issues more effectively. For example, machine learning allows ticketing systems to automatically categorize problems and prioritize them based on urgency and even suggest solutions based on historical data and patterns.

Furthermore, a thorough investigation was also conducted into incorporating natural language processing (NLP) into ticketing systems. These systems can interpret unstructured data, including user-submitted free-text descriptions of problems, thanks to natural language processing (NLP). This feature improves the system's capacity to precisely classify and route tickets according to their content, facilitating more efficient problem-solving. Businesses that use machine learning and natural language processing (NLP) technologies have witnessed notable increases in customer satisfaction and ticket resolution times, which can be up to 40% faster. To provide a more smooth and effective user experience, the chapter also covered the initiative-taking use of these technologies to spot any problems before they become more serious ones. The chapter discussed the importance of ensuring data privacy and security when implementing advanced ticketing systems. Given the sensitive nature of the data processed by these systems, organizations must adhere to strict data protection regulations to safeguard user information from

breaches. Data quality was another critical issue, as inaccurate or poorly classified ticket data could lead to inefficiencies, prolonged resolution times, and decreased customer satisfaction. The requirement for specific talents to administer and maintain sophisticated ticketing systems was another major issue covered in the chapter. To deploy, integrate, and maintain technologies like natural language processing (NLP) and machine learning algorithms, organizations need a competent workforce. Organizations may find it difficult to fully utilize these technologies' capabilities without the requisite knowledge, which could result in operational failures and mediocre performance.

The chapter began by discussing the growing interest in the integration of sophisticated technologies into IT support systems. This integration was seen as a crucial step toward improving service delivery and operational efficiency. Modern ticketing systems, which utilize algorithms, machine learning, and data analytics, were highlighted as key innovations in this field. These systems were identified as capable of automating critical tasks such as issue categorization, prioritization, and resolution, leading to faster response times and increased customer satisfaction. It was noted that organizations embracing these technologies had experienced significant reductions in resolution times and substantial improvements in productivity and cost-efficiency in their IT support processes and continually improved service delivery.

Chapter 3 outlined the methodology employed to investigate the effectiveness of machine learning-powered ticketing systems in Zimbabwe's IT support services. Given the complexity of the research problem, a mixed-methods approach was chosen to capture both qualitative and quantitative data, providing a comprehensive understanding of the issue from multiple perspectives. The quantitative component of the research aimed to measure the tangible impact of machine learning-enhanced ticketing systems on key performance indicators (KPIs) such as response times, resolution times, and user satisfaction. Data was collected through surveys distributed to both IT support staff and end-users, asking them to assess their experiences with current IT support systems and their perceptions of the potential benefits and challenges of integrating machine learning technologies. In addition to the surveys, quantitative data was gathered from IT system logs, which tracked response and resolution times before and after the implementation of machine learning-powered systems.

On the qualitative side, the research included interviews and focus group discussions with key stakeholders, including IT support professionals, managers, and users of IT support services. These interviews aimed to gather in-depth insight into the real-world challenges and benefits experienced by those who directly interact with IT support systems. Qualitative data was essential in understanding the subjective experiences of participants, as it provided context to the quantitative findings. Purposive sampling was used to ensure that participants with relevant expertise and experience in IT support were included in the study. This helped ensure that the insights gathered were both accurate and relevant to the research question. The chapter also addressed important ethical considerations, including data privacy, confidentiality, and informed consent. Since the study involved collecting data from human participants, it was crucial to ensure that participants were fully informed about the purpose of the study and their rights and that their data would be kept confidential and used only for research purposes. The methodology section concluded with an explanation of the data analysis techniques that would be used to interpret the results, including both statistical analysis for the quantitative data and thematic analysis for the qualitative responses.

In Chapter 4, the expected findings were discussed in detail, with a focus on the anticipated impact of enhanced machine learning ticketing systems on the efficiency of IT support services. The analysis predicted that the adoption of such systems would lead to significant improvements in response times and issue resolution, as the systems would be able to automatically categorize and prioritize tickets based on urgency and historical data. This automation would not only reduce the time required to address simple issues but also allow IT support staff to focus on more complex problems, improving overall service quality. The findings were expected to show that machine learning-enhanced ticketing systems could lead to faster, more accurate issue resolution, which would, in turn, increase user satisfaction and productivity.

Furthermore, the research anticipated that the results would highlight the potential for these systems to streamline IT support workflows by eliminating the need for manual sorting and routing of support tickets. The systems would also allow for continuous improvement, as machine learning models would learn from each interaction and become more efficient over time. However, the chapter also acknowledged the potential challenges that could arise from implementing these systems, such as data security concerns, the need for specialized technical

skills to manage the systems, and the costs associated with implementing and maintaining such technology. The expected findings would include recommendations for addressing these challenges, including the need for robust cybersecurity measures, training programs for IT staff, and a careful analysis of the cost-benefit trade-offs involved in adopting machine learning-driven ticketing systems. Additionally, the chapter anticipated that the research would provide valuable insights into how businesses in Zimbabwe could specifically benefit from these technologies, given their unique challenges and resource limitations. The research is expected to offer practical suggestions for Zimbabwean companies, enabling them to adopt innovative solutions that could improve IT support and drive operational efficiency. The chapter concluded by anticipating that the findings would contribute to the broader field of IT service management and open doors for further research into the use of artificial intelligence and machine learning in business operations.

