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Transforming The Zambia Electronic Trading Landscape with The Single Window System

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Disclaimer:

This document represents part of the author's study programme while at the International Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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List of Acronyms

ASYCUDA	Automated System for Customs Data
CBM	Coordinated Border Management
COMCEC	Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation
COMESA	Common Market for East and Southern Africa
ECLA	Economic Commission for Latin America
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
IMF	International Monetary Fund
NCTF	National Committee on Trade Facilitation
OECD	Organisation for Economic Co-operation and Development
OSBP	One-Stop Border Post
RIB	Removal in Bond
RIT	Removal in Bond
SADC	Southern African Development Community
SDG	Sustainable Development Goals
TFA	Trade Facilitation Agreement
TRS	Time Release Study
UN	United Nations
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USD	United States Dollar
WCO	World Customs Organisation
WTO	World Trade Organization
ZCSA	Zambia Compulsory Standards Agency
ZICTA	Zambia Information and Communications Technology Authority
ZRA	Zambia Revenue Authority
ZESW	Zambia Electronic Single Window

Abstract

As part of globalisation, new technologies and easier methods of conducting trade have been introduced and it is imperative that countries do not fall behind in these new developments. It is necessary to evaluate these developments to maximize their benefits.

An analysis of the electronic single window and its contribution to improving coordination and trade facilitation at Zambia's Kazungula Border has been conducted in this study. The aim is to assess how various agencies contribute toward improving the efficiency of the single window system and how national laws influence the system. The single window is a digital platform used for the single submission of trade documents for imports, exports and transits.

The study examines the single window background and its intended objectives as well as how these objectives are being met at the Kazungula border. It further utilizes a holistic approach, combining extensive and intensive margins of trade with gravity models to obtain a comprehensive understanding of the dynamics of international trade. The size of the economy, distance, costs, and the ability to maintain and attract new trading partners are some of the factors considered.

A simple theory of change is also provided to illustrate and establish the causal link between the system, border coordination, and trade facilitation. It also illustrates how outcomes are achieved to result in long-term impacts, as well as how several laws empower and enable the function of the single window in Zambia.

Consequently, the study concludes that the single window is not solely responsible for coordination and trade facilitation at the border, but that it is part of several measures to facilitate trade and coordination at the border. Several recommendations have been made based on the factors affecting coordinated border management and trade facilitation. These include the allocation of more resources and the reorganization of government agencies, with avenues for future research.

Relevance to Development Studies

Trade is often discussed in relation to the economy of a country and is an integral part of development studies. New technologies to improve trade transactions have a significant impact on the economy. This study is relevant to the field of development studies because trade policies are responsible for shaping the economic conditions of any country and, ultimately, will contribute to the global economy. In this case, the simplification of trade procedures is crucial for the economic development of a country and in international trade relations.

Keywords

Single Window, Coordination, trade, facilitation, border, agencies, management, simplify.

Chapter 1: Introduction

As global value chains and global integration increase, the changing patterns of international trade have caught the attention of many. With this, I explore the complex world of cross-border trade through the Kazungula border. This chapter looks at the context and background of the electronic submission of trade documents. Furthermore, it identifies the gap in the literature, justifies the relevance of my research, and outlines the objectives and questions of my study.

1.1. Background and Context

Trade, being one of the main drivers of economic development, like many others is an old concept that has had its share of revolutions dating back to the ‘Barter System’ to what we know as the trade of the 21st Century. Throughout history, mankind has endeavoured to make the process easier, faster, and more efficient by developing innovations such as the single window system, customs automation, electronic document management, and cargo tracking systems, among others. It is for this reason that this thesis explores these modern innovations, with a focus on the single window system, in trade how they bring about transformation and how they are benefiting mankind.

The proliferation of the global supply chain was followed by a rapid expansion of global trade in the 80s and '90s, despite the overwhelming regulatory border procedures, that involved a lot of paperwork, a lack of transparency and an increase in the cost of cross-border trade. At the same time, there was the development of Information and Communication Technologies (ICTs). The international trade community looked to ICT to resolve the new challenges the trade expansion came with, (Tsen, 2011, p. 4), In addition, Meckling and Hughes (2017, p. 225) cite the Organisation for Economic Co-operation and Development (OECD), World Trade Organization (WTO), and World Bank Group (2014), that “*The growth of global supply chains results from technological innovation that lowers the costs of organizing production across firm boundaries.*”.

The (inter)national community on trade saw an outcry to reduce dwell time at the borders and simplify border procedures and costs, and thus introduce trade facilitation measures perhaps as the global supply chains expanded. According to the Ministry of Commerce, Trade and Industry (2011, p. 5), the Zambian freight cost stood at US\$224 per day in 1995.

According to Kahyarara and Simon (2018, p. 2), “...*dwelt time refers to the time that cargo (containers) spends within the port (or its extension).*” In this case, the amount of time goods spend at the Kazungula border from the time they enter to the time they exit. For effective and efficient management of supply chains and trade facilitation, it is important to know the time spent. Dwell time has been recognised by the World Customs Organisation (WCO) and other international bodies as one of the factors that may attract and promote international trade. The WCO use what they call a “*Time Release Study (TRS)*” to determine the overall clearance time or dwell time at the border and it has been used by many countries at different borders.

