

**IMPACT OF INFORMATION COMMUNICATIONS
TECHNOLOGY ON THE POSTAL SECTOR:
A CASE STUDY OF ZAMBIA**

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**A dissertation submitted to the University of Zambia in partial fulfilment of the
requirements of the degree of Masters of Engineering in Information and
Communication Technology Policy, Regulation and Management**

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Signature.....

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Supervisor's Name.....

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CERTIFICATE OF APPROVAL

This dissertation by **SYLVIA MULENGA** is approved as fulfilling the partial requirements for the award of the degree of Master of Engineering in Information and Communications Technology (ICT) Regulation, Policy and Management by the University of Zambia.

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ABSTRACT

There has been a notable decline in postal services offered by Designated Postal Operators (DPOs) globally. The Designated Postal Operator in Zambia, namely Zambia Postal services Corporation is no exception. A notable shift in usage of ICTs in the postal sector is redefining the role of the Designated Postal Operator. Despite the shift in the sector, the impact on services delivery is not well understood. This study proposed to understand the status of the postal sector in Zambia and how ICTs are being adopted by the DPO, ZAMPOST in order to improve on service delivery.

The study adopted a mixed methodology, which included qualitative and quantitative representation of questionnaires distributed among 273 randomly selected respondents. These were distributed using online means and hardcopies. The data collected was analysed using excel and SPSS. Information from various reports and documentation on the local postal sector was also reviewed. This provided a better understanding on the services that are using ICTs as well as services that are still manual.

A review of relevant literature revealed that globally the postal sector is redefining its role in order to meet customer demands and provide quality services. There have been reforms in the postal sector over the years driven by various factors such as social, cultural, political, economic and technological factors. The traditional role of the postal operator is being replaced by the emerging technologically driven role. The postal sector has also seen an increase in the players on the market. The previously DPO dominated sector now has a lot of operators providing mainly courier services.

The study revealed that ZAMPOST, with its large network coverage is well placed to provide other services as an extension of their mandate to provide basic postal services to all citizens as part of its Universal Services Obligation.

Keywords: Postal services, Information Communications Technology (ICTs), Universal Service Obligation (USO), Designated Postal Operator (DPO)

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DEDICATION

I dedicate my work to my daughters, Grace, Gloria and Gift as a constant reminder that they can do anything their hearts desire. I also dedicate this work to my siblings, Kasumpa, Chibwe and Francis to encourage them to always aim high. Finally, I dedicate this work to my parents for their drive to continue achieving. I hope this research and this journey will inspire someone to rise above any obstacle.

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ACRONYMS AND ABBREVIATIONS

AU – African Union

ATU – African Telecommunications Union

DO – Designated Operator

DPO – Designated Postal Operator

GDP – Gross Domestic Product

ITU – International Telecommunications Union

PAPU – Pan African Postal Union

RTSA – Road Transport and Safety Agency

UN – United Nations

UPU – Universal Postal Union

UPS – Universal Postal Service

USO – Universal Service Obligation

ZAMPOST – Zambia Postal Services Corporation

ZICTA – Zambia Information and Communications Technology Authority

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter discusses the impact that Information Communication Technologies (ICTs) has had on the postal sector. The chapter will give a background of the sector of discussion and bring out the statement of the problem, objectives and aim of undertaking this study. The chapter also includes the layout of this thesis.

1.1 Background of the Postal Sector

Postal sector refers to the sector responsible for the provision of postal and courier services in a country. It is comprised of a public operator, referred to as Designated Postal Operator (DPO) who provide postal services as well as Private Operators who are referred to as non-Designated Postal Operators (non-DPOs). Postal services, as defined by the Zambia National Postal Policy of 2021 is the transportation and delivery of letters, printed matter, and mailed packages including acceptance, collection, sorting and other ancillary functions [1].

The policy further defines courier services as any specialised postal service for the speedy collection, dispatch, conveyance, handling and delivery of postal articles. The OECD Glossary of statistical terms further states that courier services focus on express and door-to-door delivery and may include on-demand pick-up or time definite delivery [2].

It must be noted from the onset that the postal sector's main role is postal and courier services. Further, the traditional role of the Postal Sector which was commonly the charge of the DPO has been changing over time. This can be attributed to the sector reforms that have pushed for changes in the sector as well as liberalisation of the sector which saw the introduction of non-DPOs offering postal and courier services.

There are some logistics companies on the market who also offer courier services as well. Logistics as defined by Pan and Zheng refers to the management of goods and materials and incorporates the movement and storage of goods and their associated information flows from source to customer both internal and external to the company [3]. This thin line between courier and logistics has introduced onto the market unofficial operators such as buses and motorbikes. It has become common for busses to courier parcels at a fee. However, very few bus operators and biker operators are also formally licensed as couriers of parcels making this segment

difficult to regulate. Statutory instrument number 31 of 2016 sets out categories of licences and the various conditions they are required to meet in order to offer a postal service [4].

1.2 Global, Regional and Local Postal Sector

The Postal sector can be divided into three broad categories. Namely, Global, Regional and Local. At the global level, the sector is represented by the Universal Postal Union (UPU). The UPU currently has 192 member countries, including Zambia. The global postal sector is further divided into regional bodies. These bodies coordinate all postal activities within the region as defined by the global postal sector. Zambia falls under the African postal regional body namely, the Pan African Postal Union (PAPU). The local postal sectors domesticate guidelines agreed to by regional and global sector bodies. The local postal sectors are comprised of DPOs and non-DPOs. There are other bodies that support the development of the postal sector. These include regulatory representation from all regulators of the sector. Operators' representation from all DPOs as well as other related union bodies such as the International Telecommunications Union (ITU) and its related regional ICT bodies.

The role of the postal sector has evolved from being a monopoly, to regulated competition and now into newer emerging roles. The historical role of the postal sector in which the DPOs held monopoly included the courier of letter mail and parcel mail services. Liberalisation of the sector introduced other roles in keeping with the newer players on the market. Now other factors are leading to a re-definition of the DPO in order to remain relevant and carry out the Universal Service Obligation (USO) mandate on behalf of governments. Jaag, states that new means of electronic communication and consumer needs call the traditional scope of universal services into question [5].

1.3 Postal Services

The general services offered by the postal sector includes;

- i. Letter Mail services: This refers to the conveyance of letters, postcards and other related articles.
- ii. Parcel services: This refers to the conveyance of parcels.
- iii. Financial services: This refers to the sending and receiving of monies.

The postal sector has also diversified to offer other services such as freight and forwarding, and in the case of Zambia to include transportation of persons, through the post bus and post boat as well as agency services on behalf of various institutions.

There has also been an increase in the use of ICTs in the sector diverting from the original role which the sector was recognised for. DPOs are now recognized as key participants in the provision of various services to all citizens. Apart from the provision of Universal Postal Services, the DPOs can also be used to reach the un-banked through provision of financial services as well as to bridge the digital divide through provision of digital services in all Post offices.

1.4 Statement of the Problem

Despite the increasing adoption of ICTs in the provision of postal services, their impact on services delivery is not well understood. Therefore, this study aims to examine the ICTs being adopted in the postal sector so as to determine their impact on service delivery and proposed approach to accelerate digitalization of postal services.

1.5 Significance of the Study

Declining postal services may result in reduced effectiveness for the sector to provide reliable services. This may also lead to a reduction in revenue generation, as the sector is a contributor to the country's Gross Domestic Product (GDP). There is also the possibility for loss of jobs as well as lack of service provision to sectors that rely on the postal sector, such as the Agricultural sector, for the supply of farmer inputs. Therefore, a deep understanding of the status of the sector and the impact that ICTs have on the sector will help to provide a basis for defining appropriate solutions to help mitigate against any negative impacts of ICTs.

1.6 Scope of the Study

The study focuses on the postal sector in Zambia and in particular amplifies, ZAMPOST in its capacity as the Country's DPO and public entity responsible for the provision of reserved services in the sector. ZAMPOST has a national coverage and offers its operations and services countrywide.

1.7 Aim of the Study

The aim of the study was to develop strategies for adoption of ICTs in the postal sector in order to improve the digitalization of postal services.

1.8 Purpose of the Study

The purpose of this study was to understand how the postal operator is transforming itself in view of the changing postal landscape brought about by advancements in technology and related innovations whilst still maintaining its mandate for the provision of Universal Service Obligation in the postal sector in view of the technological age.

1.9 Objectives

1.9.1 General Objective

The objective of the study was to understand how ICTs have impacted the postal sector in Zambia in view of the advancement in the adoption of ICTs around the globe.

1.9.2 Specific Objectives

1. To investigate the status of operations of the postal sector in Zambia.
2. To determine the impact that ICTs have had on postal services and activities through an evaluation of the changes brought about in the operations of ZAMPOST due to ICT adoption or lack of adoption.
3. To develop strategies for the transformation of ZAMPOST in alignment with the current technological landscape for better service delivery and mitigation against collapse due to inefficiencies as a result of lack of ICT adoption.

1.10 Research Questions

1. What is the status of the postal sector in Zambia?
2. What is the impact that ICTs have had on ZAMPOST operations and activities?
3. What opportunities are there to contribute to ZAMPOST's transformation in response to the changing technological landscape?

1.11 Layout of the Dissertation

Chapter One – Introduction: The chapter provides the introduction and background of the area of study. It also gives details of the statement of the problem, significant of the study as well as the study objectives, questions and limitations of the study.

Chapter Two – Literature Review: The chapter provides the literature review of the postal sector, postal services and related matters to understand the area of research better.

Chapter Three – Methodology: The chapter discusses the methods used in carrying out this study with details of the tools and conceptual framework to support the undertaking of this study.

Chapter Four – Findings and Discussion of results: The chapter presents the findings from the study and provides an analysis of the findings as well as interpretation of the results obtained.

Chapter 5 – Conclusion, Recommendation and Future work: The chapter provides recommendations on the study as well as a conclusion to the study. It also proposes future work in this area of study. Following this chapter, References and appendices are included.

1.12 Chapter Summary

The introduction chapter gave the background of the postal sector with information on the global, regional and local postal sector as well as the various services offered in the sector. The chapter also highlights the significant of the study, objectives and research questions. The chapter closed with a full detail of the layout of the dissertation.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The following chapter gives a detail of the history of the postal sector and how it has evolved worldwide. It presents a literature review on the state of the postal sector in Zambia and delves deep into understanding the area of study.

2.1 Postal and Courier Services

The Law Insider Dictionary defines postal services as the service of conveying letters, parcels, packets or other articles from one place to another by post and the incidental services of receiving, collecting, sorting and delivering such articles [6]. The Oxford Learner Dictionary simplifies this definition by defining postal services as a system of collecting and delivering letters [7]. This researcher notes that the definition of postal service may differ from Country to Country depending on the parameters imposed by that Country's policy and legal framework. However, the commonality in the definitions remains the aspect of sending and receiving. In the case of Zambia, the National Postal Policy of 2021 defines postal services as the transportation and delivery of letters, printed matter, and mailed packages including acceptance, collection, sorting and other ancillary functions [1].

Courier services are also part of the postal sector. By definition, the OECD Glossary of statistical terms states that courier services focus on express and door-to-door delivery. These services may also include on-demand pick-up or time definite delivery [2]. Similarly, the postal policy of 2021 defines courier service as any specialised postal service for the speedy collection, dispatch, conveyance, handling and delivery of postal articles. The policy further defines a courier as a company or employee of a company that transports packages and documents. Couriers may use self-owned, privately shared or public transportation to supply these services.

The definition of both postal service and courier service refers to postal articles. Postal services are offered by a DPO. The Zambia National Postal Policy of 2021 defines a DPO as any governmental or non-governmental entity officially designated to operate postal services and fulfil related obligations arising out of the Acts of the Universal Postal Union (UPU) [1]. The Zambia Postal Services Corporation (ZAMPOST) is the DPO and public entity in Zambia which is mandated to carry out postal services.

The non-DPOs offer courier services on the Zambian postal sector market. They are comprised of local and international private companies licensed to provide local, domestic and international services. It must be noted that DPOs offer both postal and courier services. However, postal services have been the dominant and known service associated with DPOs. Though both postal and courier services involve the sending and receiving of items, the distinction is that DPO refer to operators that are specifically appointed by Governments to carry out postal services' reserved services while courier operators or non-DPOs are private entities or companies offering courier services.

2.2 History of the Postal Industry

The Postal Industry can be traced back through centuries in history. Bellis states that postal systems, which involved the passing of messages from one person in one place to another person in another place, started with the invention of writing and may well have been one of the reasons that writing was invented [8]. The report further states that the first documented use of a postal system occurred in Egypt about 2400 BCE, when Pharaohs used couriers to send out decrees throughout the territory of the state.

In 1653, Frenchman Jean-Jacques Renouard de Villayer established a postal system in Paris. He set up mailboxes and delivered any letters placed in them if they used the postage pre-paid envelopes that he sold [8]. The citations show that traditional postal services have been around for a very longtime. The postal sector provided a means for people to communicate with one another across vast distances. The industry now faces near extinction with the advent of ICTs that have redefined how we live, work and communicate with one another [9].

The effects of technology on the Postal sector are being felt even by well-established postal systems. The United States (U.S) Postal Service report (2018) expressed that, volumes for first-Class Mail, which is an important product of the U.S Postal Service, generating approximately forty percent (40%) of total revenue and more than fifty percent (50%) of total contribution in the fiscal year 2016 had declined significantly over the years. The report stated that the portion of overall postal revenues had fallen from over sixty percent (60%) in the late 1970s to just forty percent (40%) in 2016.

During the process of literature review, the researcher noted that electronic commerce (eCommerce) has been a contributor to the need for diversification in the postal sector. Improved technology has been necessary to meet consumer demands with the increase in parcel postal articles [10].

An excerpt from the Week Magazine entitled the Secret Innovative History of the Post Office reports that Cloud computing, big data, Internet of Things, robotics, drones and 3D printing are among the most prominent technological innovations that will in future play significant roles in the postal sector [11]. The report concluded that technology played an overall positive role for postal services and is also an enabler and a driver for better services for consumers.

2.3 Global Postal Sector Environment

The Universal Postal Union (UPU) is a United Nations (UN) specialized agency and the postal sector's primary forum for international cooperation. It was established in 1874 and currently has 192 member countries. The Union sets the rules for international mail exchanges as well as provides the primary forum for cooperation between postal sector players in the member countries [8]. In facilitating the Union's obligation for international mail exchanges, postal operators are established and designated by Member States to provide the international services governed by the Universal Postal Convention as defined by the UPU [12]. DPOs as earlier defined are any governmental or non-governmental entity officially designated by a member state to operate postal services and to fulfil the related obligations arising from the acts of the Universal Postal Convention. [6].

Zambia become a member of the UPU in 1967 with ZAMPOST as the recognised DPO for Zambia [13]. As a member of the UPU Zambia adheres to the regulations of the Union. This determines its interactions with other member states for the provision of postal services. Courier operators are comprised of private entity players also referred to as non-Designated Postal Operators (non-DPOs). These are currently not direct members of the UPU. Interaction of the non-DPOs with the UPU is facilitated through the member states in which they operate, who are recognized by being part of the union with a DPO through which international cooperation is facilitated.

The global postal sector also works with other international bodies such as the International Telecommunications Union (ITU). ITU is a specialized agency of the United Nations responsible for matters related to information and communication technologies. The union has collaborated with the postal sector on various occasions and recognises the role that ICTs play in the postal sector development. ITU is committed to connecting all the world's people [14]. A number of studies have been undertaken by the UPU in collaboration with the ITU with resolutions passed that support the services of the postal sector. The UPU and other postal union bodies are participants in the meetings of the ITU in order to facilitate engagements for the benefit of the postal sector development.