5.3 Findings (Summary of the findings).

5.3.1 Identify the Key Technological Advancements and Features of Modern Ticketing Systems.

To enhance IT support in Zimbabwe, the implementation of ticketing systems with diverse integrated functionalities played a crucial role in improving service efficiency. These features streamlined IT operations, ensuring quicker response times and better user experiences. This section explored various aspects, including human-assisted support, automated ticket generation, customized assistance, knowledge sharing, asset monitoring, service request handling, and performance tracking, illustrating their significance for Kenac Computer Systems.

Human-assisted support remained a key component in delivering effective IT services, especially in handling complex issues that automation alone could not resolve. At Kenac Computer Systems, integrating live agents into the ticketing system allowed IT specialists to step in when advanced expertise was required. While automation improved efficiency, certain technical challenges, such as security incidents or system failures, demanded direct human intervention. By merging automation with human support, Kenac Computer Systems ensured that critical issues were promptly escalated and resolved. The ticketing system provided IT professionals with valuable insights, including previous interactions and resolution history, allowing them to make informed decisions efficiently. In Zimbabwe's expanding tech industry, where businesses

increasingly relied on IT solutions, access to live support significantly improved service quality and customer satisfaction.

Automated ticket generation, also known as invisible ticket creation, enabled support tickets to be generated without direct user input. At Kenac Computer Systems, this feature enhanced efficiency by embedding monitoring tools within IT infrastructure to identify potential issues and automatically create support tickets. This initiative-taking approach ensured that system performance concerns, hardware malfunctions, or software crashes were detected and addressed before they could escalate into major problems. As a result, downtime was reduced, and service continuity was maintained. By leveraging automated ticket creation, Kenac Computer Systems minimized disruptions and ensured smooth IT operations. This initiative-taking strategy was especially beneficial in Zimbabwe, where industries such as finance, telecommunications, and healthcare depended on uninterrupted IT services.

Providing customized assistance was critical in catering to the specific needs of clients and ensuring tailored IT solutions. Kenac Computer Systems utilized ticketing systems that stored user data, previous interactions, and system configurations, enabling IT teams to personalize their support. Instead of offering generic solutions, IT specialists could access customer profiles to provide more relevant and efficient assistance. This level of personalization enhanced the overall user experience, as returning customers did not have to repeatedly explain their issues. Additionally, personalized support strengthened client relationships and encouraged long-term engagement. In Zimbabwe, where businesses sought dependable IT service providers, offering customized assistance gave Kenac a competitive advantage by positioning it as a customer-centric solutions provider.

An effective IT support system relied on a well-maintained knowledge base that facilitated quick problem resolution. Kenac Computer Systems incorporated knowledge management tools into its ticketing system, creating a centralized repository of troubleshooting guides, solutions, and best practices. This database allowed IT teams to quickly retrieve relevant information, reducing the need for repetitive troubleshooting efforts. Additionally, self-service options empowered users to resolve minor issues independently using available resources such as FAQs and troubleshooting documentation. Knowledge management was particularly valuable in Zimbabwe, where access to experienced IT professionals could sometimes be limited. By making information easily

accessible, Kenac Computer Systems improved service efficiency, reduced resolution times, and enhanced overall IT support performance.

Asset monitoring was another vital feature of an integrated IT support system, allowing organizations to track and manage their IT resources efficiently. Within Kenac Computer Systems, ticketing systems incorporated asset management tools that provided visibility into the status, maintenance history, and lifecycle of hardware and software. This functionality enabled IT teams to monitor devices, schedule updates, and perform necessary maintenance to prevent unexpected failures. By keeping an accurate inventory of assets, Kenac Computer Systems proactively addressed issues related to outdated or faulty equipment. In Zimbabwe, where businesses often faced budget constraints, effective asset monitoring helped maximize the lifespan and performance of IT infrastructure while minimizing unnecessary costs.

Handling service requests efficiently was essential to ensuring that IT teams responded to user inquiries and technical requirements in a structured manner. Kenac Computer Systems utilized a ticketing system that facilitated the organization and prioritization of service requests, including system access approvals, software installations, and resource allocation. By categorizing requests based on urgency and complexity, the system ensured that all user needs were addressed promptly. Providing clear timelines for request fulfillment improved customer satisfaction by reducing uncertainty and delays. In Zimbabwe's competitive business environment, where responsiveness was a key factor in service quality, a well-structured request management process contributed to smoother operations and a more efficient IT support framework.

Performance tracking and data-driven insights were crucial for continuously improving IT support services. Kenac Computer Systems incorporated advanced reporting and analytics tools within its ticketing system to track essential metrics, such as resolution times, recurring issues, and customer feedback. These analytics allowed IT managers to identify service gaps, optimize resource allocation, and implement improvements. By analyzing historical data, Kenac Computer Systems could predict common problems and proactively develop solutions to minimize future disruptions. Data-driven decision-making empowered IT teams to enhance service delivery, ensuring they remained responsive to evolving technological demands. In Zimbabwe's rapidly advancing IT sector, the ability to adapt based on real-time insights enabled businesses to maintain their competitive edge.