“The Time Release Study is a strategic, internationally recognized tool to measure the actual time required for the release and/or clearance of goods, from the time of arrival until the physical release of cargo, with a view to finding bottlenecks in the trade flow process and taking the corresponding necessary measures to improve the effectiveness and efficiency of border procedures.” (WCO, 2018, p. 8)

In the case of Zambia, a TRS was done at Chirundu One-Stop Border Post (OSBP) in 2019 by the Southern Africa Trade and Investment Hub in collaboration with the Ministry of Commerce, Trade, and Industry through the National Committee on Trade Facilitation (NCTF), WCO and Zambia Revenue Authority, where I contributed as a data analyst of the project.

Based on the results of the study, which excluded exports, import clearance took 7 days, 1 hour, and 36 minutes, while transit clearance took 4 days, 1 hour, and 23 minutes on average. The delays were attributed to inadequate infrastructure, limited manpower, lack of coordination between agencies, and transporters, and complex documentation requirements among others. (National TRS Working Group, 2019, p. 77)

The use of dwell time has limitations, despite its recognition and usefulness. The dwell time varies depending on the location, the type of goods (perishables and non-perishables), and the specific circumstances. The definition of dwell time also poses a limitation in that some studies only consider the period between customs clearance and departure, while others measure it starting at the time of arrival at the border and ending at the time of departure, as in the current study. Trade is negatively affected by prolonged dwelling times due to storage fees and demurrage charges, thus increasing trading costs which can harm competitiveness. Prolonged dwelling times also create bottlenecks and disrupt the smooth flow of goods.

Bureaucratic border procedures are significant factors that contribute to prolonged dwelling time as well as inadequate infrastructure. (Kahyarara and Simon, 2018, pp. 81-88)

To address these limitations, it is necessary to simplify procedures, invest in infrastructure, and adopt innovative technologies. In trade facilitation, reducing dwelling time is among the objectives that contribute to the reduction of costs, improved supply chain efficiency, and fostered economic growth.

Wilson et al. (2005, p. 842) state that “*Trade facilitation simply addresses the logistics of moving goods through ports or more efficiently moving customs documentation associated with cross-border trade.*” To facilitate trade, all border procedures must be coordinated, thus the term Coordinated Border Management (CBM). The WCO (2009, p. 6) defines CBM as “*a coordinated approach by border control agencies, both domestic and international, in the context of seeking greater efficiencies in managing trade and travel flows, while maintaining a balance with compliance requirements.*”.

The simplification of these border procedures and costs saw the introduction of the WTO Trade Facilitation Agreement (TFA). Duval and Utoktham (2022, p. 7) have cited the WTO (2015) report that states “*the full implementation of the WTO TFA would cut trade costs by 14% on average and boost trade by up to USD 1 trillion per year, with the largest benefits accruing to least developed economies.*” This agreement was to help address the problems of international trade such as improve border procedures, and lower the costs involved in cross-border trade.

This agreement also led to the concept of a Single Window System, which was developed with the assistance of the international community and aimed at reducing the paperwork involved in cross-border trade. Tsen, (2011, p. 4) says the system started as a recommendation for a single automated system to collect, integrate, control, and share information with all relevant stakeholders, growing “*out of efforts to simplify border formalities for traders and other economic operators by arranging for a single electronic submission of information to fulfil all cross-border regulatory requirements*”, (Choi, 2011, p. 4).

As my country and a signatory to the WTO TFA, Zambia has not been excluded from the new initiative, and preparations for the launch of the national single window system began in 2014, with the first connection taking place in 2016. There have been several national connections to the system since the system was

launched, with 67 total national connections, 28 of which are government agencies. The use of the single window system has shown that it contributes to coordinated Border Management and trade facilitation. However, not all trading agencies are on the system due to problems with connectivity (the use of high-tech) which needs funding from the government, the cost of implementing and maintaining it is high, that is according to United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and United Nations Economic Commission for Europe (UNECE) (2012, p. 62), and the nature of goods (some agencies still want total control of the movement of goods), (Tsen, 2011, pp. 4-6).

The Zambian Government took a significant step by enacting “*the Coordinated Border Management and Trade Facilitation Act of 2018 which addresses border coordination by appointing the Zambia Revenue Authority as a Lead Agency at the border recognizing its critical part of the Trade facilitation agreement activities and an innovator in connectivity with the Single Window.*” (Kayula, 2019, p. 4). This was done in an effort to show the Government’s commitment, through legislative measures, to enhancing coordination and facilitation of trade at all border points.