2.4 Regional Postal Sector

The global postal sector is further divided into regions. In the case of Africa, the Pan African Postal Union (PAPU) is the regional postal sector body for Africa. PAPU is a specialized institution of the African Union (AU) responsible for coordination of activities aimed at developing postal services on the African continent. The Plenipotentiary Conference of African ministers in charge of postal services established PAPU in 1980 in Arusha, Tanzania. PAPU's vision is to ensure the implementation of a single postal territory that provides innovative, integrated and inclusive policy guidelines for the development of the postal sector in Africa [15]. The collective decisions of PAPU member states provide a regional voice on the development of the postal sector at the global level. One of the core objectives of PAPU is to support the development of a regional universal service model. Zambia is a member of PAPU and adheres to the Union's regulations.

There are other union bodies in the Southern part of Africa that support Zambia in its postal sector development. On the regulators side, the Communications Regulators Association of Southern Africa (CRASA) provides for harmonisation of the Postal and Information Communications and Technologies regulatory environment in order to improve the Postal and ICT business environment in the Southern African Development Community (SADC) [16]. On the Postal operators side, the Southern Africa Postal Operators Association (SAPOA). SAPOA is a SADC regional body responsible for the postal sector in SADC. The body is also mandated to ensure that every sector of the community has access to modern, efficient and diversified range of mail, financial and e-products [17]. All DPOs in SADC are part of SAPOA, including Zambia through ZAMPOST. It is necessary to note that the regional body for postal operators includes e-products in its mandate to ensure the provision of postal services. This shows that there is a deliberate move even from DPOs to diversify and embrace ICTs in the provision of quality postal services.

The regional postal sector also works with other union bodies such as the African Telecommunications Union (ATU) is a regional telecommunications body which also supports the work of the regional postal sector. ATU is a specialized agency of the African Union, in the field of telecommunications whose mission is to promote the rapid development of information communications in Africa in order to achieve universal access, and full inter-country connectivity [18].

2.5 Local Postal Sector

The postal sector in Zambia is comprised of the DPO, ZAMPOST and several Private Courier Operators, non-DPOs. ZAMPOST is a holder of a Public Postal licence while Private Postal Operators comprise of holders of local, domestic and international licences.

The postal sector in Zambia is further categorised into two types of services. These are reserved and unreserved postal services. Reserved postal services are provided by the DPO while unreserved postal services are open to all non-DPOs.

ZAMPOST has the largest footprint, with post offices spread across the country while most private postal operators provide services along the line of rail as well as in Provincial and District centres. The strategic operation of non-DPOs is to target highly populated areas for the purpose of profit generation.

The history of postal services in Zambia dates back to 1896 when the first Post Offices were established at Abercorn, now Mbala, Fort Jameson now Chipata and Kalungwishi near lake Mweru. However, these post offices did not enjoy international recognition until 1926 when the General Post Office (GPO), which was then a government department was admitted to the general membership of the Universal Postal Union (UPU). In 1975 by an Act of Parliament, a statutory body was established to run both Postal and Telecommunications [19].

In 1986, the organization was incorporated into a Public Limited liability company and became known as Posts and Telecommunications Corporation (PTC) whose shares were held by the holding company ZIMCO, on behalf of the government. This was the status until July 1, 1994. In July 1994 the Zambia Postal Services Corporation (ZAMPOST) was created under the Postal Service Act No. 24 of 1994 after the dissolution of PTC which separated the postal division from the telecommunications division. In August, 2009 the Postal Services Act No. 24 of 1994 was repealed and replaced with the revised Postal Services Act No. 22 of 2009 which defined ZAMPOST's mandate as providing postal and courier services, financial services including the creation of a Post Bank [19].

The Postal services Act No. 22 of 2009 also gives the parameters of postal services to be offered by operators by defining postal services as a reserved or unreserved. Reserved postal services as defined by the Postal Act of 2009, includes all letters, postcards, printed matter, small parcels and other postal articles subject to the mass or size limitations set out in the Act [20]. Reserved Postal service also includes the issuing of postage stamps and the provision of roadside collection and Post Boxes. The Act further defines a letter as having a mass up to and including 1 kilogram or size which fits into a rectangular box with dimensions as follows; Length of 458mm, width of 324 mm and thickness of 100 mm [20].

Unreserved postal services refer to all services which are open to other operators and includes all letters, parcels, postcards, printed matter, small parcels and other articles that fall outside the ambit of reserved services and up to and including 30 kilograms [20]. Unreserved postal services also include courier services. A courier service as defined by the Postal Act of 2009 means a service by which a document, letter, parcel or any article other than a telegram or an item under the reserved service is conveyed from door to door without a postage stamp [20].

The postal sector in Zambia has become very competitive due to the number of players who are offering the parcel postal service. The boom of online shopping has spurred the industry development with various other unconventional players entering the market. This includes motor bike riders, on foot courier delivery men, buses and in some cases taxis. An example of a taxi service which includes courier is Yango. Yango is an app-based taxi service offered in Zambia. An article published on 20th December 2022, reported that Yango had launched a delivery solution on the existing Yango app. The solution is aimed at assisting small and medium entrepreneurs bring their products closer to their customers' doorsteps and is expected to facilitate speedy delivery through use of motorbikes and location accuracy [21].

ZICTA reported in its Annual Market report of 2021 to have issued forty-nine (49) valid licenses in the Postal sector as of December 2021. This is against the thirty-five (35) valid licenses that had been issued at the end of December 2020. This is indicative of the steady growth of the sector [22].

Table 2.1. Number of Valid Licenses Issued in the Postal Sector: 2020 to 2021

S/N	Licence type	Duration (years)	Licences 2020	Licences 2021
1	Public postal operator	25	1	1
2	International and domestic courier licence	5	18	22
3	Domestic courier licence	5	14	18
4	Local courier licence	5	2	8
			35	49

The public postal operator license is awarded to the designated public postal operator ZAMPOST. The licence has a duration of twenty-five (25) years. Other operators, which include local and international business entities have licences of five (5) years duration. Among these operators there are also bus services operators who are licensed as courier operators. This

means that they are licensed to also carry parcels as well as passengers. The table above shows the operators that are licensed and fully compliant with the Postal regulations as set out by the regulator of Postal services, ZICTA.

ZAMPOST has one hundred and forty-six (146) post offices across the country, making it the postal entity with the largest network coverage in the country. Figure 2.1 below shows ZAMPOST's geographic coverage. This gives the operator the opportunity to have a larger market share against other operators who may not have reach or presence in every province. Further, the extent of the ZAMPOST network helps in supporting its universal service obligation.

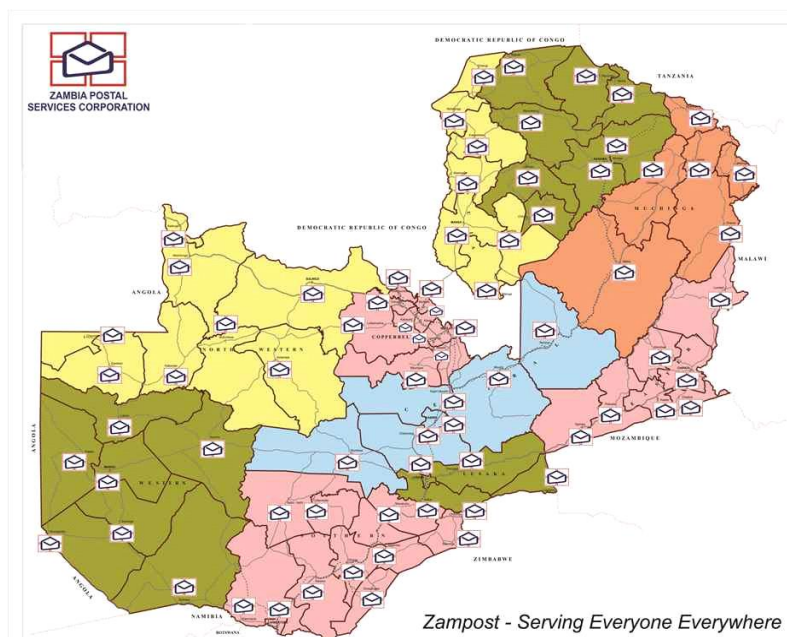


Figure 2.1. ZAMPOST Network Coverage Map [19]

2.6 ZAMPOST Services

The study identified the following services offered by ZAMPOST;

2.6.1 Financial Services

ZAMPOST offers financial services through Swift Cash Money Transfer, MoneyGram and Western Union.

- i. **Western Union and MoneyGram:** These are American financial services companies that provide electronic money transfer services. ZAMPOST operates as an agent on behalf of these companies.
- ii. **SwiftCash:** This is a ZAMPOST electronic money transfer service that enables customers to send and receive money.

The figure below shows the performance of the swift cash service over a period of five (5) years, 2016 to 2020.

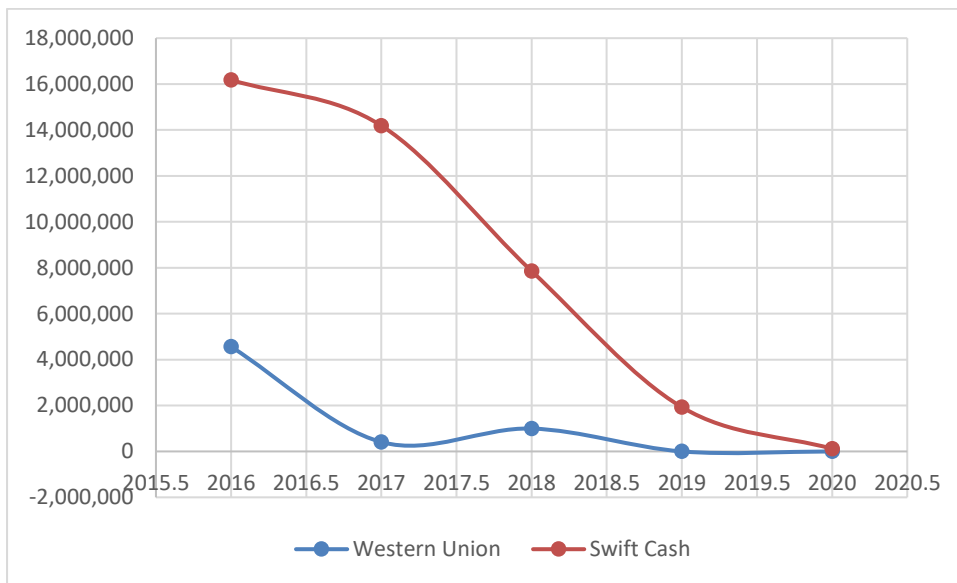


Figure 2.2: Western Union and Swift Cash Trends – 2016 to 2020

The figure above figure shows the downward drop of the financial services. Though the service is offered electronically, it can only be provided from the post office. The research revealed that this has affected its performance as customers have more choice such as the use of mobile operators for money transfer services, commonly known as mobile money. This service allows for convenience of accessibility as the Mobile Network Operators work with agencies who have mobile booth spread across various parts of the Country.

iii. ZAMPOST Money

During the course of the research, it was revealed that ZAMPOST has introduced the ZAMPOST Money transfer service that provides an e-Wallet solution allowing for money transfer services, as well as payment of bills such as Electricity and water bills. Customers can register for e-wallet services from any post office.

Registration can also be done online by downloading e-wallet forms for registration. ZAMPOST also offers a USSD registration option by dialing *881#. This initiative will allow ZAMPOST to compete favorably on the market as the eWallet option provides for convenience and ease of doing business [19].

2.6.2 Mail Services (Letters and Parcels)

Mail services refers to the sending and receiving of letters and parcels. This service is considered as the main service for ZAMPOST and may also be referred to as a traditional service. ZAMPOST in its mandate to offer Universal Postal Services is expected to undertake this service in order to ensure that customers have access to the basic postal services. The delivery of letters with mass of 1kg and below is a reserved service of ZAMPOST.

Ordinary mail is categorised as letters, postcards, small packets, printed matter, literature for the blind and parcels. The mail service also provides for registered mail. This is a service where mail is insured and recorded at the time of acceptance at the counter to delivery to the addressee. Registered Mail is accorded special security and the entire mail process is recorded.

ZAMPOST's parcel post service provides both air and surface parcel post. Parcels can also be insured and sent as registered mail. Compensation may be given to customers in the event of lost or damaged parcels. ZAMPOST offers Express Mail Service (EMS) delivery which provides for physical door to door delivery as well as track and trace of the mailed items. The service offers convenience to customers as mailed items within the same town can be delivered within the same day, 24 hours to next day delivery along the line of rail and 48 hours at provincial centres. Delivery to other parts of the country can be done within 72 to 96 hours. EMS also guarantees 3 to 5 days delivery for international mail. EMS is similar to the courier services offered by private operators.

2.6.3 Physical Post Box Rentals

ZAMPOST offers the Post box service which allows for customers to rent boxes in which parcels and letters can be deposited. Post boxes can be rented by individuals or companies.

2.6.4 Cars Bureau

The cars bureau service offered by ZAMPOST allows customers to purchase vehicles through the postal operator. ZAMPOST interacts with online car sales companies such as Beforward, Autocom Japan. This service allows the customer, with the help of a ZAMPOST officer to select their choice of motor vehicles. ZAMPOST assists the customer with the process from procurement till the delivery of the motor vehicle.

2.6.5 eZAMPOST

Electronic ZAMPOST (eZAMPOST) facilitates for the provision of ZAMPOST services online. It must be noted that this facility does not provide for all services. Other services still require a customer to walk into a post office and access the service with the help of a postal

officer. In order to access eZAMPOST, a customer needs to create an account online in order to have access to the services offered [23]. One of the notable services offered on the eZAMPOST is the management of digital post boxes. Digital boxes allows customers to access their post box from anywhere. This provides convenience as the post box is not tied to a physical post office. The parcel can be accessed from a post office which the customer designates. For example if the customer lives in Lusaka but is out of town at the time the parcel is expected to be delivered, the customer can change the place of receipt to their current location. The parcel can be picked up at a designated post office in the customer's current locality. Services currently offered on the platform include;

- i. Management of Physical addresses (Post Box),
- ii. Management of Virtual addresses (Virtual post box),
- iii. ecommerce services
- iv. e-registration for eZAMPOST services.

Figures 2.3 below shows the login page for the eZAMPOST portal.

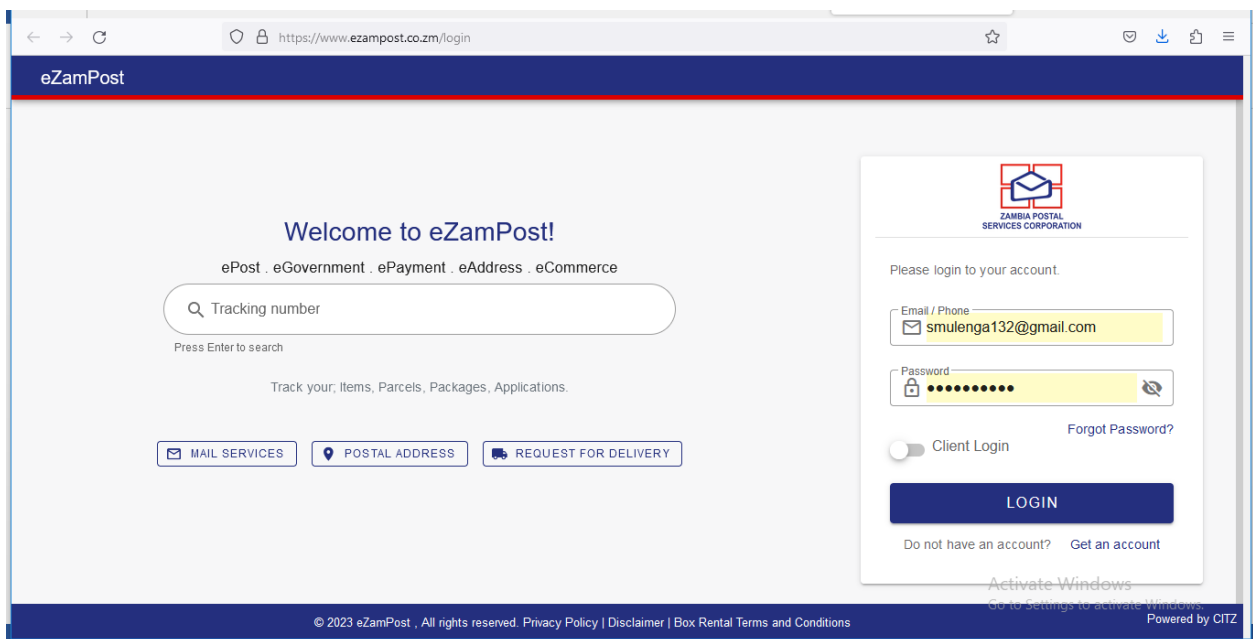


Figure 2.3: eZAMPOST Login Page

Figures 2.4 below shows the home page in the client's account profile after logging in.