By integrating these advanced functionalities, Kenac Computer Systems significantly improved IT support services in Zimbabwe. The combination of human-assisted support, automated ticketing, customized assistance, knowledge management, asset monitoring, structured service request handling, and performance tracking created a comprehensive approach to delivering responsive and customer-focused IT solutions. These advancements facilitated faster resolutions, initiative-taking problem-solving, and enhanced user satisfaction, making IT support more dependable and effective. As Zimbabwe's technology landscape continued to expand, Kenac Computer Systems established itself as a leader in modern IT support, equipping businesses with the necessary tools to optimize operations and achieve technological success.

5.3.2 Study Applications of Ticketing Systems in IT Support Services

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5.3.3 Evaluate the Effects of Modern Ticketing Systems on IT Support Services

The adoption of modern ticketing systems significantly transformed IT support services in Zimbabwe, enhancing both customer satisfaction and service efficiency. These systems optimized operations, allowing IT support teams to respond more quickly and effectively. By improving data sharing, communication, and automation, ticketing systems decreased response and resolution times for customer issues. As a result, users experienced shorter wait times, more precise diagnoses, and faster interventions, all of which contributed to an improved IT service experience.

One of the key advantages of these systems was their ability to enhance the speed and accuracy of issue resolution. By automating ticket classification, prioritization, and routing, IT teams could focus on urgent matters first. This helped minimize downtime for both customers and businesses, as support staff were able to address critical issues more efficiently. At Kenac Computer Systems, this meant high-priority cases were managed more effectively, ensuring rapid resolution of pressing concerns and increasing customer satisfaction.

Furthermore, ticketing platforms centralized client request tracking and management, enabling IT support staff to provide more informed and personalized assistance. Access to detailed records of past interactions, system statuses, and historical data allowed support teams to troubleshoot problems more efficiently and offer tailored solutions. This also reduced the likelihood of repeated service calls for the same issue.

Another major improvement was the increased accessibility of IT support services. Modern ticketing systems eliminated geographical barriers, making it possible for customers to request assistance at any time and from any location. This was particularly beneficial for remote areas in Zimbabwe, where accessing IT support was often difficult due to infrastructure limitations or geographic constraints. With the ability to submit tickets and track their progress online, users were no longer restricted by time zones or physical distance. This flexibility ensured that both urban and rural clients received timely and efficient support.

Additionally, real-time updates provided through these systems strengthened communication between IT support teams and customers. Users remained informed about the progress of their requests, fostering transparency and trust. Moreover, IT teams could identify recurring problems and proactively address them before they escalated, leading to improved overall IT service quality.

The shift towards automation within ticketing systems also reduced the need for manual processes, minimizing inefficiencies and human errors. With automated workflows for ticket creation, classification, and routing, IT staff were relieved of administrative burdens, allowing them to focus on complex problem-solving. This not only accelerated issue resolution but also improved the accuracy of ticket categorization, which was crucial for effective troubleshooting and faster response times.

5.3.4 Recommending possible solutions for Implementing Modern Ticketing Systems.
The study outlined several critical recommendations to improve the implementation of modern ticketing systems in Zimbabwe, tackling both technical and operational hurdles. To begin with, organizations were encouraged to adopt cloud-based solutions, which provided scalability, accessibility, and cost-efficiency, particularly for small and medium-sized enterprises (SMEs). Cloud-based systems removed the necessity for costly on-premises infrastructure and offered the advantage of remote access, which proved especially useful in areas with inconsistent internet connectivity. This approach not only minimized initial expenses but also allowed businesses to expand their IT support systems as their requirements evolved, making it a viable option for organizations of all sizes.

Additionally, the study stressed the importance of thorough training and user adoption programs to ensure that both IT staff and end-users could effectively operate the new systems. Resistance to change and limited digital literacy were identified as major obstacles to successful implementation. To overcome these challenges, organizations were advised to organize regular workshops, firsthand training sessions, and provide ongoing support to employees. By fostering a culture of continuous learning and adaptability, businesses could facilitate smoother transitions to modern ticketing systems and fully leverage their potential benefits.

Moreover, the study underscored the necessity of implementing strong data security measures to protect sensitive information and maintain user confidence. Recommendations included adopting encryption protocols, multi-factor authentication, and conducting regular security audits to mitigate risks related to data breaches and unauthorized access. Given the sensitive nature of the data processed by ticketing systems, such as customer details and internal communications, these measures were considered essential for safeguarding organizational integrity and ensuring compliance with data protection regulations.

Finally, the study suggested exploring cost-effective alternatives, such as open-source ticketing platforms, to alleviate the financial burden on organizations, particularly SMEs. Open-source systems provided customizable and affordable options compared to proprietary software, making advanced ticketing solutions more accessible to businesses with limited budgets. Furthermore, financial institutions were urged to offer tailored financing options, such as loans or installment plans, to support the adoption of these systems. By addressing financial constraints and providing flexible payment solutions, organizations could overcome one of the most significant barriers to implementation.

5.4 Conclusion

In summary, the evaluation of modern ticketing systems' impact on Zimbabwe's IT support services uncovered several opportunities for substantial improvements. Advancements such as automation and real-time data processing played a crucial role in enhancing communication and customer satisfaction. The analysis of these technologies demonstrated how they transformed service delivery and elevated the overall user experience.