Kazungula Border, a quadripoint encompassing four countries (Botswana, Namibia, Zambia, and Zimbabwe) as shown in Table 1 below, is in the southern part of Zambia along the north bank of the Zambezi River. The border recently got an uplift to an OSBP, another trade facilitation tool, making it one of the three biggest borders (Chirundu, Nakonde and Kazungula) in terms of trade volume across the border, as part of Zambia’s ongoing domestic trade facilitation improvement. It is also one of the important borders in the region as it runs from the Democratic Republic of Congo to the Port of Durban in South Africa, a vital trade route, along the north-south transport corridor. (African Development Bank, 2019, pp. 17-18)

Table1. Shows the comparison of the latest Gross Domestic Product (GDP) for the countries converging at Kazungula from the International Monetary Fund (IMF) World Economic Outlook (October 2023)

Table. 1 Comparison of GDP of countries converging at Kazungula

Countries meeting at Kazungula	Real GDP growth (Annual per cent change)	GDP, current prices (Billions of U.S. dollars)	Real Per Capita GDP Growth (Annual per cent change)	GDP, current prices (Purchasing power parity; billions of international dollars)
Botswana	3.8	20.76	2.1	51.89
Namibia	2.8	12.65	1	30.66
Zambia	3.6	29.54	0.8	83.69
Zimbabwe	4.1	32.42	1.9	44.45

Source: World Economic Outlook (October 2023) 15 Indicators, 1980 - 2028
<https://www.imf.org/external/datamapper/profile/ZMB> (7th November 2023)

In light of the Government's commitment, it is important to acknowledge the importance of CBM and trade facilitation in terms of its impact on various aspects including revenue collection, government, traders, business, and generally all border activities.

George (2017) presented the benefits of CBM through a presentation at the WCO Forum for the National Trade Facilitation Committee. Stating that it enhances efficiency and speed by streamlining and harmonising procedures. Therefore, operational efficiency will reduce the costs associated with delays caused by bureaucratic procedures. Furthermore, CBM contributes to the enhancement of security through the integration of security measures implemented by various border agencies. As well as enhancing transparency through the sharing of information among relevant border agencies. An efficient CBM may also contribute to the smooth movement of goods and services across borders thus facilitating trade.

Another key concept worth noting is the importance of trade facilitation. It is recognized by international organizations and its benefits have been outlined in a policy brief by Hoffmann (2015, pp. 1-4) for the United Nations Conference on Trade and Development (UNCTAD). Trade facilitation helps to enhance the country's competitiveness, thus making it more attractive to international trade. With this, a country is likely to join the global value chain and contribute to its optimization. This would allow

businesses in the value chain to effectively respond to market demands, thus, attracting Foreign Direct Investments (FDIs). The brief also highlights how trade facilitation promotes trade expansion through the increase in trade volumes through the removal of trade barriers and simplifying clearance procedures. In addition to some extent, it also contributes to economic growth even though economic growth is also influenced by global economic conditions.

The terms are at the core of most countries that depend heavily on trade like Zambia, according to the International Monetary Fund. African Dept. (2023, 5) “*Trade, the largest sector contributing 1/5 of GDP, grew on average by 4.2 per cent in the decade ending in 2021, with an average contribution to real growth of 0.8 percentage points*” because they play an important role in connecting them to the global trading community.

1.2. Problem Statement

As the international trading landscape has changed in the last few decades, there have been numerous initiatives taken to develop an integrated yet comprehensive system that is capable of managing cross-border processes and procedures. In this context, the effectiveness of the single-window system in enhancing CBM and trade facilitation at the Kazungula OSBP is an important topic for many stakeholders. Even though the Zambian Government has shown its commitment to CBM and trade facilitation through the enactment of policies, the single window needs to be assessed to determine how it is contributing to the set objectives. With the various interpretations made on the impact of the single window on CBM and trade facilitation, further research is necessary and beneficial to determine and clarify how it contributes. It should be noted that there has not been any policy evaluation done of the single window in Zambia since its implementation in 2016, however, it has been greatly praised despite not being fully integrated. In light of this, intending to bridge the gap, this research aims to examine the role of the Zambia single window and its effectiveness in contributing to CBM and trade facilitation at Kazungula OSBP, ultimately allowing a better understanding of required improvements.

1.3. Justification and Relevance of this Research

In response to the ratification of the WTO Trade Facilitation Agreement, Zambia has developed several policies and measures to enhance trade facilitation, among them is the Single Window System. These policies and measures are intended to increase trade volume

across Zambia's borders and attract FDI. Due to Zambia's landlocked status, it is essential for the country's economic growth. This research is relevant because it focuses on a trade facilitation tool (Single Window) with its key objectives and how it is said to contribute to coordination at the border and thus attract trade volume and FDIs. With the hope to contribute to the available literature on Single Window as well as to evaluate whether its implementation has produced the intended results, as it is known to have a positive impact on the country's economic growth through FDIs, as suggested by Chowdhury and Mavrotas (2006, p. 9),

“A large number of empirical studies on the role of FDI in host countries suggest that FDI is an important source of capital, complements domestic private investment, is usually associated with new job opportunities and enhancement of technology transfer, and boosts overall economic growth in host countries.”