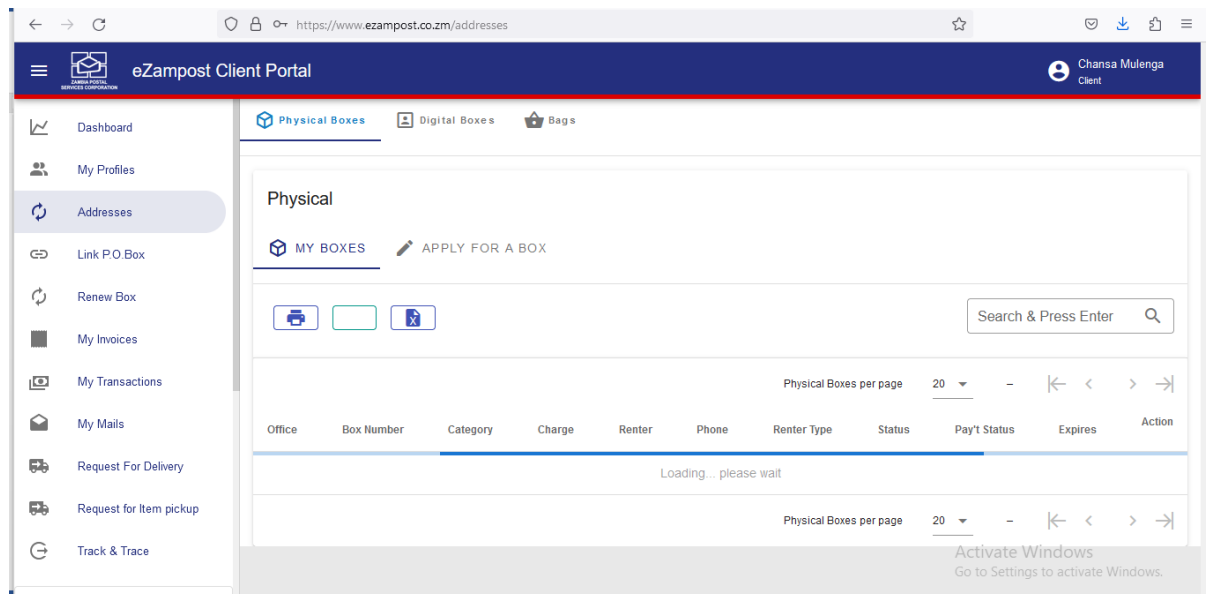


Figure 2.4: eZAMPOST Homepage

2.6.6 ZAMPOST Subsidiaries

- i. **ZAMPOST Post Bus:** The post bus is a subsidiary of ZAMPOST which offers intercity passenger transport. Post bus can also be used to courier domestic mail. The Post bus service allows customers to pre book tickets via telephone. The contact numbers can be accessed from any post office or from the ZAMPOST website.
- ii. **ZAMPOST Travel and Tours:** ZAMPOST Travel & Tours is a subsidiary which aims at providing travel reservations and ticketing for local and international trips. The service also provides travel insurance, hotel and car rental reservations as well as packaged tours. The travel and tour service can be accessed from any post office as well as via telephone and email.
- iii. **ZAMPOST Freight and Forwarding:** Freight and forwarding is a subsidiary of ZAMPOST offering cargo clearing and cargo deliveries including motor vehicles at Zambian borders. The service includes delivery of goods and motor vehicles to any destination within Zambia, comprehensive insurance for motor vehicles imported through ZAMPOST as well as issuance of road tax for on imported vehicles. Customers have the privilege to be informed of the progress of their commodities via telephone.

iv. **ZAMPOST Guest House**

ZAMPOST runs a guest house, which is also one of ZAMPOST's subsidiary. The guest house also accommodates students for period's time.

2.6.7 Agency Services

ZAMPOST has also entered into partnerships with various stakeholders to offer agency services. These include;

- i. Road tax and car insurance: ZAMPOST facilitates the buying and renewal of road licences from all post offices across the country on behalf of the Road Transport and Safety agency (RTSA). Motor vehicle insurance can also be purchased from the post offices on behalf of professional insurance.
- ii. ZAMPOST facilitates Payment of funds on behalf of Workers Compensation Fund, African Life Assurance and Public pensions.

2.7 Postal Sector Reforms

The postal sector at global, regional and local level has undergone reforms over the years driven by various factors. These include, social, cultural, economic, political and technological factors. The UPU Postal Reform Guide of 2019 in its preamble states that historically postal services in majority of countries were run directly by governments, with the main aim to have a monopoly on the revenue generation as well as on controlling communication, as the government postal entities were solely responsible for the sending and receiving of all government mail. [24] The report further states that unchallenged by competition for a long time, postal services were generally run without paying much attention to the needs of customers, who were considered users or mere recipients of services. Campbell, in a book titled Modern Postal Reform laws states that the national post office has been among the oldest and most enduring creations of modern government and is an important part of the commercial infrastructure, the social life of a nation, and the labor market. He further acknowledges that a confluence of technological advances- in the fields of telecommunications, transportation, and computers is causing many countries to rethink the institutional bases of the public postal operator and its role in the larger delivery services market [25]. The perception of the traditional post has changed over the years. Customers now have preferences and expectations which are influencing reforms in the postal sector. These now play a huge role in driving postal sector changes.

The Global Postal Industry Report of 2021, following an analysis of fifty-three (53) posts, also cites that lockdowns, as a result of the COVID-19 pandemic have supercharged e-commerce and fast-tracked digital trends, accelerating the structural shift from mail to parcels across the postal sector. The report further highlights that digitisation remains the key driver of structural mail volume decline across the postal sector, and the COVID-19 crisis has only steepened the descent. The report also revealed that in contrast, mail revenue dropped as lockdowns saw business activity slow down and e-substitution accelerate, driving down global mail volume. [26]. Despite the obvious challenges that global postal operators are facing, most posts remain among the market leaders in parcel delivery through leveraging on the vast physical presence and dense networks of the. The increase in eCommerce also introduces more competition as more and more players come on the market in order to meet the delivery demand from increased parcel post volumes [27].

Corredera and Leta states that Posts can help governments implement regional and national transformation strategies and can be key to ensuring digital inclusion for every society [28]. Various other reports have shown that postal sector diversification in the face of digital transformation is necessary. Corredera in a study undertaken in 2015 identified services such as e-post, e-government, e-commerce and digital financial payments solutions as services that can be integrated and provided by posts [29]. This researcher notes that the global outlook points to the fact that postal operators need to diversify in order to remain relevant. This poses a challenge to the DPOs as mail postal services were a preserve of DPOs to which they held monopoly while other players in the industry concentrated on parcel posts. Now the decline in mail volumes requires DPOs to change their model and adapt to the changing landscape [30]. There is need for the use of ICTs in combination with the existing physical infrastructures of DPOs to diversify and improve on service delivery.

The above perspective is further encoered by the UPU Director General in a statement given at the ITU Plenipotentiary conference held in Bucharest, Romania in 2022, in which he acknowledged the key roles that both the ITU and UPU play in connecting people. He further encouraged the postal sector to embrace ICT with a view to achieving sustainable digital inclusion, financial inclusion, as well as the inclusion of small and medium-sized enterprises in e-commerce, and cyber-protection of the postal network as critical national infrastructure [31].

Despite the above assertion, the UPU Director General stated that almost half of the world's post offices were not yet connected to the Internet posing a challenge to most member states striving to fit into the postal sector's emerging role. The Director General indicated that a strong partnership between the postal and telecommunication sectors will help countries to achieve full and meaningful Internet connectivity [31].

2.8 Universal Service Obligation

Universal Service Obligation (USO) refers to the obligation by governments to ensure Universal Postal Service (UPS) to all citizens. Governments have an obligation to protect the right of communication as a basic human right. The Zambia National Postal Policy of 2021 defines UPS as access to basic postal services as may be prescribed by regulation at affordable prices for all users. Further, article three (3) of the Universal Postal Convention obliges all Members of the UPU to ensure that all postal consumers enjoy the right to a UPS involving the permanent provision of quality basic postal services at all points in their territory, at affordable prices. [32]

The UPS guidelines also indicate that as signatories to the Acts of the UPU and the inherent treaty obligations, governments are obliged to place the fulfilment of the USO at the core of their national postal sector policies and strategies. This obligation is also inherent for Zambia, as a member of the UPU. In the UPS guidelines by CRASA, apart from countries being guided to provide basic postal services, it also proposes that Member states are at liberty to include additional services based on National needs and conditions to ensure that the USO meets the evolving Policy Objectives [33]. These may include:

- i. Financial Services such as Pension Payments and Money Orders
- ii. Specific Government Services
- iii. Courier Services

A study on the competitive strategy of the universal postal service provider analysed how the DPOs could employ their specificities to achieve an advantage over the growing competition. This study showed that even though DPOs are facing competition in their USO mandate it is also an opportunity to extend their role and redefine the USO [34].

The role of the DPO in provision of USO was meant to go beyond mere provision of services but was also an avenue to facilitate for governments' communication to all citizens. Kirlbowicz cites that UPS was developed as a safety net to fill gaps left by other information networks, especially in rural areas [35]. However, advances in technology is blurring the boundary

between the delivery of communications via physical and electronic means. Matuskova and Madlenakova asserts that Postal operators are faced with the challenge to construct medium/long term projection in a rapidly evolving market with e-substitution of postal services. There is a notable constraint on the DPO to manage the cost of providing UPS with the emerging role brought about by e-substitution [36]. In a country such as Zambia, where there remains a large number of the population with no access to digital services, the presence of the DPO remains a necessity. The USO for ZAMPOST can be expanded to go beyond the traditional basic postal services.

2.9 Internet and ICT in Postal Development

During the course of this study, the internet was identified as a key component in facilitating the adoption of ICTs in the delivery of postal services. Donahoe cites that the postal sector features in the short, mid and long term objectives of the African Union. He further presents that as part of the implementation of the Executive Council Decision EX.CL/Dec. 1074(XXXVI) requesting the AU Commission to develop sectors' implementation strategies/plans of the Digital Transformation Strategy (DTS) for Africa, the AU Commission embarked on the development of a study on the harmonised digitisation of postal services, including a new role of postal services as logistics hubs for e-commerce, financial inclusion and e-government services as well as promoting the intra-African trade in line with the implementation process of the African Continental Free Trade Area (AfCFTA). The specific objectives of the study included [37]:

1. supporting the development of African intracontinental postal activity in the context of the ramping up of e-commerce activities:
2. enabling African Union Member States to integrate sovereignty issues related to digital development of the post so that the continent can fully and fairly benefit from the fruits of this integrated economy in complete security:
3. and assessing the level of inclusion of digital postal transformation in the implementation of the DTS for Africa

Figure 2.5 shows the identified new needs that have led to digital innovations in the postal sector. As can be seen, the topmost identified need is access to postal services from home on mobile or internet platforms. In recognition of the key role that the postal sector can play in the digital transformation agenda, there is need to address the need for digitalisation of postal services. The figure also shows the identified areas of services that the sector must cover in the future. Key among these being, eCommerce and eGovernment. Alimonti, Mautini and

Stammati deposits that e-commerce has shown considerable growth in recent years, generating a turnover in excess of €300bn in the largest European countries (i.e., France, Germany, Italy, Spain, and the UK) in 2018. With the emergence of Business 2 Customer (B2C), e-commerce marketplaces have grown significantly, expanding in different parts of the supply chain, from providing an ecosystem to online merchants and e-shoppers to offering logistics and cloud services [38]. eCommerce is also a key area for the postal sector in Zambia as it is driving sector development with more and more customers using the internet to purchase goods. This can also be seen in a study undertaken by Aongola in which he analysed the effectiveness of Law of Agency in relation to the electronic commerce at ZAMPOST, Ndola, with the introduction of electronic business, products such as importation of Motor vehicles, Western Union money transfer and swift cash. ZAMPOST is expanding more onto the eCommerce platform through agency services [39]. Since the publication of this study ZAMPOST has entered into more partnerships including Banks.

The second identified area is also one of the key drivers for the digital transformation process for Zambia. Government has embarked on the initiative to deliver government services online through digitalization of government processes. A study undertaken by Bwalya, 2017 acknowledges that the adoption of e-Governance promises a sharp paradigm shift where public institutions will be more responsive and transparent, promote efficient Public Private Partnerships (PPP), and empower citizens by making knowledge and other resources more directly accessible [40]. The key role that citizens play in the government digitalization agenda cannot be over emphasized. Chipeta, cites that E- government is more than having a government website on the internet; it is an integrated approach that places citizens at the center of government business [41].



Figure 2.5: Digitalization of Postal Services

The report also highlighted some of the findings from the Project on postal digitalization undertaken by the AU. The project involved an assessment of ten (10) countries, two (2) per AU geographical regions. In Southern Africa, South Africa and Zimbabwe were selected as can be seen in the summary of results in Figure 2.6 below:











MADAGASCAR		
Wallet Paositra Money		Simple wallet allowing account-to-account payments.
ePoketra		Wallet designed with Bank of Africa including means of payment
SOUTH AFRICA		
Motorvehicles renewals		Online vehicles licensing.
COVID Health R350 payment		Payment of COVID benefit by the government.
SA_post		Online marketplace.
TrackMyParcel		Online parcels track and trace.
ZIMBABWE		
PostMoney		Digitalization of Electronic Money order and interoperability between the local telco companies.
CIC		Community Information Centers to provide eGov services
Zimbabwe Mall		Facilitation of online shopping, online advertising and last mile delivery (common platform for SMEs and one-stop shop for customers). More info: https://www.zimbabwemall.post/
Virtual PostOffice		Self-service platform to access to all Zimpost products & service.

Figure 2.6: Findings on the AU Study

Figure 2.7 shows the recommendations that were proposed from the analysis undertaken. These are to be considered and added to Countries' in their digital transformation agendas.

Consolidation of the countries' findings and assessment of their level of digital development as a tool to give insight into the state of digital postal capability.