For successful integration into Zimbabwean businesses, particularly Kenac Computer Systems, it was essential to address challenges related to implementation costs and data security to build a more efficient and responsive IT service environment.

5.5 Recommendations

Based on the conclusions reached, the following recommendations were suggested for stakeholders in Zimbabwe's IT support sector to improve service quality through modern ticketing systems:

5.5.1 IT Organizations and Support Teams

The successful implementation of ticketing systems within IT departments and support teams required a well-planned approach that considered operational, technological, and human aspects. These systems functioned most efficiently in an environment with skilled personnel, stable infrastructure, and continuous improvements.

Upgrading infrastructure was essential to ensure the smooth operation of these systems. Organizations had to enhance their networks to accommodate the increased data flow resulting from automation and machine learning. This included deploying high-speed internet connections, expanding server capacity, and ensuring that all technology met the required performance standards for modern ticketing platforms. Cloud-based solutions were particularly beneficial, offering scalability and remote access for IT teams. In cases of hardware failures or cyber threats, redundancy measures such as backup systems and failover strategies ensured uninterrupted operations. Additionally, implementing robust cybersecurity protocols was crucial for protecting sensitive data and maintaining organizational security.

The efficiency of advanced ticketing systems depended on the expertise of IT support staff. Comprehensive training programs were essential to equip employees with the necessary skills to maximize the system's functionality. These programs covered areas such as system operations, workflow customization, troubleshooting, and data analysis. Practical training methods, including workshops and simulated scenarios, provided valuable direct experience. Moreover, continuous professional development through certifications, training sessions, and online

learning resources was necessary to keep staff up to date with modern technologies and system upgrades.

Strong customer service skills were also crucial for IT support personnel. To enhance user interactions, training emphasized empathy, problem-solving, and effective communication. Employees were expected to respond to inquiries promptly, handle customer frustrations professionally, and explain solutions in a way that non-technical users could easily understand. Role-playing exercises and real-world scenario training helped prepare teams for a variety of customer interactions, building their confidence in addressing diverse challenges.

5.5.2 Policymakers and Government Representatives

By incorporating modern ticketing systems into IT support services, policymakers, and government officials significantly enhanced service delivery. They fostered innovation, protected user data, and ensured equitable access to these technologies by creating a supportive regulatory and operational framework, benefiting both public and private sectors.

One of the primary responsibilities of legislators was to establish comprehensive policies and regulations to safeguard data security and privacy in IT support services. The implementation of automated ticketing systems heightened the risk of data breaches and unauthorized access. To mitigate these threats, governments introduced strict data privacy laws outlining clear guidelines for the collection, storage, and usage of sensitive information. Encryption protocols were mandated to secure data both during transmission and storage. Regular audits and compliance assessments were conducted to ensure adherence to these policies. The development of a cybersecurity framework tailored to the IT service industry helped minimize risks and strengthened trust in modern ticketing systems.

Beyond regulatory efforts, governments supported research and development in advanced IT services by providing funding and resources to facilitate collaborations between public and private entities, as well as academic institutions. These partnerships played a crucial role in revolutionizing IT support in Zimbabwe by exploring innovative applications of ticketing systems, such as user behavior analytics, predictive maintenance, and AI-driven solutions. By encouraging research and technological advancements, policymakers helped local businesses

remain competitive on a global scale while creating job opportunities in emerging technology fields.

Public awareness campaigns were another key strategy used to drive the adoption and effectiveness of modern ticketing systems. These initiatives educated businesses and consumers about the advantages of secure and efficient IT support services while highlighting the latest advancements in ticketing technology. Awareness efforts focused on critical topics such as cybersecurity best practices, data protection measures, and how automation could enhance service delivery. Increasing public knowledge in these areas encouraged wider adoption and strengthened confidence in these systems.

To further promote the adoption of modern ticketing technologies, policymakers introduced incentive programs for businesses. Organizations that invested in automation and state-of-the-art IT support systems were offered financial benefits such as tax reductions, grants, or subsidies. These incentives accelerated the implementation of ticketing solutions across various industries and helped mitigate initial cost barriers. Additionally, ensuring affordable access to high-speed internet and digital infrastructure allowed smaller enterprises, particularly those in rural and underserved areas, to take advantage of modern ticketing technologies.

Governments also established national benchmarks and performance standards to enhance service quality in IT support. These benchmarks measured key performance indicators, including customer satisfaction, system uptime, and average response and resolution times. By defining clear expectations, policymakers ensured consistency and accountability in service provision. Publishing performance reports and rankings on a regular basis encouraged businesses to strive for excellence while offering customers valuable insights into service quality.

Another crucial area of government involvement was strengthening workforce capacity in the IT sector. Authorities funded certification programs and training initiatives focused on automation, cybersecurity, and modern ticketing technologies. Providing IT professionals with the necessary skills and expertise allowed them to efficiently manage and optimize these systems. Collaborations with international experts and organizations further facilitated the adoption of global best practices, raising overall industry standards.

The development of a robust digital infrastructure to support modern ticketing systems remained a priority for policymakers. Investments in data centers, high-speed internet connectivity, and cloud computing platforms were essential to ensuring these systems operated effectively. Encouraging the adoption of open-source ticketing solutions helped lower costs while allowing greater customization to meet specific local needs.