My familiarization with these keywords, CBM, single window and trade facilitation, came when I joined the Zambia Revenue Authority (ZRA) in 2020, as a customs officer, a semi-autonomous agency of the Ministry of Finance responsible for collecting taxes for the government and the appointed lead agency at all borders¹. During these past years of working with the authority, my supervisors have emphasised the need to attend to our clients in the shortest possible time whilst using the trade facilitation tools available. It is this background that has brought me to study this topic rather than others. Since its implementation, there has not been any evaluation carried out.

The study is linked to Sustainable Development Goals (SDGs), it looks at the role of technology (the single window system) and partnerships (under goal “17.17 *Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships*”) between government agencies in achieving developmental objectives. Goals 8, 9 and 17, “*Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all*”, “*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*”, and “*Strengthen the means of implementation and revitalize the*

¹ <https://www.zra.org.zm/about-us/> (Retrieved 10 May 2023)

*global partnership for sustainable development*², respectively. In addition, it is relevant to the field of development studies since the smooth flow of goods and the facilitation of trade are essential components of economic growth.

As the global economic landscape undergoes changes and inequalities exist between countries in the global south and those in the global north, a continuous sustainable growth process that fosters innovation and resilient infrastructure through collaborative efforts involving governments, private companies, and civil society is necessary. My study touches on governance, policy coordination and the role of government agencies which are all central to development.

The single window system, acknowledged by international bodies like the UN, WTO and WCO, illustrates how globalization influences global trade and the management of international borders. Globalization is usually viewed within the context of development studies. Amel et al. (2020, p. 1838) add that “*with the globalization of international trade, the need for logistics solutions has made decision-makers aware of the strategic issue of efficient logistics as a driver of competitiveness for the company. Port logistics have become an essential vector of economic development.*”

1.4. Research Question and Objectives

The thesis has the following objectives:

1.4.1. Objectives

- i. To assess the contribution of the single-window system to Coordinated Border Management and trade facilitation.
- ii. To find out how various agencies are contributing to improving the efficiency of the single window.

² Football for the Goals
https://www.un.org/en/footballforthegoals?gclid=CjwKCAjwkY2qBhBDEiwAoQXK5UxITWfuf1lfo8xx23eG_ilgYDrEQKy-j4JQnfQeIWigkqtArkDIRoCJtgQAvD_BwE (Retrieved 30 October 2023)

- iii. To assess how national laws are affecting the contribution of the single window to CBM and trade facilitation.

1.4.2. Research question

How does the Zambia Electronic Single Window contribute to enhancing Coordinated Border Management and Trade Facilitation at Kazungula Border One Stop Border Post?

- i. What are the challenges and positive outcomes of the single window to dwell time at the border?
- ii. How are various agencies contributing to the efficiency of the single window?
- iii. To what extent do national laws affect the contribution of the single window system to CBM and trade facilitation?

Chapter 2: Background Policy Literature and Documentation of the Single Window

The purpose of this chapter is to discuss the literature related to single-window systems, coordinated border management, and trade facilitation, as well as how they each influence cross-border trade. Furthermore, it provides a theoretical framework for enhancing our understanding of changes in trade patterns, the challenges they may present, and possible outcomes.

2.1. Single window system

The concept was implemented through the well-known Recommendation No. 33, of the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) (2005, p. 7). This report defined a Single Window as a *“facility that allows parties involved in trade and transport to lodge standardised information and documents with a single-entry point to fulfil all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once.”*

Several other studies have examined the effectiveness of the single window system. Ndonga (2013) examined the use of single-window systems in the Customs service as a means of reducing corruption risks. The study concluded that a single system cannot solve the problem of corruption in the clearance of goods and services on its own; it must be coupled with other integrity measures. Additionally, Kanyinji et al. (2020) have contributed to the literature on single windows by investigating the interaction between the Single Window System and the Zambian Customs Administration through an analysis of the Victoria Falls Border Post in Zambia. It was found that ICTs, trade regulations, and trade facilitation are statistically significant predictors of Customs administration.

Furthermore, Rogmann and Zelenska (2018) point out that the Single Window is an important tool for facilitating trade between the European Union (EU) and its member states. As a result of their analysis of the state of the EU single window, it appears to be far from being operational. They attribute this failure to the incapacity of national IT systems to support either a centralized or a decentralized process. However, Nizeyimana and De Wulf (2015) have discussed the electronic single window supporting trade facilitation in Rwanda and how it has reduced the processing time for imports and exports. Additionally, Kruining

(2020) highlights the importance of sharing information through the Dutch Single Window in order to facilitate Coordinated Border Management and Trade Facilitation.

The Single Window concept has been widely accepted with received endorsement from other international organisations such as the World Trade Organisation (WTO) and the World Customs Organisation (WCO), and regional organisations such as The Common Market for East and Southern Africa (COMESA).