Accordingly, a **set of recommendations** embedded in regional digitalization strategies:

Postal operator	Regulator	Government
<ul style="list-style-type: none"> Develop local partnerships to share costs, equipment, technologies, and training Increase post office computerisation and connectivity Reinforce staff IT skills Adapt the organization's structure to the new requirements of the digital economy, innovations, partnerships Simplify customer experiences using digital Develop the postal addressing system countrywide to facilitate e-commerce and e-government services 	<ul style="list-style-type: none"> Modernize regulation to foster postal digitalization to facilitate e-commerce processes and deliveries Integrate digital postal services into the universal postal service Explore funding for postal digital infrastructure development from Universal Serviced Fund 	<ul style="list-style-type: none"> Increase availability of broadband for post office connectivity Leverage the postal network for the digitalization of governmental and social services Review the policy and legal framework of the postal e-commerce obligations

Figure 2.7: Recommendations from the AU Study

A study of relevant literature revealed that there has been a notable increase in internet usage worldwide. Hakim, Kumar and Shin in a study to examine Internet usage trend and postal services performance in Australia from 2006 to 2010 state that the results on Internet usage indicate increasing trends in domain name registrations, Internet user population, Internet usage duration, and e-commerce value. While the results on postal service performance show stagnating trends in mail volumes, revenue, pre-tax profit, rate of return, and labor productivity growth during the same period [42].

Zambia is no exception. Zambia's internet users in the year 2000 was around 20,000. Currently statistics show that Zambia has around 10.4 million internet subscribers, representing an internet penetration rate of 56.8% as at 31st December 2021 [43]. However, there still remains a large number of the population with no access to internet. The Zambia Inclusive Digital Economy Status report of 2022 noted that gaps remain in addressing Zambia's digital agenda, especially in rural areas where the population is mostly sparsely distributed [44]. Therefore, it stands to reason that if ICTs can be adopted in all post offices there will be need to ensure access to internet in every post office. This will also help in supporting the digitalisation agenda as the post office can be used as a center to access all digital services. Mitigating against lack of internet in most parts of the country as well as lack of suitable devices, visa vie smart phones to access online services.

2.10 Zambia Postal Sector Policy Environment

This researcher notes that the Postal Act No. 22 of 2009 was anchored on Zambia's National ICT Policy of 2006. The Policy in its situational analysis recognizes postal communication as one of the sub sectors in Zambia's ICT sector [45]. The policy further recognizes ZAMPOST as the major player in the sector with a number of private operators having entered the market in the courier business.

Despite the policy having been developed over 15 years ago, its assertion that the introduction of technologies such as Internet registered a down-ward trend on the letter-based system still remains valid. The policy further noted that the increased internet usage had contributed to e-commerce in the country. With this acknowledgment, the ICT policy of 2006 emphasised that the postal system could contribute significantly to e-commerce penetration therefore a re-engineering of the sub-sector was required to fit the new business environment [45].

Fifteen (15) years since the launch of the National ICT policy of 2006 the postal sector business environment has changed even further. The Government of the republic of Zambia through the Ministry responsible for postal services developed and launched the first National Postal Policy. The postal policy in its preamble states that the global and regional trends occurring in the postal sector necessitated the need for Zambia to have in place a National Postal Policy to transform the sector into a dynamic, inclusive and competitive sector.

The Policy further seeks to transform the sector from the traditional paper and letter based to a sector that embraces Information Communication Technologies (ICTs) for efficient and effective service delivery [1].

2.11 Regulation of Postal Services in Zambia

Postal services in Zambia are regulated by ZICTA who also regulate the ICT sector in Zambia. ZICTA states that regulation of the postal sector is important for the following reason [46];

- To ensure universal access to services;
- To foster competition, and with it, increased innovation;
- To protect the interests of consumers;
- To maintain quality of service;
- To encourage investment in the sector.

In order to effectively regulate the sector ZICTA's specific regulatory functions in the postal sector include [20];

- Collaborating with other stakeholders in the postal industry;
- Defining mechanisms for financing universal service obligations;
- Promoting the interests of consumers of postal and courier services;
- Promoting universal, accessible, quality, affordable and reliable postal and courier services so as to ensure equal access to basic postal and courier services by all users including those in under-served, un-served and rural areas;
- Promoting effective competition between postal operators through the licensing regime;
- Setting quality of service and technical standards for licensed services and monitoring performance against these standards;
- Encouraging research and technological advancements in the sector.

2.12 Related Works

Information Communication Technology has influenced the postal sector globally. Literature has shown how the postal sector landscape has changed with increased adoption of ICTs. Innovation is a key factor in ensuring that the sector adapts and continues to provide efficient services. The postal sector in Zambia is no exception. With increased uptake of ICTs, the need to diversify is an important factor in the sector. Emphasis is placed on the public postal operator as it has held monopoly over letter post. With this service having been highly affected, the operator needs to break new grounds in the parcel post if it is to equal the competition in this segment of the postal sector. Studies have shown that uptake of digital services will continue to rise thereby guaranteeing that the courier segment will continue to thrive.

2.12.1 Technology and Change in Postal Services – United Kingdom

A study titled Technology and change in postal services – impacts on consumers by Hillebrand, Thiele, Junk, Hildebrandt, Needham, Kortüm, was undertaken in 2016. The purpose of the study was to provide an overview of technological developments in the postal market and assess the potential future impact of various technologies and innovations on the market, and on British consumers in particular. The study revealed that there are challenges with broadband access in some areas which impacts on the use of technology. However, it does not provide interventions on how to address this challenge which may affect adoption of technology in some parts. The study methodology used was research and literature as well as interview-based

questionnaires. The study also included impact Assessments and analysis with support from desk research and literature review.

The study revealed that digitalisation has changed the role of the postal sector in the United Kingdom (UK) with mail volumes declining and parcel volumes growing. The study further revealed that competition and customer demand for improved operational efficiency and need for new products and services have supported the use for technology in the postal sector. One aspect brought out by the study was how the internet has transformed society with about 90 % of the British population online. However, the report also acknowledged that there were still gaps in some areas such as parts of Scotland and Wales with broadband challenges.

The study identified interventions to support the sector such as the development of new online shopping and delivery solutions using technology to introduce new added-value services such as the 'click and collect', where consumers pick up their online orders at 'parcel shops' or, from self-service parcel lockers. The study concluded that technology plays an overall positive role for postal services and acts as an enabler and a driver for better services for consumers [47].

2.12.2 A New Reality – United States

A report by the United States postal service, 'A new reality: correspondence mail in the digital age', focuses on the decline in volumes on correspondence mail. Correspondence mail consists of mail that is used solely or primarily to deliver communications, such as personal letters, greeting cards, and non-sales related communications sent and received between households and businesses and the government. The report highlights that Correspondence mail experienced its large decline some 15 years ago with the pervasive availability of free electronic communication.

The report further identifies electronic diversion as the biggest culprit for the continuous volume decline of the correspondence mail segment and deduces that in the face of continued declines in mail volume, the Postal Service may need to continue to seek innovative ways to enhance the product's relevance to the American public as it is also the core of the Postal Service's universal service obligation (USO).

As earlier literature has shown, the need for implementation of the USO is among the critical factors why postal services cannot completely be phased out. However, it must be noted that even big postal entities such as the US postal service is not immune to the declines brought about by ICTs.

The report by the US postal service cites Electronic Diversion as the replacement of letter mail with electronic communications such as e-mail, text messages, social media posts, and other

communications sent online. It is important to note that the report also singles out exploring ways of increasing the value of the mail, most particularly innovative means of incorporating digital elements in physical mail pieces. Just as our literature has shown, innovation is a key component in mitigating against expected decline of letter-post services [48].

2.12.3 Innovation in the Postal Sector

According to Otsetova and Dudin, postal operators have started the implementation of new digital services in order to extend their portfolio and to find new markets extended the traditional postal market. Traditional postal services are no longer able to meet consumer demands and market needs. Various technologies are being embedded within the postal sector to mitigate against declining postal services. Otsetova and Dudin (2018) conclude that the postal sector has embraced innovation in order to respond to the rapid evolution of consumer needs and to remain competitive in the conditions of Fourth Industrial Revolution [49]. The new digital means are not able to substitute the physical delivery, but they can enhance the process efficiency and flexibility, and reduce the transaction cost. Krastev deposits that New digital technologies is having a strong influence on the way postal operators are functioning and providing services and will continue to have greater impact in the future [50].

The UPU, in its research on postal markets cites a study undertaken by the UPU which benchmarked the development of postal e-services in UPU member countries and noted a significant progress in the take-up of postal e-services [51]. The e-services identified in the report included the following:

- E-post and e-government, such as: e-mailbox, online direct mail, postal registered e-mail, e-cards, online bureaufax, e-invoicing, hybrid mail, reverse hybrid mail, e-postal certification mark, digital signature, digital identity services, credential services, digital archive, e-health, e-administration and e-registration.
- E-commerce, such as online philatelic and postal products, shopping portal, integration of postal web services and merchant sites, performance reports and analytics, virtual international address, calculation of total landed costs, and online management of documents and merchandise delivery options.
- E-finance and payments solutions, including escrow services for e-commerce, online account management, e-bill paying, e-invoicing, and e-multi-shop/single-pay gateway, etc.
- Support services, such as online lookups (e.g. post codes, post offices), track and trace, online change of address, holding or forwarding of mail, digital personalized postage, pick-up service, electronic notifications, online contact and customer service, etc.

The above shows that the UPU also acknowledges that DPOs must innovate in order to establish their position on the market.

2.12.4 Integration of ICTs in the Postal Sector

According to Isote, in a study undertaken to understand the Impact of ICTs on the performance of Tanzania Post Corporation, integration of ICTs in the Corporation's operations has improved its performance and efficiency in delivery of services [52]. Similar literature revealed that integration of ICTs supports the development of the postal sector [53]. Notwithstanding the fact that some commonly known traditional services may need to be re-evaluated and absorbed in the changing technological landscape, studies have shown that ICTs still play a key role in supporting future postal developments [54]. Ankrah further supports this assertion in a study undertaken on Impact of Technology on postal services in Ghana with the conclusion that organizational efficiency and productivity have increased as a result of technology and that technology has given rise to innovative products and services in Ghana Post [55].

Table 2.2: Summary of Related Works with Gaps

Author	Title	Findings	Gaps
(Hillebrand, Thiele, Junk, Hildebrandt, Needham, Kortüm, 2016)	Technology and change in postal services – Impact on consumers	The purpose of the study was to provide an overview of technological developments in the postal market and assess the potential future impact of various technologies and innovations on the market, and on British consumers in particular	The study identifies that there are challenges with broadband access in some areas which impacts on the use of technology. However, it does not provide interventions on how to address this challenge which may affect adoption of technology in some parts
(Risk Analysis Research Center Report, 2018) – Office of Inspector General, United States Postal Service	A New Reality: Correspondence Mail in the Digital Age	The study focuses on the decline in volumes on correspondence mail. Correspondence mail consists of mail that is used solely or primarily to deliver communications, such as personal letters, greeting cards, and non-sales related communications sent and received between households and businesses and the government.	The study does not provide proposed innovations for increasing the value of the mail by integration of digital elements in the physical mail pieces. This can be considered for future studies in order to maintain the traditional mail services.

<p>Otsetova and Dudin (2018)</p>	<p>Innovation in the postal sector</p>	<p>The study was aimed at identifying innovations addressing the increasing customer demands and new market needs</p>	<p>The study revealed the need for Designated Operators to innovate in order to establish their position on the market. However, the study concentrated more on how technology can enhance the current operator services and less on whether these services are meeting the changing consumer needs.</p>
<p>Lynnchristine Gregory Isote (2013)</p>	<p>Impact of ICTs on the performance of Tanzania Post Corporation</p>	<p>The study undertaken to understand the Impact of ICTs on the performance of Tanzania Post Corporation. The study focused on examining ICT technologies available at TPC; assessing efforts used to improve product innovation in TPC; assessing performance trends before and after adoption of ICT in TPC and exploring customer responsiveness towards TPC services in the era of ICT. The study adopted a case study research design to attain its objectives.</p>	<p>The study identifies the need for the continued existence of the Tanzania Post Corporation. However there is need to show how the corporation is improving its services in view of the continued rise of other sector players on the market are</p>

		<p>The sample size for the study was 62 respondents.</p> <p>Purposive sampling technique was used whereby questionnaire, interviews, observation and documentary review were used to collect data. The Statistical Package for Social Sciences (SPSS) and Excel software were used in analysis, while data from in depth interviews were analyzed qualitatively. In this study, it was found that ICT technologies available at TPC include: computers, telephone and internet.</p>	
Cecilia Amponsah (2015)	The Postal System In The Era Of Technological Advancement In Communication: A Case Study of Ghana Post	The study aimed to answer the question of what has become of the postal system in view of the changing communications sector.	The study shows how Ghana Post has improved its service delivery despite the changing landscape and is working side by side with other operators that are coming on the market. However, it does not show how Ghana Post is maintaining its Universal Service Obligation in view of the adoption of new and emerging trends

2.13 Chapter Summary

The chapter presented literature on how ICTs have impacted the postal sector both at a global level and locally. Studying related literature also showed how innovation has spurred postal sector development and presented the need for integration of ICTs in the postal sector in response to the changing postal sector landscape.

CHAPTER THREE

RESEARCH METHODS

3.0 Introduction

The following chapter gives details of the methods and procedures that were used in this research in order to address the research objectives and questions set out in Chapter one of this dissertation.

3.1 Research design

Research design refers to the logical plan of action that a researcher takes in order address the identified research questions. The study adopted the qualitative and quantitative research approach. Suphat defines quantitative research as the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect [56]. Aspers and Corte defines qualitative research as an iterative process in which improved understanding to the scientific community is achieved by making new significant distinctions resulting from getting closer to the phenomenon studied [57]. Use of the two research approaches in this study which was aimed at understanding the status of the postal sector in Zambia in view of the changing landscape brought about by ICTs provided a compliment of strengths from each approach that was necessary to get the desired results. Figure 3.1 below provides a pictorial view of the research design approach used in this study.

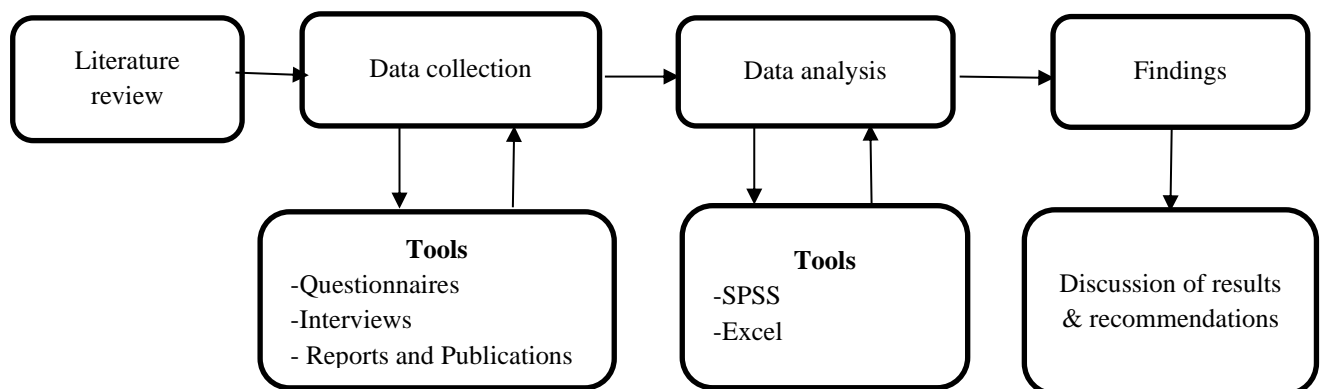


Figure 3.1. Research Design

3.2 Data sources

In this study, primary data was obtained from various documents, which included policy documents, articles, books, and publications, reports, surveys undertaken and journal articles. The sources of these documents included, among others, the Ministry responsible for the postal sector in Zambia, the Regulator of postal services in Zambia as well the Public Postal Operator in Zambia. Further, supporting documents from Union bodies such as the UPU, ITU, AU, CRASA, SADC provided useful information on the sector. The primary data provided for a wider perspective on the effect of ICTs on the local and International postal sector. Key publications from international bodies provided insight into how these international bodies are collaborating in ensuring the development of both the ICT and postal sectors. Secondary data was obtained using structured and semi structured questionnaires administered to users of postal services as well as ZAMPOST. This was done to get a general perception from the point of view of the customer on the postal services offered by both ZAMPOST and the various Private Courier Operators on the market as well as get an understanding of the relevance of the services being offered by the sector. The purpose of the questionnaires to customers was to better understand the sector in its current form by understanding how customers perceive the sector.