Finally, government officials set an example by integrating modern ticketing systems into public sector services. Implementing these solutions in areas such as healthcare, education, and municipal administration demonstrated their effectiveness and encouraged broader adoption across industries. Using ticketing systems in public services also helped address key challenges, such as managing large-scale citizen inquiries and improving overall efficiency in government service delivery.

5.5.3 Technology Providers

Technology suppliers played a crucial role in promoting the adoption of modern ticketing systems by offering tailored solutions, implementing robust security measures, and driving continuous innovation. Through close collaboration with IT firms and other stakeholders in Zimbabwe's IT support sector, these providers developed systems designed to address specific opportunities and challenges.

The process of working with IT businesses began with in-depth consultations involving key stakeholders such as IT professionals, business executives, and end users. This approach ensured that ticketing systems were developed with a clear understanding of Zimbabwe's unique IT environment, its operational needs, and the challenges faced by support teams. Localized features, including bilingual support, offline functionality for areas with unreliable internet access, and integration with region-specific software, improved the usability and efficiency of these systems. This strategy ensured that the systems were not only technologically sophisticated but also practical and relevant for end users.

A major priority for technology providers was designing scalable and adaptable ticketing systems that could grow alongside businesses. Given that many IT firms in Zimbabwe were small or had limited budgets, it was essential to offer solutions that fit different organizational

needs. Cloud-based subscription models enabled cost-effective access to advanced functionalities, allowing businesses to scale their systems as their demands evolved.

Ensuring strong security features was another key responsibility of technology suppliers. Automated ticketing systems processed sensitive information, including customer data, system logs, and internal communications, making it crucial to protect them from cyber threats and unauthorized access. Providers implemented advanced encryption methods to secure data both in transit and at rest, ensuring that sensitive information remained protected even in the event of a security breach.

To further enhance security, access control measures such as role-based permissions, biometric authentication, and multi-factor authentication (MFA) were implemented to restrict access to authorized personnel only. Additionally, intrusion detection and prevention systems (IDPS) were used to monitor network activity, identify potential threats, and block unauthorized access attempts. Regular security audits and software updates were also conducted to address emerging cybersecurity risks and ensure compliance with industry standards.

To help businesses mitigate cybersecurity threats, technology suppliers embedded compliance measures into their ticketing systems. These solutions helped organizations adhere to national and international data protection laws, including Zimbabwe's Cyber and Data Protection Act and the General Data Protection Regulation (GDPR). By integrating these features, providers assisted IT firms in aligning their operations with regulatory requirements, thereby strengthening customer trust, and safeguarding their reputation.

Technology providers also focused on enhancing the user experience and ensuring that their systems were user-friendly. Features such as mobile compatibility, customizable dashboards, and intuitive interfaces improved efficiency and simplified ticket management for IT professionals. To support seamless adoption, comprehensive training programs—including user manuals, tutorials, and interactive workshops—were provided to help teams quickly familiarize themselves with the new systems, reducing learning difficulties and speeding up implementation.

Following deployment, providers established dedicated support frameworks to assist IT businesses. Service level agreements (SLAs), 24/7 help desks, and resolute customer support

teams ensured that any technical issues were promptly addressed. Additionally, feedback mechanisms allowed users to share their experiences and suggest improvements, creating a continuous improvement cycle that fostered innovation and ensured the system met evolving user needs.

Technology suppliers also built strategic partnerships with local universities, research institutions, and government agencies to support the broader IT ecosystem in Zimbabwe. These collaborations helped tackle industry-wide challenges, such as infrastructure limitations and workforce skill gaps, while also driving technological advancements in ticketing systems. Investments in research and development (R&D) enabled providers to explore innovative applications such as real-time monitoring, integration with Internet of Things (IoT) devices, and advanced analytics tailored to Zimbabwe's market needs.

5.5.4 Financial Institutions

Financial institutions played a vital role in supporting businesses that aimed to adopt modern ticketing systems, particularly in areas where high initial costs posed a significant challenge. These institutions helped businesses manage the upfront expenses of implementing advanced ticketing systems by offering customized financial solutions, such as specialized loans or flexible payment plans. By providing financing options tailored to technology adoption, banks ensured that companies, especially small and medium-sized enterprises (SMEs), could acquire the necessary resources without disrupting their cash flow.

Additionally, strategic collaborations between technology providers and financial institutions made payment options more accessible. Subscription-based models or installment plans allowed businesses to distribute costs over time, easing the financial burden of adoption. Since companies paid for these services on a recurring basis, this approach not only enhanced affordability but also aligned expenses with the ongoing benefits derived from the system.

Financial institutions also played a key role in offering expert guidance on financial planning and technology investments. They assisted businesses in evaluating the most cost-effective financing models and understanding the long-term financial implications of integrating ticketing systems.

Another significant contribution of banks and financial institutions was the incorporation of secure payment mechanisms within ticketing platforms. By ensuring that ticketing systems had strong payment gateways, they facilitated safe, seamless, and efficient transactions. This integration streamlined the payment process, allowing clients to make direct payments through the ticketing system and eliminating the need for manual invoicing or third-party payment processors.