In December 2013, two-thirds of the WTO members ratified the WTO Trade Facilitation Agreement (TFA) under the Doha Development Agenda which was forced in February 2017. As illustrated on the WTO website, it consists of “*provisions for expediting the movement, release, and clearance of goods, including goods in transit. It also sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues. It further contains provisions for technical assistance and capacity building in this area.*”³ WTO (2014), according to the TFA Article 10.4 of the TFA gives provision for a single window,

“4 Single Window

4.1. Members shall endeavour to establish or maintain a single window, enabling traders to submit documentation and/or data requirements for the importation, exportation, or transit of goods through a single-entry point to the participating authorities or agencies. After the examination by the participating authorities or agencies of the documentation and/or data, the results shall be notified to the applicants through a single window in a timely manner.

4.2. In cases where documentation and/or data requirements have already been received through a single window, the same documentation and/or data requirements shall not be requested by participating authorities or agencies except in urgent circumstances and other limited exceptions which are made public.

4.3. Members shall notify the Committee of the details of the operation of the single window.

³ Trade facilitation https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (Retrieved 30 October 2023)

4.4. Members shall, to the extent possible and practicable, use information technology to support the single window.”

The implementation, operations and maintenance of the single window system, by the Zambia government, is in accordance with this article. Members of the WTO, including Zambia, who have ratified the agreement are required to set up a single-entry point system (Single Window) for the submission of all necessary documents, data, and information regarding imports, exports, and transits of goods.

These efforts were noted by the Dutch government in a blog post by the Ministry of Foreign Affairs (2019), which said.

“A visit to Zambia, with the World Bank and other developing partners, showed good results... Zambia ratified the WTO Trade Facilitation Agreement on December 15, 2015. As part of its action plan, the Government of Zambia began an ambitious reform agenda that extended automation from the Zambia Revenue Authority to other trade-related agencies, established a National Trade Facilitation Committee, improved border agency coordination, and implemented risk management for inspections...

...This resulted in clear benefits for the Government: a reduction of mandatory processing time from 48 hours to 12 hours and now to 8 hours for border agencies and an increase in government revenues of 41% in 2018.... Examples of successful interventions that have resulted in substantial reductions in customs clearance time and other direct and indirect costs associated with cross-border trade in Zambia.”⁴

The WCO has added the term “*environment*” and defines it “*as a cross border, ‘intelligent’, facility that allows parties involved in trade and transport to lodge standardized*

⁴ Investing in improving trade in Zambia works <https://www.government.nl/topics/business-for-development/weblogs/2019/investing-in-improving-trade-in-zambia-works> (Retrieved 6 November 2023)

*information, mainly electronic, with a single-entry point to fulfil all import, export, and transit-related regulatory requirements*⁵.

The use of the term “*environment*” shows the digitally enabled nature in which the system operates, that is an interconnected system of cross-border regulatory agencies thus allowing for digital cooperation amongst them through the Single Window.

COMESA (2023) has defined it “*as a trade facilitative measure in Customs administration that allows parties involved in trade and transport to lodge standardized information and documents with a single-entry point to fulfil all import, export, and transit-related-related regulatory requirements*”⁶.

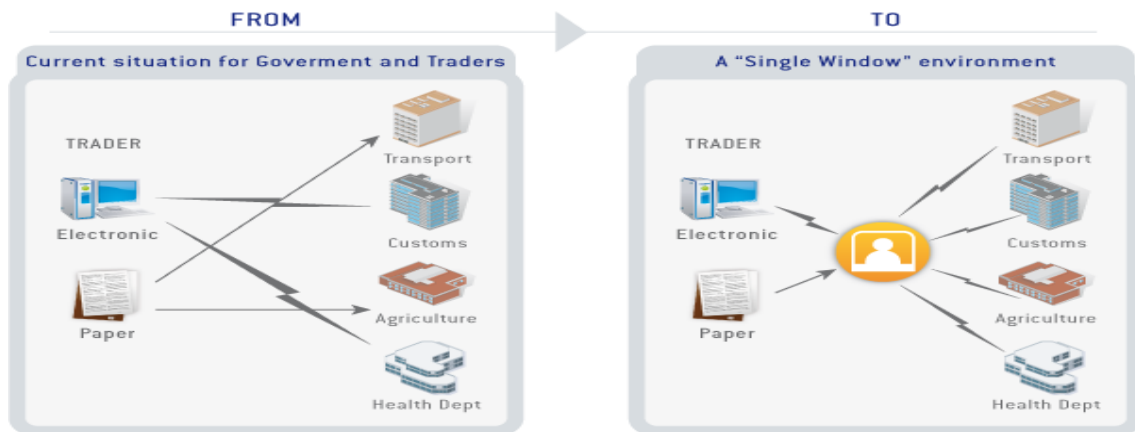
All definitions highlight the single digital submission of trade and transportation information and documents to fulfil all imports, exports, and transit requirements, with emphasis on electrification and digitization.

As per recommendation 33, Fig. 1 illustrates the pre-single window period or current situation, as may be the case for some agencies in Zambia, to the post-single window period.