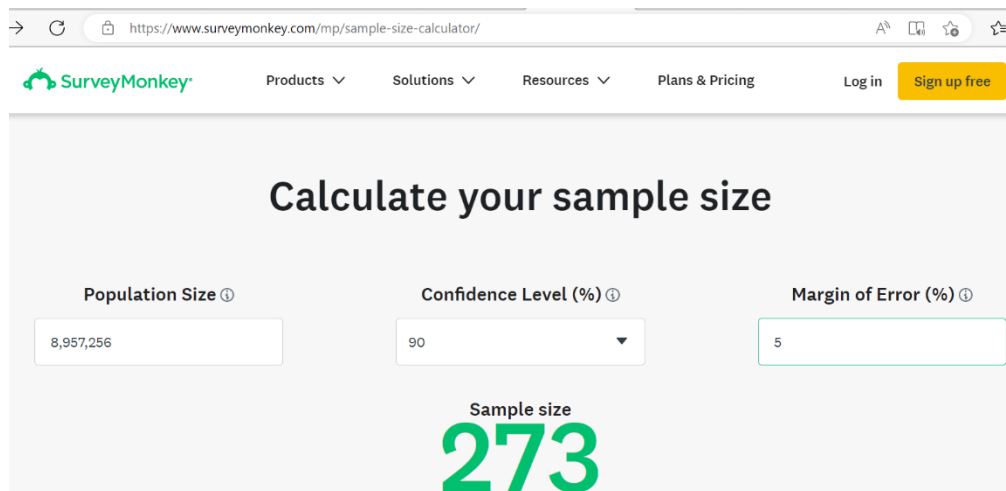
The questionnaires to the general populace were distributed in various forms including hardcopies to randomly selected respondents who have had direct interaction with the Postal sector or are aware of others' experience with the Postal sector. Online means of distribution were also employed through google forms, whatsapp messages and emails. The online platform facilitated responses from a wider array of respondents to include those in various parts of the country as the questionnaires were easily sharable from one person to another and from one group to another. Structured interview questions were also asked to relevant personnel at ZICTA, ZAMPOST as well as the Ministry in charge of postal services.

3.3 Study population

The selection of the study population was based on the adult population for the country with the assumption that postal services obtaining in various parts of the country are the same. The full population size used was 16,405,229 based on the 2016 Zambia Population with an estimated 45.4% of population to be below 15 years, leaving the adult population of 8,957,256 to be used for the sample size calculation [58].

3.4 Sampling technique and sample size

In order to arrive at the sample size used in this study, an online sample size calculator was used. Using 8,957,256 as the sample size of the adult population, and a Confidence level of 90% and Margin of error of 5%. The calculated sample size arrived at was 273 as shown in the figure below.



The image shows a screenshot of the SurveyMonkey sample size calculator. The browser address bar displays the URL: <https://www.surveymonkey.com/mp/sample-size-calculator/>. The SurveyMonkey logo is in the top left, and navigation links for Products, Solutions, Resources, and Plans & Pricing are in the top center. A 'Log in' link and a yellow 'Sign up free' button are in the top right. The main heading is 'Calculate your sample size'. Below this, there are three input fields: 'Population Size' with the value 8,957,256, 'Confidence Level (%)' with a dropdown menu set to 90, and 'Margin of Error (%)' with the value 5. Below these fields, the text 'Sample size' is followed by the large green number '273'.

Figure 3.2. Sample Size Calculation

The respondents were randomly selected in the distribution of the questionnaires, with the guide that the respondents needed to have had direct or indirect exposure to postal services in Zambia. For other respondents from ZAMPOST, ZICTA and the Ministry responsible for the postal sector purposive sampling was used to ensure that the respondents had the necessary experience in the institution to provide accurate information.

3.5 Data analysis

The data collected on services offered by ZAMPOST was analysed based on the level of adoption of ICTs in undertaking the identified services. This was presented in a table format with an analysis on the impact of the services in their current form, either automated or manual. The data collected from the questionnaires was analysed using the Statistical Package for Social Scientists (SPSS – Version 20). Some of the data was further analysed and presented in graphical form such as pie charts and bar charts using Microsoft Excel. This provided for easier interpretation of the data as the graphs gave a pictorial analysis of the respondents' responses. Further, use of the charts helped to condense the large amount of information into manageable data for ease of interpretation. Inference was also made during analysis to some of the varied opinions expressed by respondents in the open-ended questions.

3.6 Conceptual framework

This study was motivated by the notable shift in the postal sector operations as a result of ICTs. This is observed from various literature as well as the baseline study undertaken. It is clear that ICTs have had adverse effects on the postal sector. However, the response of the postal sector to these changes can determine whether the industry remains viable or not. Development of a suitable framework is necessary to show the positive impact which ICTs can bring to the Postal sector. Therefore, the intent of this study was to understand the current status of the sector as well as how operations and services have been affected, particularly in ZAMPOST. With this achieved a proposed framework would clearly show the extent to which ICTs impact the postal sector.

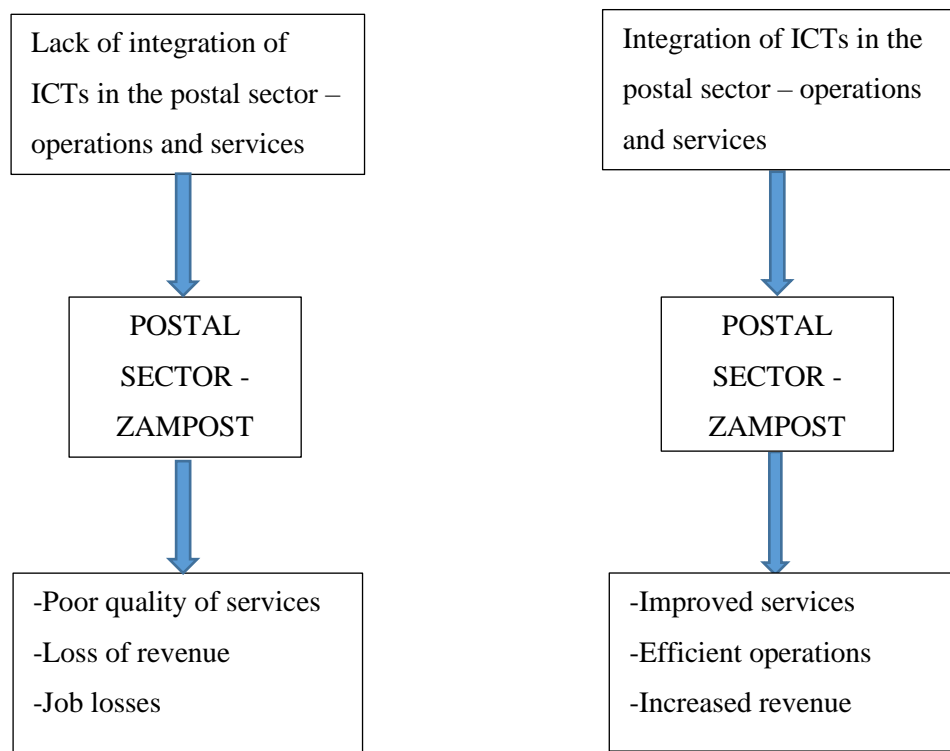


Figure 3.3. Conceptual Framework

3.7 Validity and Reliability

Thorough interrogation of the research findings through the research period was necessary to ensure the validity and reliability of the research findings. Further, the research instruments were carefully analysed and tested to ensure ease of communication in order to receive the required feedback. The obtained results were also carefully analysed using a reliable analytical tool, namely, SPSS. This ensured the accurate representation of the finding and ease of analysis.

3.8 Ethical Considerations

The research relied heavily on external respondents hence there was need to give assurance that the research was purely for academic purposes and that the responses received would in no way jeopardize any respondent. Assurance was also given that no respondent would be identified by name and no part of the research findings would directly reference a respondent. Further, assurance was given that any assumptions and suppositions made by the researcher would in no way reflect the views of the respondents.

3.9 Limitations of the study

The study took into consideration fact that other players in the sector offer courier services while ZAMPOST as the designated operator offers both postal and courier services. Limitation on resources as well as restriction on movements during the period of the COVID lockdown affected physical meetings. However, the use of online platforms to circulate the questionnaires facilitated a wider respondent coverage. Further, it must be noted that current official Annual reports were not available during the time of this study. This is owing to the fact that ZAMPOST has a backlog of Annual report yet to be done.

3.10 Chapter Summary

The chapter presented the methodology of the study. It provided details on how the data was collected, processed and analysed. Information on the study sample and limitations considered during the study were also discussed. The next chapter presents the finding from the data collected in the course of the research.

CHAPTER FOUR

FINDINGS AND DISCUSSION OF RESULTS

4.0 Introduction

The chapter details the findings and analyses and discusses the results of the data collected. The analysis is based on the results obtained from the questionnaire administered during the course of this research as well as information collected from various secondary sources including the Ministry in charge of the Postal sector, ZAMPOST and ZICTA.

4.1 Local Postal Sector Status

The study revealed that e-commerce has increased the need for courier services on the market for the distribution of parcels both locally and internationally. This can also be attributed to the advent of the COVID 19 pandemic, which caused customers, in a bid to adhere to COVID 19 restrictions, to increase online purchase of goods providing an opportunity for the courier operators who already have a greater market share on parcel post. The parcel service is a major contributor to the sector's operations. Most of the players on the market are focused on the courier of parcels. There is need to ensure that customers get value through improved service delivery. Use of track and trace on both domestic and international parcels would provide for improved customer experience.

The study was also able to determine the status of ZAMPOST and found that there has been a reduction in the revenue generated from a number of critical services namely mails, parcels, freight and forwarding as well as money transfer services. The study revealed that DPO no longer view the letter-post as its main revenue generator but rather are putting in place various initiatives to redefine the postal sector.

Findings also revealed a reduction in money transfer services by ZAMPOST. This can be attributed to the various money transfer services that have come on to the market using mobile-based platforms. ZAMPOST's failure to adopt mobile platforms and agent booths for money transfer services has made ZAMPOST to lag behind. Swift Cash, previously the earliest mode of money transfer in Zambia is now competing with the Mobile Network Operators who are offering convenient options. Tying the money transfer service to a physical location, namely a post office provides little flexibility to the customer. Therefore, the introduction of ZAMPOST Money with the provision for an eWallet will provide convenience and ease of doing business thus improving service delivery for ZAMPOST.

4.2 ZAMPOST Services – Automated / Manual

The table below attempts to present the various services offered by ZAMPOST whether manual or automated. The analysis goes further to provide possible impact of the services in the nature they are being offered. The Analysis has focused on the DPO as the public entity operator in the postal sector mandated to offer postal and courier services. The services listed below are attributed to the DPO.

Table 4.1: ZAMPOST services: Automated / Manual

SN		SERVICE	DESCRIPTION	AUTOMATED / MANUAL	IMPACT / RESULT
1	MAIL SERVICES	Sending and receiving Ordinary Mail service (letters, postcards, small packets, printed matter, literature for the blind)	<ul style="list-style-type: none"> The process requires physical interaction between the customer and postal officer. The mail service also provides for registered mail. This is a service where mail is insured and recorded at the time of acceptance at the counter to delivery to the addressee. Registered Mail is accorded special security and the entire mail process is recorded. 	The service is semi-automated as it facilitates for physical registration. Barcodes can also be issued to allow tracking of the mail	There may be a possibility of human error if items are wrongly logged for dispatch
2		Sending and receiving Ordinary Parcels service (Parcels above 1kg and up to 30kg)	<ul style="list-style-type: none"> The process requires physical interaction between the customer and postal officer. Parcels can also be registered for insurance. Parcels can be barcoded and issued with a tracking ID. 	The service is semi-automated as it includes physical registration and electronic tracking.	There may be a possibility of human error if items are wrongly logged for dispatch

3		Sending and receiving Express Mail Service (Courier service)	<ul style="list-style-type: none"> • The process requires physical interaction between the customer and postal officer. • The services guarantee timely delivery of parcels and provides for priority, physical door to door delivery. • The customer has the choice for parcels to be picked up from own premises for onward shipping. 	The service is semi-automated as it facilitates for physical registration of items for shipping as well as facilitate for shipped items to be tracked and insured.	This is a priority service that guarantees delivery within a specified period of time. It provides flexibility and convenience to the customer. However, the whole process cannot be fully automated as it requires physical registration of goods for shipping
4		Electronic Mail track and trace	<ul style="list-style-type: none"> • The track and trace service applies to both international and domestic mail. • Customers can track their items by entering the issued 13-character ID tracking number on the ZAMPOST website. At any point that the parcel barcode is read the system logs its progress. 	The customer interacts with the postal entity at the time of dispatch and receipt of the parcel. The tracking process is automatic. A computer-generated barcode is issued upon receipt of the parcel for dispatch. Customers can track the progress of their parcels.	The tracking process ensures that the customers is well informed on the progress of their item. The customer can check the progress of the mail online.

5	FINANCIAL SERVICES	Electronic money transfer (Western union, MoneyGram)	<ul style="list-style-type: none"> • Western Union and MoneyGram are online money transfer services. • Customers can walk into a post office and send or receive monies. • This service in other countries allows for a customer to register an account and be able to transact from anywhere without having to go to a physical post office. 	<p>The process uses an online system to facilitate the transfer and receipt of money.</p> <p>The process is semi-automated as it still requires a customer to access the service from the post office.</p>	<p>Consideration can be made to allow customers the choice to send and receive money online through integration with online payment platforms.</p> <p>The service relies on an available and reliable network. Therefore this service is not available in some post offices, especially in rural areas where internet access is a challenge</p>
6		Electronic money transfer (SwiftCash)	<ul style="list-style-type: none"> • SwiftCash is a ZAMPOST money transfer service that allows customers to send and receive money. • The service can only be accessed from the post office. • SwiftCash was among the earliest forms of money transfer in Zambia, but its model of transmission has remained the same. 	<p>The process uses an online system to facilitate the transfer and receipt of moneys. However, there is still interaction between the customer and the postal officer in order to facilitate the transactions.</p>	<p>Consideration can be made to allow customers the choice to send and receive money online through integration with online payment platforms.</p>
7		Electronic money transfer (ZAMPOST Money)	<ul style="list-style-type: none"> • ZAMPOST Money service is a transfer service that was recently introduced. • The service is expected to replace SwiftCash • A USSD is used for sending and receiving money once a customer registers for the service. 	<p>Customers can register for e-wallet services from any post office. Registration can also be done online by downloading e-wallet forms for registration. ZAMPOST also offers a USSD registration option by dialing *881#.</p>	<p>The eWallet conveniently allows customers to send and receive money from anywhere. The eService provides for ease of doing business.</p>

8	POST BOXES	Post box rentals (Physical boxes)	<ul style="list-style-type: none"> • A ZAMPOST Post Box allows customers to receive postal items from their registered post box or post bag. Physical post boxes are located at the post office premises. • A customer can apply for a commercial or personal post box by filling in the forms provided for on the ZAMPOST website. • Filled in forms must be manually submitted to the post office for processing. 	Though the process of renting a post box as well as management of the box is manual, ZAMPOST through the eZAMPOST portal allows for management of the physical post box. This service was recently introduced.	The introduction of online management of physical post box provides for convenience as it allows a customer to renew rentals and be able to check when payments are due and when items are received in the box.
9		Post box rentals (Digital boxes)	<ul style="list-style-type: none"> • Digital boxes allows customers to access their box from anywhere. • This service is among the new services introduced on the eZAMPOST portal • Parcels can be delivered wherever the customer requests. 	Registration and management of digital (virtual) post boxes can be done from the eZAMPOST portal	A virtual post box does not tie a customer to a physical location providing for efficient and reliable receipt of parcels.