Moreover, secure payment solutions helped mitigate risks related to fraud and unauthorized transactions, fostering greater user trust. Businesses depended on these systems to manage customer payments securely and efficiently, strengthening the overall reliability of the ticketing platform. As a result, customers gained confidence in the system, knowing that their financial data was protected. This trust was crucial for the widespread adoption of ticketing systems and the continued expansion of digital service offerings in Zimbabwe.

5.5.5 Non-Governmental Organizations

Non-governmental organizations (NGOs), particularly those dedicated to technology, digital inclusion, and economic growth, played a pivotal role in facilitating the adoption of modern ticketing systems in disadvantaged areas. These organizations actively worked to reduce the digital divide by introducing advanced technological solutions where they were needed most, often leading initiatives to address socio-economic challenges.

To equip individuals in underserved and rural communities with the skills necessary to utilize and benefit from ticketing systems, NGOs launched community-focused training programs aimed at developing essential IT skills. These initiatives emphasized firsthand learning, enabling local populations not only to operate ticketing systems but also to understand the underlying technology. By providing training in key areas such as data management, troubleshooting, and customer service, NGOs helped create a workforce capable of maintaining and supporting ticketing solutions within their communities. This approach not only improved digital literacy but also fostered independence, allowing communities to manage technology more effectively on their own.

Beyond training, NGOs collaborated closely with IT companies and technology providers to evaluate and refine ticketing solutions tailored to the specific needs of marginalized communities. These pilot programs provided valuable insights into how such technologies could be adapted to local conditions, particularly in areas with limited access to advanced digital infrastructure. By customizing ticketing systems to meet the unique requirements of small businesses and vulnerable populations, NGOs ensured that these groups were not excluded from the benefits of modern IT support. This collaborative effort contributed to enhancing the efficiency and accessibility of ticketing systems, making them more relevant to local users.

Additionally, NGOs played a crucial role in advocating for equal access to IT resources, which was essential for fostering inclusive development. By championing policies that promoted digital inclusion, NGOs influenced public and private sector decision-making, ensuring that technological access was not limited by factors such as economic status or geographic location. Through advocacy efforts, NGOs raised awareness among national and local governments about the need to create an environment conducive to digital services, including ticketing systems. This often led to increased government investments in initiatives focused on advancing technology, improving infrastructure, and enhancing digital literacy in disadvantaged areas.

Moreover, NGOs worked to ensure that marginalized groups were not left behind in the digital transformation. By prioritizing support for women, youth, individuals with disabilities, and rural communities, they helped integrate these populations into the evolving IT landscape. NGOs also contributed to the development of targeted initiatives aimed at addressing specific barriers to adopting modern ticketing systems, such as affordability, accessibility, and awareness. Through these efforts, they played a vital role in bridging technological gaps and fostering widespread adoption of digital solutions.

5.6 Suggestions for Further Research

Future research should focus on the potential of artificial intelligence (AI) and machine learning (ML) to revolutionize IT support ticketing systems. A key area of investigation could be the automation of ticket categorization, where AI algorithms analyze incoming support requests and classify them based on urgency, type, and complexity. This would streamline workflows, ensuring that critical issues are prioritized and resolved quickly. Additionally, machine learning models could be developed to predict recurring technical issues by analyzing historical data, allowing IT teams to address problems proactively before they escalate. This predictive capability would not only minimize downtime but also significantly improve the overall efficiency of IT support operations. Another promising area for research is the use of AI-powered chatbots to oversee first-line IT support. These chatbots could interact with users in real-time, providing instant responses to common queries and guiding users through basic troubleshooting steps. By reducing the need for human intervention in routine tasks, chatbots could drastically shorten response times and allow IT staff to focus on more complex issues.

Moresore, as cloud computing becomes more prevalent, research should assess the benefits and challenges of adopting cloud-based ticketing systems over traditional on-premises solutions. Cloud platforms offer greater accessibility, reduced infrastructure costs, and enhanced scalability, making them particularly relevant for businesses in Zimbabwe. Investigating how cloud-based systems impact IT service delivery, as well as potential adoption barriers like internet reliability and cybersecurity concerns, can provide valuable insights for organizations considering cloud migration. Additionally, the adoption of cloud-based ticketing systems presents challenges that require further investigation. One critical area of research is the impact of internet reliability on the performance of cloud-based systems, particularly in regions with inconsistent connectivity. Studies could explore potential solutions, such as hybrid models that combine cloud and on-premises capabilities, to ensure uninterrupted service delivery. Cybersecurity concerns, such as data breaches and unauthorized access, should also be thoroughly examined. Research could focus on developing robust security measures, including encryption protocols, multi-factor authentication, and regular security audits, to mitigate these risks.

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Appendix i: AUREC Approval Letter

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 Website: www.africau.edu

Ref: AU 3426/24   3 September, 2024

KIMBERLY NANDI LUNGA
C/O Africa University
Box 1320
MUTARE

RE: ENHANCING IT SUPPORT EFFICIENCY IN ZIMBABWE THROUGH
      TICKETING SYSTEMS: CASE OF KENAC COMPUTER SYSTEMS.

Thank you for the above-titled proposal that you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.
a) Research proposal
*   **APPROVAL NUMBER**   AUREC 3426/24
    This number should be used on all correspondences, consent forms, and appropriate documents.