Fig. 1 Pre-single window period and post-single window period

⁵ [https://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/national-single-window/single-window.aspx#:~:text=A%20%E2%80%9CSingle%20Window%20Environment%E2%80%9D%20\(%20and%20transit%20related%20regulatory%20requirements](https://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/national-single-window/single-window.aspx#:~:text=A%20%E2%80%9CSingle%20Window%20Environment%E2%80%9D%20(%20and%20transit%20related%20regulatory%20requirements) (Retrieved 01 November 2023)

⁶ <https://www.comesa.int/steps-towards-a-regional-customs-single-window/> (Retrieved 01 November 2023)



Source: Advancing the digitalization of trade with partnerships: National Trade Facilitation Committees as a platform for policy modernization <https://unctad.org/news/advancing-digitalization-trade-partnerships-national-trade-facilitation-committees-platform> (Retrieved 19 September 2023)

This has resulted in a significant transformation of Zambia's trading operations. As seen in Fig. 1 above, Government agencies are not interconnected with one another in the pre-single window, each agency operates independently. Having independent databases, procedures, and requirements, paper-based processes leading to errors, and its own paper records thus moving from one agency to another causing multiple duplicate submissions of documents, time-consuming and costly.

The introduction of the single window has led to a significant shift in operations. An electronic platform, as shown in the figure above, is used for centralized and unified submission of all trade-related documents, thus moving from paper-based to digital, allowing access to all stakeholders and integrating government agencies. Transparency has been achieved through the sharing of data, efficiency has been achieved through the reduction of errors and processing time, as well as the simplification of procedures.

There is no doubt that border operations and procedures are integral parts of international value chains, as these can often disrupt the smooth flow of goods due to the number of procedures, thus fostering opacity. For this reason, the development of this digital platform has seen numerous praises from various stakeholders, like in the Dutch blog cited above, mainly because of “...the introduction of a Single Payment Point and the facilitation of broader connectivity of all government agencies to the Single Window. Examples

of successful interventions that have resulted in substantial reductions in customs clearance time and other direct and indirect costs associated with cross-border trade in Zambia.”⁷

Following the recommendation and approval by UN/CEFACT in 2004, the Single Window has undergone several evolutions such as the use of high-tech, regulating the movement of goods and the high cost in the implementation of a countrywide system. The initial idea did not explore these evolutions and due to this its countrywide implementation in Zambia has been in phases, (Tsen, 2011, pp. 4-6).

2.2. Coordinated Border Management

This concept was first described in Chapter 1. It emphasizes the importance of collaboration and coordination between border agencies and stakeholders operating within the border. It was known as “*Integrated Border Management*” but later changed to Coordinated Border Management because the term “*Integrated seemed to pre-suppose structural and institutional integration, which potentially narrows the scope of the concept,*” as opposed to CBM, which mobilizes resources, functions, procedures, and has legal frameworks to support objectives of border management that is both effective and efficient, (WCO, 2020, p. 3).

However, the European Union still refers to it in the same way, “*Integrated Border Management.*” The term is referred to differently by various organisations, “*Collaborative Border Management*” (World Bank), “*Comprehensive Border Management*” (Organization for Security and Co-operation in Europe), “*Border Agency Coordination*” (WTO), (George, 2017, p. 2)

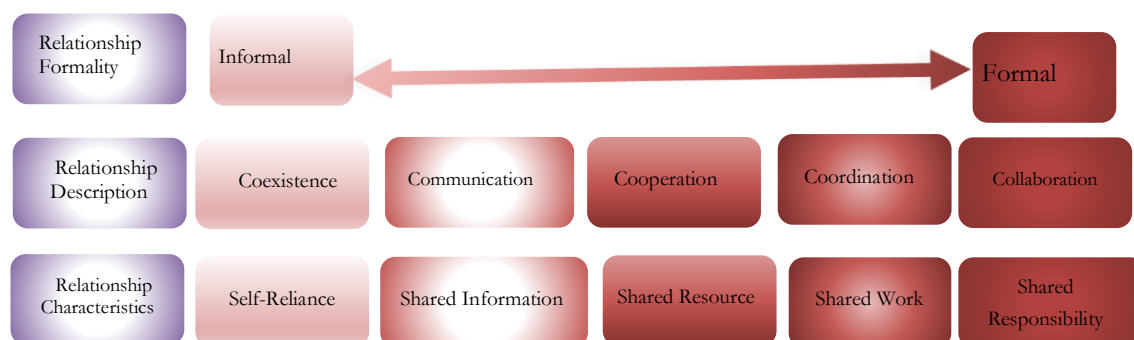
Despite having different terms, they all have common elements which are fostering collaboration at various levels. Border inspection agencies, including customs, health, mines, and all other border agencies that conduct physical inspections, cooperate at the local and national levels to conduct physical inspections. The other is between neighbouring states, such as Zambia and Botswana in the case of Kazungula OSBP. There is a joint management of shared border crossings and coordination between the two states, called the One Stop