10	ONLINE SERVICES	ZAMPOST cars Bureau	<ul style="list-style-type: none"> • The service allows customers to purchase vehicles through the postal operator. ZAMPOST interacts with online car sales companies such as ‘Beforward’ to assist customers to choose and purchase a vehicle online. • 	The process while being automated as it is accessed online still requires access from the physical post office as a postal officer assists the customer in navigating online.	Customers need to access this service from a post office in order to be assisted by a postal officer. Customers can also call the post office to request for this service. This service can be considered for full automation as with the relevant information most customers can be able to undertake this service with minimum assistance.
11		e-ZAMPOST	<ul style="list-style-type: none"> • eZAMPOST facilitates for the provision of some ZAMPOST services online. • The service allows multi-channel payment collections from different payment platforms such as mobile money and the use of visa cards. 	The service is offered online and can be accessed anywhere where there is available network. The eZAMPOST App can also be downloaded from Google Play Store.	This is convenient for the customer and cost saving as they do not need to physically go to the post office to access the services. More services should be considered for online accessibility in order to improve on delivery of services. eZAMPOST will also enhance digital postal services.

12	ZAMPOST SUBSIDIARIES	Post Bus	<ul style="list-style-type: none"> • Post Bus offers transportation to customers to and from designated locations. • The service operates on a specified time (time bus) 	Information on the post bus departure times can be accessed via the ZAMPOST website. However, pre bookings can only be done from the post office or by calling the contact number provided.	Consideration should be made to provide an online booking option for efficiency and ease of doing business.
13		ZAMPOST Travel and Tours.	<ul style="list-style-type: none"> • Customers, with the help of a postal officer can book their travel plans from the post officer. • Postal officers can advise on various packages on offer 	Customers need to access this service from a post office in order to be assisted by a postal officer. Customers can also call the post office to request for this service.	Consideration should be made to provide an online booking option for efficiency and ease of doing business
14		Freight and Forwarding	<ul style="list-style-type: none"> • The service provided by ZAMPOST allows customers to ship good using the post office. • In the case of vehicle shipments, ZaAMPOST also helps facilitate the necessary payments to RTSA and Insurance companies. • Items can be delivered up to the doorstep 	Customers need to access this service from a post office in order to be assisted by a postal officer. Customers have the privilege to be informed of the progress of their commodities via telephone.	Consideration should be made to allow for pre-booking on this service. This can shorten the process required to be physically undertaken from the post office.
		ZAMPOST AGENCY SERVICES			
15		Agency services (RTSA, banks, Insurance companies, Pensions payments, etc)	<ul style="list-style-type: none"> • ZAMPOST has partnered with various institutions such as RTSA, Atlas Mara Bank, ZANACO Bank, Professional insurance and many others, to offer services on their behalf. 	Agency services are automated in all post offices. However, customers must still go to a post office in order to access these services.	More customers would utilize these services more if there was an option to transact online at the comfort of the customer

The table shows that most services in ZAMPOST are both semi-automated. The study further revealed that not all the services offered by ZAMPOST can be accessed in every post office. Provision of some services in the various post offices spread across the country is demand driven. However, traditional basic postal services are expected to be delivered in all post offices. This is because they are recognized as part of USO while other services may be region specific. For example, post offices located at border areas may also offer processing of customs issues. The study revealed that there is no specific reference study that has been undertaken to categorically classify each province and district as per needs requirements. A needs analysis must be undertaken to determine the postal requirements from all parts of the country. This will provide relevant and efficient delivery of services.

The study findings also showed that most of the listed services require customers to physically go to the post office. Even services that are using ICT platforms need to be accessed from a post office. This shows that while the postal sector in Zambia is adopting ICTs it is still reliant on manual processes to deliver its services. This has an impact on its provision of services as there is still a large portion of the postal process that require human intervention.

4.3 Adoption of ICTs in ZAMPOST

The study revealed that there are opportunities for ZAMPOST to align and adopt ICTs, which if implemented effectively could provide a shift in the positioning of ZAMPOST on the postal sector market in Zambia as well as facilitate for bridging of the digital divide that currently exists. ZAMPOST's wide footprint provides an added advantage to be a leading provider of postal services in the sector. Further, the role of ZAMPOST in facilitating the USO presents opportunities to deliver over and above the mandate of the DPO. The benefits to be realised with the adoption of ICTs will not just be for improved customer experience and service delivery but also presents linkages for the local community to the global community as well as support the country's digitalization agenda.

4.3.1 ZAMPOST Coverage

ZAMPOST's presence in all Provinces, districts and various unserved and under-served parts of the countries offers the opportunity to provide access to internet connectivity and electronic services. Government in its digital agenda entails that the digital divide is bridged by facilitating access to digital services to all citizens. Therefore ZAMPOST is a suitable conduit to reach a large population for provision of electronic and digital financial services.

4.3.2 Electronic Government Services

The post office can provide access to eGovernment services and provide convenience to citizens as well as cost serving measures. Services that are currently accessed from physical government offices if digitalised will ensure accessibility to a wider population in unserved and underserved parts of the country.

4.3.3 Financial Services

The post office provides the opportunity to reach the unbanked through provision of financial services. Through the provision of an agency-banking services as well as access to money transfer services ZAMPOST can propel digital financial inclusion to various locations in the country where a large number of the population remain unbanked. According to Barasa, agency banking has become an important avenue for growing access to banking services in technologically upward developing economies. [59]

4.3.4 Automated Postal Management system

Automation of postal services and operations will give value addition to customers and reduce the need for customers to access postal services from the physical post office. This will also reduce on the queues in the post office as well as provide efficiency in the delivery of services.

4.3.5 Application Software

Use of application software (Apps) for services such as the post bus and the post boat can improve the efficiency of these services. For example, an app that allows the customer to book and procure a ticket online will improve the quality of service and allow more customers to use the service because of the convenience unlike the prevailing situation where a customer needs to go to a physical location to procure tickets.

4.3.6 ZAMPOST Systems Integration

ZAMPOST integration with already existing online platforms such as the Government Service Bus (GSB), Government Payment Gateway, online markets such as Alibaba will improve access to eServices and eCommerce. With increased adoption of ICTs, there will be less need for customers to physically go to a post office for services that can be obtained online.

4.3.7 Postcode and Addressing System

There is need for the establishment of a postcode system as well as the implementation of a well-defined addressing system. Despite the drive for the adoption of ICTs in the postal sector, fact remains that courier, that is the delivery of services to the customer is still a major component of the sector. Therefore, a well-defined Postcode and addressing system will provide for efficient and timely delivery of goods and services.

4.4 Approach to Integration

A phased approach in integrating ICTs in critical areas of ZAMPOST operations and services could improve efficiency and effectiveness in service delivery. This includes use of applications that can provide convenience and ease of access to services. Further, introduction of value-added services on traditional services such as use of online ticketing system for the post bus and post boat as opposed to physical procurement will introduce new markets and encourage customers to utilize ZAMPOST more. This proposal is further supported by figure 4.1 below, a proposed priority matrix that proposes areas which if integrated with ICTs will improve ZAMPOST's efficiency, revenue generation and introduce new markets.

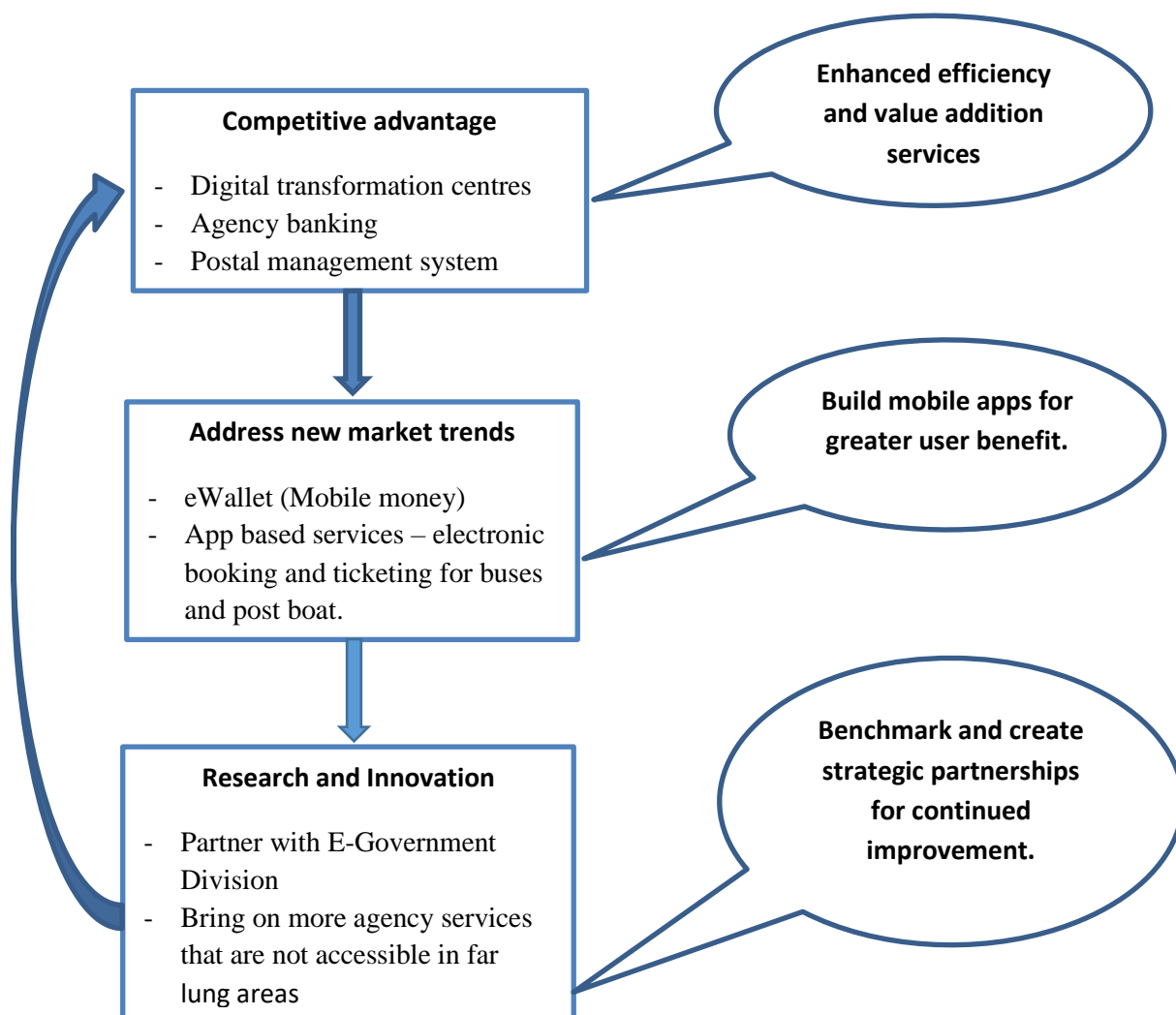


Figure 4.1. Priority Matrix

4.5 Understanding the Sector – Customer Perspective

Understanding the sector from the customer perspective brought to the fore the urgent need for the sector to fully adopt ICTs. In as much as the sector is utilising ICTs through services such as track and trace, online financial management and online electronic services. There still remains a need to meet customer changing demands for timely, efficient and quality services. The researcher acknowledges the factors that may hamper the digitalization progress such as access to internet connectivity as well as access to affordable smart phone devices. There is still need to attach importance to customer needs in the sector's digitalization process. The following provides an analysis of key findings from the survey undertaken.

4.5.1 The survey

The total number of questionnaires as per calculated sample size was two hundred and seventy-three (273). These were distributed using various channels as stated in the previous chapter. The data analysis is therefore based on the fully completed and submitted back questionnaires. Data entry as well as data analysis and interpretation of collected data was undertaken using SPSS. This was used together with Microsoft Excel for ease of analysis of the data collected using electronic forms.

4.5.2 Demographic analysis

Gender distribution

Figure 4.2 shows the gender distribution of the respondents of the surveyed sample. As can be seen from the pie chart, 52% of the sample was female while 48% was male. Though the questionnaire was randomly distributed, there was a deliberate move towards a fair distribution in order to ensure a well-balanced representation for analysis.

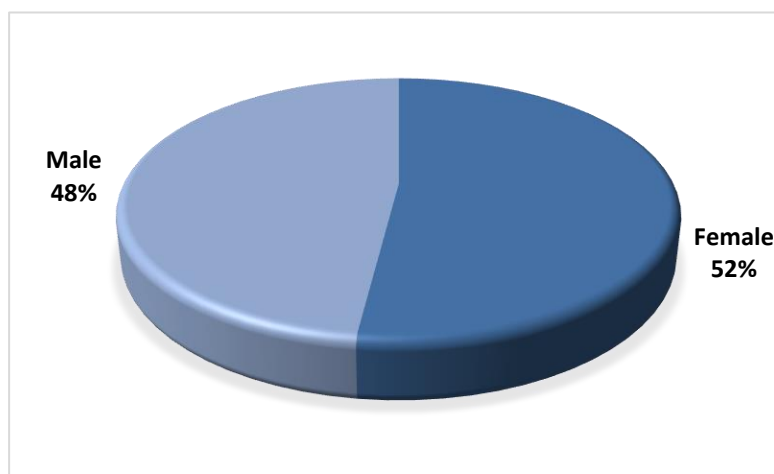


Figure 4.2. Distribution by Gender

Age distribution

Figure 4.3 shows the distribution of survey respondents by age. As it can be observed from the pie chart below 37% of the respondents were aged 31 years and above, representing the larger bracket of respondents. This was followed by 24% of those under 30 years, 23% of respondents between 41 years and 50 years and 16% of respondents aged above 50 years.

The age categories, under 30 years and between 31 and 40 years are key as they represent those who have had a higher exposure to technology advancements.

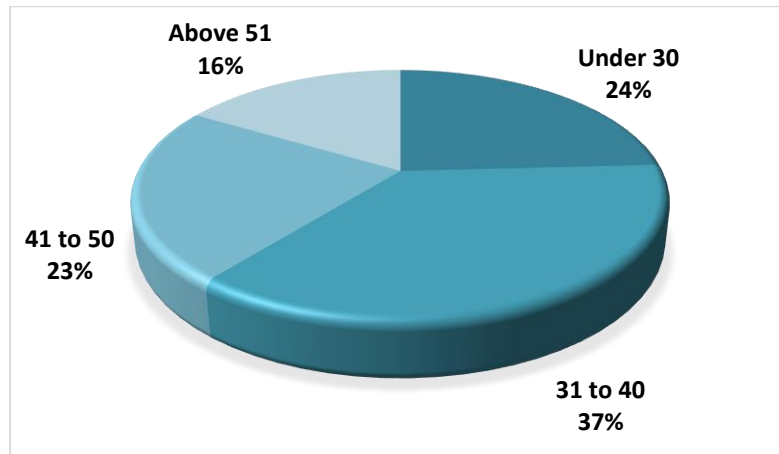


Figure 4.3. Distribution by Age

Education distribution

Figure 4.4 shows the surveyed sample distribution by education levels. This is a key variable as it represents how the level of education may have a factor in the progress adoption of technology as well as the reasoning capability in the use and application of technology. As can be seen from the figure below 43% represents degree holders, while 19% are Masters, 17% are Diploma holders, 13% have completed Secondary school education while 8 % are certificate holders.