*   **AUREC MEETING DATE**   NA
*   **APPROVAL DATE**   September 3, 2024
*   **EXPIRATION DATE**   September 3, 2025
*   **TYPE OF MEETING:** Expedited
    After the expiration date, this research may only continue upon renewal. A progress report on a standard AUREC form should be submitted a month before the expiration date for renewal purposes.
*   **SERIOUS ADVERSE EVENTS** All serious problems concerning subject safety must be reported to AUREC within 3 working days on the standard AUREC form.
*   **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
*   **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

Yours Faithfully

MARY CHINZOU
ASSISTANT RESEARCH OFFICER: FOR CHAIRPERSON
AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE

Appendix ii-AUREC Proof of Payment

Stanbic Bank
A member of Standard Bank Group

✓

Transaction with transaction id 37557588 submitted
successfully and is pending for processing.

ZIG **220.00**

Africa University

CBZ BANK LIMITED

01322704290011

060100

Transaction ID
37557588

From
NYASHA

Date
Jun 25, 2024

Beneficiary Address
Mutare

My Reference
Kimberly Lunga AUREC Fee

Their Reference
Kimberly Lunga AUREC Fee

Appendix iii: Letter of Data Collection

KENAC

Kenac Computer Systems

109 ED Mnangagwa Highlands

Zimbabwe

Kimberly Lunga

1863 Chinamaringa close, Shawasha Hills

Harare, Zimbabwe

18 June 2024

Subject: Approval for Data Collection for Research Proposal on "Enhancing IT Support Efficiency in Zimbabwe Through Ticketing Systems: Case of Kenac Solutions"

Dear Kimberly

I am writing to formally approve your request for data collection as part of your research proposal titled "Enhancing IT Support Efficiency in Zimbabwe Through Ticketing Systems: Case of Kenac Computer Systems." This approval is granted in alignment with our institution's commitment to supporting research initiatives that contribute to the improvement of IT support services and overall operational efficiency.

The following data points have been approved for collection:

1. **Ticket Creation Date:** Data related to the dates on which support tickets are created within the Kenac Solutions ticketing system.
2. **Response Times:** Data on the time taken to respond to support tickets, from the initial ticket creation to the first response.
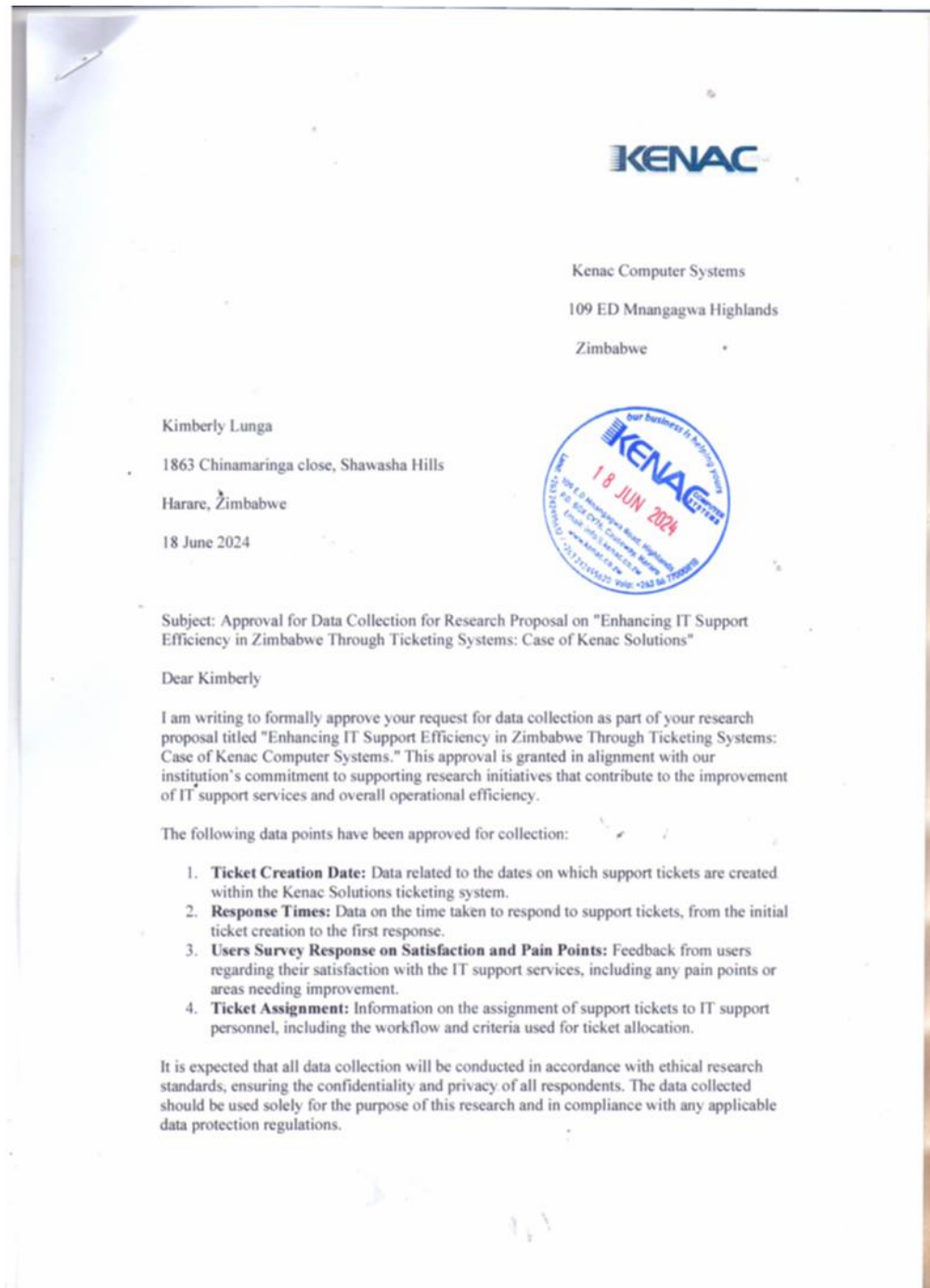3. **Users Survey Response on Satisfaction and Pain Points:** Feedback from users regarding their satisfaction with the IT support services, including any pain points or areas needing improvement.
4. **Ticket Assignment:** Information on the assignment of support tickets to IT support personnel, including the workflow and criteria used for ticket allocation.