⁷ Investing in improving trade in Zambia works <https://www.government.nl/topics/business-for-development/weblogs/2019/investing-in-improving-trade-in-zambia-works> (Retrieved 6 November 2023)

Border Post (OSBP). In addition to bilateral cooperation, multilateral cooperation is intended to enhance the efficiency of shared efforts within a specific region by enhancing the efficiency of shared efforts. An example would be the Southern African Development Community (SADC) comprising 16 Member States: Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic Tanzania, Zambia, and Zimbabwe. (Doyle, 2010, pp. 16-20)

The WCO recognises the various levels of interactions among border agencies. “*Level of Formality in Collaborative Interactions*”, the formal and informal channels of communication among individuals, groups or organisations/institutions ranging from casual and informal to highly structured and formal interactions. CBM focuses on highly structured and formal interactions which are “*defined through laws, regulations and agreements*”. (WCO, 2020, p. 3)

Fig. 2 illustrates the levels of Formality in Collaborative Interactions



source: (WCO, 2020, p. 4)

Fig. 2 illustrates the gradual rise in formality that characterizes intergovernmental collaboration and the increasing dynamics as formality levels increase (WCO, 2020, p. 4). There is a relationship between the level of formality and the tone, expectations, and outcomes of collaborative efforts. CBM and a Single Window are therefore viewed as sophisticated platforms that are not only gateways for service delivery; rather, they offer intelligent services that can be shared among users. In addition, these services include the calculation of duties and taxes, the submission of data, and the coordination of risk management. This involves collaboration between agencies, such as Customs and veterinary or health inspections, together with operational control facilities, like joint inspections, and the integration of agency processes and workflows.

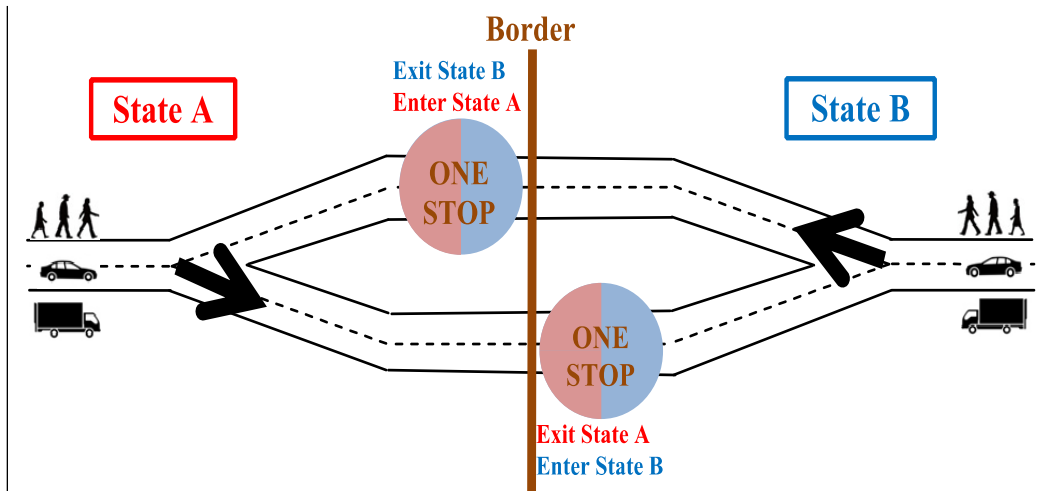
2.3. One-Stop Border Post

One-Stop Border Posts (OSBP) are another tool that enhances coordination between two countries sharing a border to facilitate the movement of people and goods across international borders at border crossing points, as in the Kazungula border crossing between Zambia and Botswana. For the OSBP to be successful, the exporting and importing countries must consolidate their activities at a single location. Resulting in a well-organized and simplified border crossing procedure. The concept is intended to reduce the dwell time at the border, improve efficiency and facilitate trade. It has been used since the 60s in Western Europe, according to Kieck (2010, pp. 6-7), there is no specific definition of the concept of the OSBP it has well-defined features.

- “• offices of both states are relocated in close proximity, necessitating only ‘one-stop’ for border crossings.*
- a control zone (or zones) is demarcated within which officers from both states conduct controls in terms of their respective laws.*
- the control zone comprises offices, inspection areas and related facilities and is usually located within the national territory of only one state.*
- immigration and import and export formalities are handled as a seamless transaction between the two countries.*
- inspections and searches of cargoes or vehicles are generally conducted in the presence of officers from both states.”*

There are various OSBP models, for this study the focus is the juxtaposed OSBP model used at the Kazungula border post between Zambia and Botswana, as shown in Figure 3 below.

Fig. 3 The juxtaposed OSBP model



Source: Infrastructure Consortium for Africa, East African Community, and Japan International Cooperation Agency (2011, p. 7)

In this model, “shared border facilities are operated in the country of entry in each direction. This model is generally used where there are already facilities and/ or where a river or other natural barrier forms the boundary”, (Infrastructure Consortium for Africa, East African Community, and Japan International Cooperation Agency, 2011, p. 5). In the case of Kazungula OSBP, Botswana and Zambia are separated by the Zambezi River. State A is Botswana and State B is Zambia. Traffic from Zambia only stops once in each direction and that is in Botswana and that also applies to the traffic from Botswana. For Kazungula OSBP to be effective there is a need for cooperation and coordination among all border control agencies thus the use of the Single Window system, shared facilities such as infrastructure, and harmonized procedures. In order to achieve efficiency and security, documents and customs procedures have to be aligned between Botswana and Zambia, as well as the coordination and management of borders.