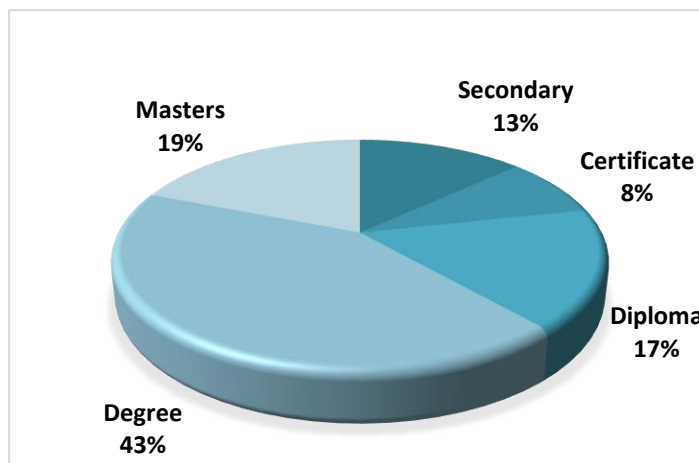


Figure 4.4. Distribution by level of Education

Employment distribution

Figure 4.5 shows the surveyed sample distribution by employment levels. This is a key variable as it represents how the level of employment may have a factor in the adoption of technology. As can be seen from the figure below 56% of the total respondents are in formal employment, 21% are unemployed degree holders, while 19% are Masters, 17% are Diploma holders, 13% have completed Secondary school education while 8 % are certificate holders.

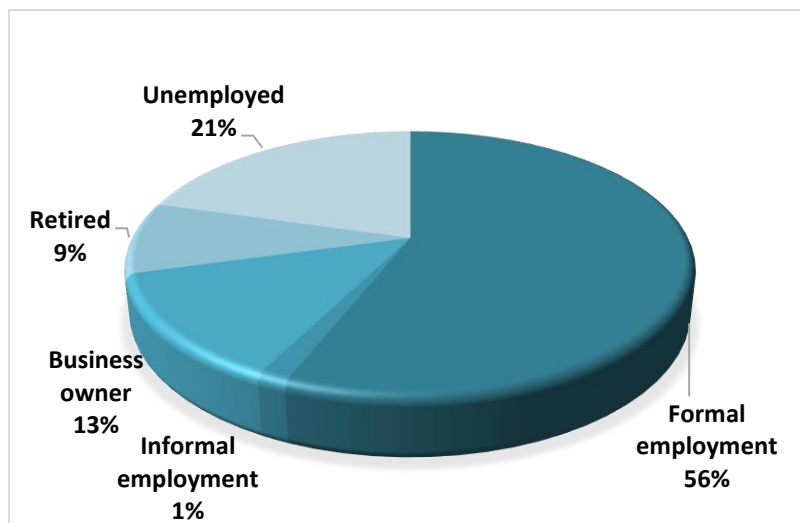


Figure 4.5. Distribution by Employment

4.5.3 Postal services in Zambia

The following gives a local perspective on the postal services in Zambia. There are some services offered by both ZAMPOST and the private courier operators. Previously ZAMPOST was the main provider of the letter-post service, while private operators mainly provided the parcel-post service. The liberalization of the postal market in Zambia around 1994 introduced more competition in the sector. A number of courier operators also courier small parcels. These can even be in the form and size of an envelope that in essence may weigh around the same as a letter-post.

Letter-Post

The study findings revealed that respondents preferred using private operators for the provision of mail services. The figure below shows that the private operators scored higher against ZAMPOST across the ratings of 'fair', 'good' and 'very good'. Indicating that 66.3% of the total respondents preferred private operators against 63.3% using ZAMPOST. It must be noted that 91 respondents were not sure of this service against 62 respondents not sure of the ZAMPOST service.

This may speak to the fact that most respondents do not attribute the service of letter mails to private operators even though private operators' courier parcels within the limits attributed to letter mail.

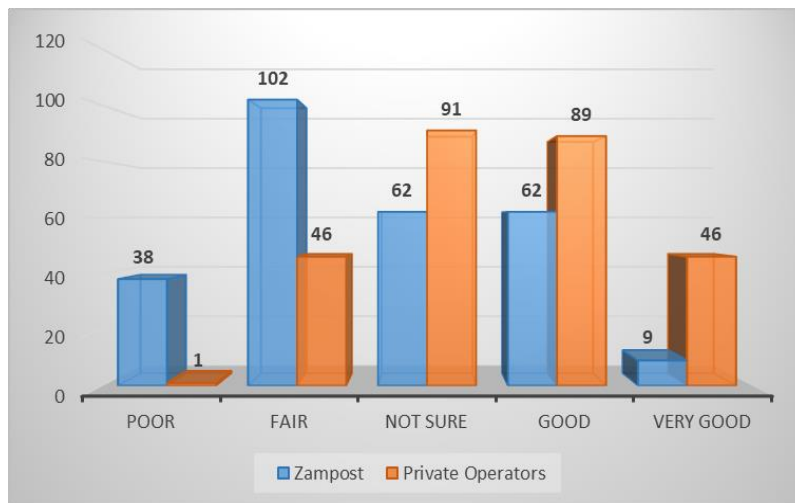


Figure 4.6. Letter-Post Distribution

Parcel-Post

The study findings revealed that respondents preferred using private operators for the provision of parcel services. The figure below shows that the private operators scored higher against ZAMPOST across the ratings of 'fair', 'good' and 'very good'. Indicating that 90.1% of the total respondents preferred private operators against 70.3% using ZAMPOST. These findings may be that private operators have been the main courier of parcels and over the years have improved the mode of delivery to include door-to-door delivery using various modes of transportation.

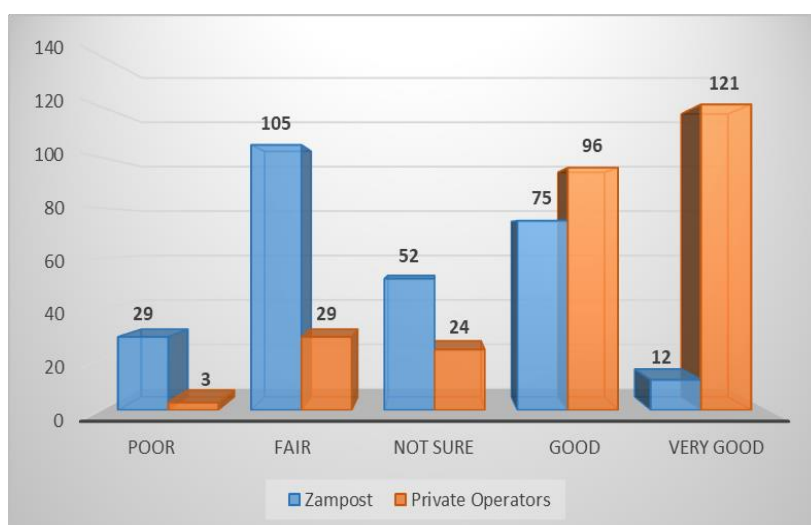


Figure 4.7. Parcel-Post Distribution

Freight and forwarding

The figure below shows that the private operators scored higher against ZAMPOST across the ratings of 'fair', 'good' and 'very good'. Indicating that 67% of the total respondents preferred private operators against 38% using ZAMPOST for freight and forwarding services. A large proportion of the respondents did not know about this service offered by ZAMPOST.

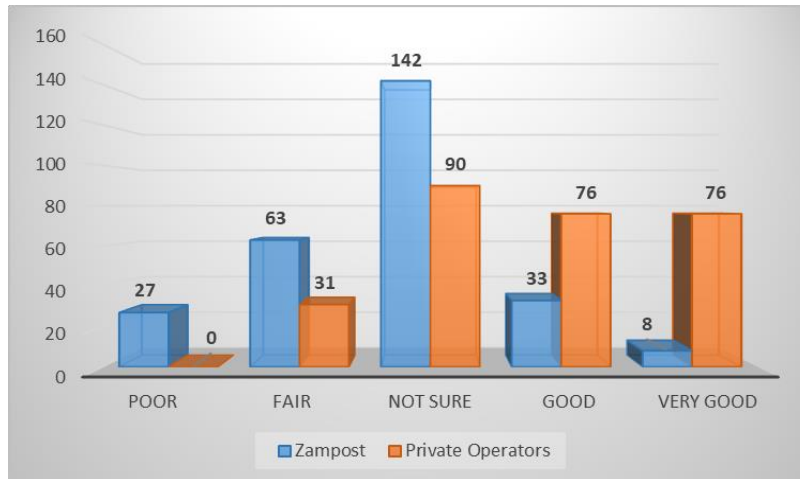


Figure 4.8. Freight and Forwarding

4.5.4 Analysis on other ZAMPOST services

The following provides an analysis of other services primarily offered by ZAMPOST but not the private courier operators. It must be noted that these services have been identifiable with ZAMPOST and some are designated as a preserve of ZAMPOST.

Money transfer services

The study revealed that money transfer service which is not commonly offered by courier operators as they do not have the platform to offer the service. ZAMPOST however offers money transfer services using swift cash, Western union and MoneyGram platforms. Swift cash is a money transfer platform owned and run by ZAMPOST, while Western Union and MoneyGram are agency money transfer platforms run by ZAMPOST. Figure 4.9 offers a comparison of the three mentioned transfer services offered by ZAMPOST. The results revealed that MoneyGram service is not very well known as most respondents were not sure of this service.

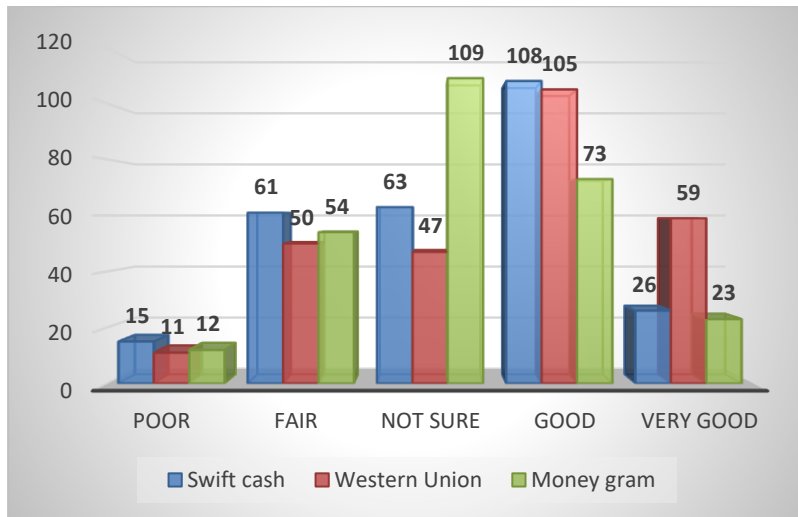


Figure 4.9. Money Transfer Services

Post Box Ownership

Post boxes are used by ZAMPOST to provide a physical location for customers to receive their mail. Rentals from the post box service is one of the revenue streams for ZAMPOST. The study revealed that only 15% of the respondents confirmed owning a post box against 85% who do not own a post box.

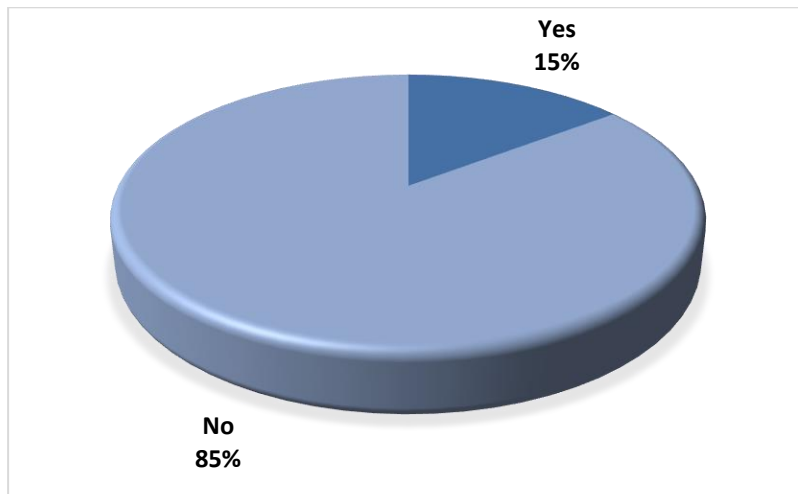


Figure 4.10. Postbox Ownership

4.6 Understanding the sector - Regulatory Analysis

Findings of the study revealed that ZICTA recognizes that ICTs may offer a substitute to postal communication services. Further, other services such as Electronic Mails, SMS, and Over the Top (OTT) services including digital postcards and photography applications are now commonly used. Postal financial services to some extent also are being substituted by more robust digital financial services such as mobile money especially in more remote areas but also the courier component of the sector is enhanced with an increase in eCommerce.

The regulator indicated that ZAMPOST's Universal Service Obligation generally involves provision of basic postal services. Further these services may not involve ICT usage especially due to the nature of recipients being served, namely unserved and underserved parts of the country. Therefore, in exploring this aspect, ZICTA proposed that there is need to focus on how technology can be used to promote the USO. Therefore, the regulator was in agreement with the findings expressed in this study that ICTs may be considered as a means to promote the USO.

The sector regulator also presented the challenge experienced in the regulation of the sector regarding the USO. This is in reference to players on the market who inadvertently offer services previously reserved for ZAMPOST. USO activities, such as the reservation of the right of transmission of packages and letters less than 1Kg for ZAMPOST, is often infringed upon due to 4 main reasons:

1. The way the law is crafted is ambiguous on whether the 1Kg includes registered mail (all courier is registered whereas basic postal services offered by ZAMPOST may not always be registered);
2. Consumer preferences of transmitting items, even those less than 1Kg, may be via the use of private postal operators. Enforcement of reserved service becomes a problem in such a case as it infringes on consumer rights;
3. ZAMPOST as the DPO has often times proved to be inefficient, such as delayed delivery due to inadequate fleet. This has a negative impact regarding the quality of service including that of transmission times for items under 1Kg;
4. Regulatory capacity to comprehensively monitor infringement on the 1kg rule countrywide is very low.

The sector regulator also highlighted a regulatory challenge in that postal regulation still remains traditional and have not delved into the technological advancement in the sector. Of great concern is e-commerce, which requires continuous oversight by multiple regulators. Therefore, the necessary regulatory collaboration is lacking.

4.6.1 Regulatory Interventions

The study revealed that a seamlessly collaborative regulatory landscape between postal regulation, ICT regulation and various other regulators in the Postal Value chain is necessary to support the continued development of the sector. Consideration can be given to redefine the USO in terms of extent, duration, parameters and general size. As the study has revealed, the USO cannot be restricted to just traditional postal services. As ZAMPOST is moving towards adopting the emerging role of the DPOs, UPS must also evolve to incorporate the expanded mandate of the DPOs.

4.7 Revenue Generation on Other Services

As the study earlier revealed, there are some services offered by the DPO outside the common services that apply to non-DPOs. These include logistical services, rental charges on post offices rented out, commission on the various agency services ZAMPOST offers. The figure below shows the revenue generation on these services over a period of 5 years (2016 to 2020).

Table. 4.2. ZAMPOST Revenues on Other Services

Year	Post Bus	Rental Income	Water Transport	Agency Commissions
2016	7,788,809	1,655,241.75	976,744.39	10,312,812.10
2017	4,824,805	1,152,855	1,291,569.97	3,207,014.01
2018	1,993,428	1,108,273.06	1,103,849.66	8,564,183.53
2019	350,623.32	1,715,321.92	785,551.75	5,765,138.32
2020	163,914.05	2,265,981.40	949,106.04	7,028,354.95

The study revealed that over the period analyzed, commissions on the agency services provided the largest revenue share for ZAMPOST followed by revenue generated on the post bus as shown below.