It is expected that all data collection will be conducted in accordance with ethical research standards, ensuring the confidentiality and privacy of all respondents. The data collected should be used solely for the purpose of this research and in compliance with any applicable data protection regulations.

We look forward to the findings of your research and the potential improvements it may bring to IT support efficiency within Kenac Computer Systems and beyond.

Should you require any further assistance or have additional queries, please feel free to contact our office.

Best regards,

Eric Makuza

....

Data Science Engineer

Kenac Computer Systems

ericm@kenac.co.zw

Appendix iv: Informed Consent

My name is Kimberly Nandi Lunga, a final year Computer Science student from AU. I am carrying out a study on Enhancing IT Support in Zimbabwe through Ticketing Systems. I am kindly asking you to participate in this study by answering filling in a questionnaire.

The purpose of the study is to investigate potential societal impacts and challenges associated with enhancing IT support in Zimbabwe through powered ticketing systems. This entails closely examining issues such as privacy concerns, moral considerations, and the socioeconomic fallout from the use of powered ticketing systems in various contexts. You were selected for the study because of your expertise in powered ticketing systems and your significant role within the IT support sector.

If you decide to participate, you will be asked to complete a questionnaire related to cybersecurity threats and artificial intelligence in the education system. It is expected that completing the questionnaire will take approximately 5 minutes.

There are minimal foreseeable risks in participating in this study. However, participants might experience some discomfort while reflecting on the security issues or AI-related challenges in education. There are no known legal, health, or economic risks. If any psychological discomfort arises, participants can withdraw from the study at any point without any penalty. All questions are designed to be respectful of your time and privacy.

There are no direct benefits or compensation for participating in this study. However, your participation will contribute to a greater understanding of cybersecurity issues within the education system, which may have broader implications for improving security measures in the future.

Any information that is obtained in this study that can be identified with you will remain confidential. Your name and any other identifying information will not be asked for in the questionnaire. The data will be stored securely and only used for the purposes of this research. No personal information will be disclosed without your permission.

Participation in this study is entirely voluntary. If you choose not to participate, there will be no consequences, and it will not affect your future relationship with Africa University. If you decide to participate, you are free to withdraw at any time without penalty or loss of benefits.

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

Authorisation

If you have decided to participate in this study, please sign this form in the space provide below as an indication that you have read and understood the information provided above and have agreed to participate.

--   ---------------------------------

Name of Research Participant (please print)   Date

Signature of Research Participant or legally authorised representative

If you have any questions concerning this study or consent form beyond those answered by the researcher including questions about the research, your rights as a research participant, or if you feel that you have been treated unfairly and would like to talk to someone other than the researcher, please feel free to contact the Africa University Research Ethics Committee on telephone (020) 60075 or 60026 extension 1156 email aurec@africau.edu

Name of Researcher: Kimberly Nandi Lunga

Appendix v: Questionnaire

1. How satisfied are you with the IT support services in terms of response time and issue resolution at your organization?

- Very satisfied
- Somewhat satisfied
- Not satisfied

2. Age:

- 20-30 years old
- 31-40 years old
- 41-50 years old
- 51 years old and above

3. Gender:

- Male
- Female

4. What features of the ticketing system do you find most beneficial for IT support? (Select all that apply)

- Prompt response and issue resolution.
- Automatic categorization of support tickets
- Real-time assistance during problem-solving
- Availability 24/7
- Other (please specify): _____

5. Have you observed improvements in IT service delivery or response times due to the use of ticketing systems? (Yes/No)

6. Have you personally experienced or been involved in the use of ticketing systems for IT support in Zimbabwe? (Yes/No)

If yes, please describe the specific application and your experience: _____

7. What do you envision as the future of ticketing systems in enhancing IT support in Zimbabwe, and how can these systems be optimized for better service delivery?

8. Have you observed improvements in IT service delivery or response times due to the use of ticketing systems? (Yes/No)

If yes, please provide examples of the improvements you have observed:

9. What challenges or concerns do you see in the integration of ticketing systems in IT support within Zimbabwe? (Select all that apply)

- Data security and privacy
- Infrastructure requirements
- User training and adoption
- Cost of implementation