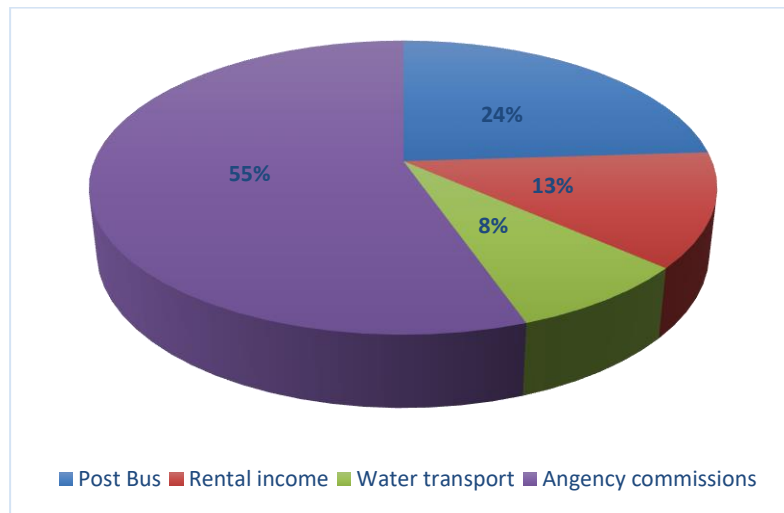


Figure 4.11. ZAMPOST Revenue Share on other Services

CHAPTER FIVE

CONCLUSION, RECOMMENDATION AND FUTURE WORK

5.0 Introduction

The study was conducted to understand the impact of ICTs on the postal sector in Zambia with a focus on ZAMPOST, the DPO and provider of Universal Postal Services. The findings revealed that the postal sector in Zambia is utilising ICTs in its provision of services. The common services offered by both the DPO and non-DPOs, namely mail and parcel services offers customers the track and trace service. This allows customers to track the progress of the postal items. Further, the sector endeavours to communicate with customers via phone or email to provide updates on their items. This improves customer experience and provides efficient service delivery.

5.1 Conclusion and Recommendations

- The study revealed that with the influx of service providers in the courier space in Zambia using various forms of delivery, the normal brick and mortar structure is no longer as adequate as it used to be as the focus has shifted to which operator is able to efficiently support the courier eco system.
- The Study revealed how ZAMPOST while maintaining its role to provide basic universal postal services in Zambia by law can extend this mandate to also provide access to digital services and communication. This will support the country's digitalization agenda and bridge the existing digital gap.
- It is recommended that ZAMPOST expand its operations on the parcel service through integration with other online markets as it is expected that the boom in e-commerce service will continue growing. Therefore, this is a great opportunity for ZAMPOST to be an active player on the market with an advantage of having the largest footprint in the country.
- There is also need for the Ministry responsible for the postal sector and the sector regulator ZICTA to review policies and legal frameworks that guide the implementation of the universal services obligation in the postal sector.

5.2 Future works

Future works could look into the cost implications for full adoption of ICTs in Designated Postal Operators. This may include a cost analysis of full automation of the mailing process through use of equipment such as conveyor belts and automatic sorting machines.

Other works for consideration would be to look into how Government through policy can redefine the extent of the provision of the Universal Postal Service Obligation to include access to digital services, access to communication services and any other social and economic services which can be conveniently provided using the postal network.

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APPENDICES

Appendix A: Questionnaire for Users



The University of Zambia

Graduate School of Engineering

IMPACT OF INFORMATION COMMUNICATIONS TECHNOLOGY ON THE POSTAL SECTOR – A CASE STUDY OF ZAMPOST

CUSTOMER QUESTIONNAIRE

Sylvia Mulenga

MSC in ICT Policy, Regulation and Management

For more information or any queries, kindly get in touch on 0977696332

Dear Respondent,

I am a student at the University of Zambia in my final stage pursuing a Masters in ICT Policy, Regulation and Management. As partial fulfillment for the award of a Master's degree, I am conducting a study on: ***“The impact of Information Communications Technology on the postal sector – A case study of ZAMPOST”***.

You have been randomly sampled to provide information for the topic indicated above. Your responses to this questionnaire are strictly confidential and will be used only for the intended research purposes. In this respect it is optional to indicate your name.

Please note that there is no right or wrong answer you are free to give your honest opinions and based on your experiences.

Thank you for your co-operation

Section 1: Biographic information (Mark 'x' in the appropriate box)

1	Name:	.....(Optional)
2	Gender:	Male [] Female []
3	Age:	Under 30 years [] 31 to 40 years [] 41 to 50 years [] Above 51 years []
4	Highest level of education	Secondary school [] Certificate [] Diploma [] Degree [] Masters [] Other.....Specify
5	Occupation	Formal employment (e.g. Teacher, Accountant)..... [] Informal employment (e.g. Gardner, cleaner).....[] Business owner..... [] Retired.....[] Not employed..... []
6	Location/Town	.....

Section 2: ZAMPOST

This sections aims to get your opinion of your experience or the experience you may have heard from others on the operations of ZAMPOST

1	Rate your opinion of the ZAMPOST services below. (tick the appropriate box 1 to 5)	Poor	Fair	Not sure	Good	Very good
		1	2	3	4	5
a	Sending or receiving local letters					
b	Sending or receiving local parcels					
c	Sending or receiving international letters					
d	Sending or receiving international parcels					
e	Sending or receiving money using ZAMPOST Swift cash					
f	Sending or receiving money using ZAMPOST Western union					
g	Sending or receiving money using ZAMPOST Money gram					
h	Freight and forwarding services					
i	Post bus services					
j	Paying for road tax					
k	Paying for motor vehicle insurance					
l	Cars bureau services					
m	Travel agency services					
2	What challenges did you face when you used ZAMPOST. Mark 'x' all that apply	Post office is too far.....[] Poor services.....[]				

		It is expensive.....[] Poor customer care.....[] Did not offer the services required.....[] I prefer using other means.....[] Other.....(Specify)				
3	Do you own a post office box	Yes [] No [] (Go to section 3)				
4	How do you view the cost of renting the box	Cheap.....[] Affordable.....[] Expensive.....[] Don't know.....[]				
Section 3: Private Courier operators This sections aims to get your opinion of your experience or the experience you may have heard from others on the operations of private courier operators						
1	Rate your opinion of the services offered by private courier operators below. (tick the appropriate box 1 to 5)	Poor	Fair	Not sure	Good	Very good
		1	2	3	4	5

a	Sending or receiving letters					
b	Sending or receiving parcels					
c	Sending or receiving money					
d	Freight and forwarding					
2	What challenges did you face when you used a private courier operator? Tick all that apply	Offices are far.....[] Poor services.....[] Services are expensive.....[] Poor customer care.....[] I prefer using other means.....[] Did not offer the services I required....[] Other..... ..... .....(Specify)				
1	Section 4: This section is asking for your opinion on the various methods of communication that are commonly used. Please give your opinion for each of the statements given in the table. You are requested to mark 'x' in the appropriate box .					
		Strongly disagree	Disagree	Do not know	Agree	Strongly agree
		1	2	3	4	5

1	Hand written letters are a cheaper method of communication					
2	Hand written letters are a reliable form of communication					
3	Emails are a reliable form of communication					
4	Emails are more convenient for communication					
5	It is cheaper to use a mobile phone for communication					
6	Mobile phones are a reliable form of communication					
7	Mobile phones are a Convenient mode of communication					
8	Social media platform (e.g. whatsapp, Facebook, twitter, instagram) is an effective method of communication					
9	What services would you like to see offered by ZAMPOST which they currently do not offer	.....	.....	.....	.....	.....
10						

	What services would you like to see offered by private courier operators which they currently do not offer
--	--	----------------------------------

Any other comments:

Comments:.....
.....
.....
.....

Appendix B: Questionnaire for ZAMPOST



The University of Zambia

Graduate School of Engineering

IMPACT OF INFORMATION COMMUNICATIONS TECHNOLOGY ON THE POSTAL SECTOR – A CASE STUDY OF ZAMBIA

ZAMPOST QUESTIONNAIRE

Sylvia Mulenga

MSC in ICT Policy, Regulation and Management

For more information or any queries, kindly get in touch on 0977696332

Dear Respondent,

I am a student at the University of Zambia in my final stage pursuing a Masters in ICT Policy, Regulation and Management. As partial fulfillment for the award of a Master's degree, I am conducting a study on: *“The impact of Information Communications Technology on the postal sector – a case study of ZAMPOST”*.

Please note that this questionnaire is looking at the operational side of ZAMPOST. Other questionnaires targeting customers of postal services have been administered.

I wish to request your honest opinion to the questions in this questionnaire as it will help in having a full understanding of the status of ZAMPOST.

Your responses to this questionnaire are strictly confidential and will be used only for the intended research purposes. In this respect it is optional to indicate your name.

Thank you for your co-operation

Section 1: Biographic information (Mark 'x' in the appropriate box)		
1	Name:	.....(Optional)
2	Gender:	Male [] Female []
3	Age:	Under 30 years [] 31 to 40 years [] 41 to 50 years [] Above 51 years []
4	Highest level of education	Secondary school [] Certificate [] Diploma [] Degree [] Masters [] Other.....Specify
5	Years worked at the ZAMPOST	Less than 1 year [] 1 to 5 years [] 6 to 10 years [] over 10 years []
6	Management level of your position	Junior Management [] Middle Management [] Senior Management [] Other.....(Specify)

7	Do you require a computer to perform your work	Yes [] No [] (Go to Q10)				
8	Has the use of a computer made a difference in how you work	Yes [] No [] (Go to Q10)				
9	How does the use of a computer impact your work (Mark 'x' to all that apply)	Has made work efficient [] Speedy completion of tasks [] Has made work easier [] Has made the work complicated [] Has increased the work load [] Has decreased the work load []				
10	Do you have any ICT knowledge / Skills	Yes [] No [] (Go to Section 2)				
11	Where did you gain your ICT knowledge / Skills	Long-term training (More than 1 year) [] Short-term training (6 months to 1 year) [] Workshops [] Short courses (Few weeks/less than 6 months) [] Self-taught [] Other.....(specify)				
12	How would you rate your ICT competency level (Mark 'x' in the appropriate box 1 to 5 for the each statements)	Poor	Fair	Not sure	Good	Very good
		1	2	3	4	5

a	Knowledge of basic computer navigation (Opening files, saving files, searching for files)					
b	knowledge of office suite (Word, Excel, Powerpoint, Access)					
c	Knowledge of use of printers / scanners					
d	Knowledge of the internet (Accessing information using search engines such as google)					
Section 2: ICT Devices and Internet This sections aims to get your opinion on the ICT devices in use at your workplace and the Internet services accessed from your workplace.						
1	How many computers/laptops are in the branch for office use?	Less than 5 [] 5 to 10[] More than 10[]				
2	Are the office computers / laptops adequate against the number of staff in your section	Yes[] (Go to Q4) No[]				
3	How many computers would you recommend for your section	.....Specify				
4	Are there any personal laptops being used for work	Yes [] No [] (Go to Q6)				
5	How many personal laptops are being used for office work	Less than 5 [] 5 to 10 [] More than 10 [] Do not know				
6	How often are office computers / Laptops and other ICT devices (Printers, Scanners) serviced	Never [] Once a month [] Quarterly [] Yearly[]				

		Other.....Specify
7	How are office computers and other ICT devices serviced	In house [] Outsourced [] Do not know []
8	Do you have access to the internet	Yes [] No []
9	What kind of internet connection is in place at work	Wired broadband [] Wireless Broadband [] Dial-up network [] Do not know [] Other.....Specify
10	Which devices do you access the internet from (Mark 'x' to all that apply)	Office Computer/Laptop [] Personal laptop [] Office phone [] Personal mobile phone [] Other..... (specify)
11	How good is the speed of the Internet access in use	Poor [] Fair [] Not sure [] Good [] Very good []
12	How often do you access the internet for work	1 to 5 hours [] 5 to 8 hours [] More than 8 hours []
<p>Section 3: ICT Policies and laws This sections aims to get your opinion and knowledge of the ICT Policies and laws in place</p>		

1	Is there a company policy on ICT use	Yes [] No [] Do not know []
2	Are you aware of any Government policies/laws on ICT	Yes [] No [] Do not know []
3	List any Government policies/laws on ICT you are aware of	..... ..... ..... .....
4	What would you like to be included in the Government Policies/ Laws which is lacking in the current Policies/Laws	..... ..... ..... .....

Any other comments:

Comments:.....
.....
.....
.....

Appendix C – Interview Questions – ZICTA

INTERVIEW QUESTIONS - ZICTA MANAGER – POSTAL SERVICES

1. On Universal service obligation (USO)
 - What constitutes as Universal Services in reference to regulation?
 - Are there any deliberate moves to promote use of technology in the provision of Universal Services?.
2. What are the challenges of maintaining the boundary of USO: i.e. Private sector operators providing services that are supposed to be reserved for the public postal operator?
3. Are there Postal services that may have been substituted by technology?
4. What Regulatory challenges are experienced on traditional postal services against the technological landscape?
5. What is the preferred regulatory landscape to ensure continuity of the postal sector, visa vie the DPO?
6. What Regulatory measures can be put in place to promote competition in the sector, keeping in mind the varying rate of technological absorption between private and the public postal operator?

Appendix D – Ethical Clearance



THE UNIVERSITY OF ZAMBIA DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777

Fax: (+260)-211-290 258/253 952 | E-mail: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376

NASRECREC IRB No. 00006465

15th December, 2022

REF NO. NASREC-2022-DEC. -006

Ms. Sylvia
Mulenga,
The University of Zambia,
School of Engineering,
P.O. Box 32379,
LUSAKA.

Dear Ms. Mulenga,

**RE: “ IMPACT OF INFORMATION COMMUNICATIONS TECHNOLOGY ON THE
POSTAL SECTOR: A CASE STUDY OF ZAMBIA ”**

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

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. NASREC-2022-DEC. 006
--------------------	------------------------	--

Approval and Expiry Date	Approval Date: 19 th December, 2022	Expiry Date: 18 th December, 2023
Protocol Version and Date	Version - Nil.	18 th December, 2023
Information Sheet, Consent Forms and Dates	<ul style="list-style-type: none"> English. 	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil
Other Study Documents	Questionnaire.	

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

CONDITIONS OF APPROVAL

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to NASREC within 5 days.
- All protocol modifications must be approved by NASREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to NASREC within 5 working days.
- All recruitment materials must be approved by NASREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. NASREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to NASREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by NASREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled “late submissions” and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.
- Every 6 (six) months a progress report form supplied by The University of Zambia Natural and Applied Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both NASREC
- and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.
- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.

- Filing a closing report (rather than just letting your approval lapse) is important as it assists NASREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.
- A reprint of this letter shall be done at a fee.
- All protocol modifications must be approved by NASREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by NASREC before they can be implemented.

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

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

Yours faithfully,



Dr. Mususu Kaonda

**VICE-CHAIRPERSON
THE UNIVERSITY OF ZAMBIA NATURAL AND APPLIED SCIENCES RESEARCH
ETHICS COMMITTEE - IRB**

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

Appendix E – Published Journal

URL: <http://article.sapub.org/10.5923.j.scit.20221201.02.html>

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Paper Information

- Paper Submission

Science and Technology
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Impact of Information Communications Technology on the Postal Sector – A Case Study of Zambia

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Abstract
There has been a notable decline in postal services offered by Designated Postal Operators (DPOs) globally. The Designated Operator in Zambia, namely Zambia Postal services Corporation is no exception. This study proposed to understand the status of ZAMPOST and how Information Communications Technology (ICTs) have impacted its

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