2.4. Trade Facilitation

Wilson et al (2005, p. 842) agree with WTO’s assertion that the term varies in definition, depending on what type of literature one is looking at whether from international organisations or academic literature. They incorporate “relatively concrete ‘border’ elements, such as port efficiency and customs administration, and ‘inside the border’ elements, such as domestic regulatory environment and the services infrastructure to enable the effective use of information technology for e-business”, in their definition. On the other hand, the WTO (2015, p. 35) categorizes the definition into two dimensions, that is “Narrow or Broader and Soft or hard infrastructure definitions”, these are dependent on the scope and focus.

For narrow, the focus primarily involves the improvement of “*administrative procedures at the border*” that is customs processes, reducing paperwork and expediting border clearance. Contrary to this, broader definitions include the focus on the changes of “*behind the border*” measures such as reforms that improve transportation, infrastructure, logistics and laws and regulations. (WTO 2015, p. 35)

The second dimension, soft infrastructure definitions limit the description to the non-physical elements that impact trade such as policies, regulations, and customs procedures. On the other hand, hard Infrastructure extends its focus to look at the investments in physical assets such as roads, ports, railways, and border facilities and ICT equipment and tools such as the single window system that enhance the movement of goods and services. (WTO 2015, p. 35)

The variations in definitions reflect the diversity of efforts to improve international trade. Depending on the specific context, objectives, and policies of international organizations and researchers when addressing trade facilitation, a definition may be chosen. For the purpose of understanding the case study here, all the two dimensions have been used.

The transport of goods from sellers to buyers across borders is subject to regulatory requirements when the goods are transported worldwide. As part of meeting these requirements, documentation must be verified for compliance with the laws and regulations of import and export countries, in coordination with the various stakeholders involved, such as customs authorities and government agencies. It is essential to manage these responsibilities in order to reduce delays, reduce costs, and ensure that trade flows smoothly across international borders. To manage these requirements, the WTO with its members ratified an agreement which emphasizes the importance of trade facilitation through various measures such as the “*simplification and standardization, modernization, and harmonization of import and export processes.*”⁸ The main aim of these measures is to reduce or remove bureaucratic procedures, “*red tape*” that causes delays thus increasing the trade costs.

⁸ Trade facilitation, https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (Retrieved 29 September 2023)

Here “*modernization*” as described by Zaki (2013, p. 104), in the context of trade facilitation is foreseen to bring change in the way information is exchanged and trade procedure operations. Through the modernization of trade, it is expected that technology and digital solutions will be found to make trading more transparent, and accessible while reducing manual processes that involve paperwork.

Grainger (2011, p.42) focuses on the efficiency of trade procedures and controls by involved stakeholders to reduce the financial burdens of cross-border trade while adhering to regulatory policies and regulations. On the other hand, the UN through the Economic Commission for Latin America (ECLA) refers to trade facilitation as “*the simplification, standardization and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payment*”. By simplifying, streamlining, and improving trade procedures to reduce trade barriers, such as time and costs, cross-border transactions will be more cost-effective.

Despite the varieties in definition, they all have one thing in common: they focus on removing or reducing trade barriers to facilitate the smooth flow of goods and services within the country and abroad while upholding national and international trade laws. Tijan et al. (2019, p. 131) cement this key component by citing the Trade Facilitation Implementation Guide – Introduction, (2019), its primary goal is “*to help make trade across borders (imports and exports) faster, cheaper and more predictable, whilst ensuring its safety and security to simplify and harmonize formalities, procedures, and the related exchange of information and documents between the various partners in the supply chain.*”

A number of factors have contributed to the rapid transformation of international trade, including the decline in tariffs, the reduction in transportation and communications costs, and the emergence of new markets. It is noteworthy that in Least Developed and Developing Countries, such as Zambia, these factors contribute to the need to facilitate trade. The interconnectedness of international trade has contributed to the economic growth of many countries. However, global economies remain impacted by the effects of the global financial crisis of 2008. It is expected that any reduction in trade costs will contribute significantly to an upward trajectory, resulting in global economic benefits, (WTO, 2015, pp. 134-135).

2.5. Theoretical Background

Numerous theories and evidence support the benefits of a single window system. To gain a comprehensive understanding of the dynamics of international trade, the research has taken a holistic approach, employing both extensive (yes/no) and intensive (how much if yes) margins of trade together with the gravity model. These theories are the guiding theories to analysing the relationship between the single window system, trade cost reduction, trade volumes, trade transaction frequency and market attraction.

Gravity models consider trade costs as fundamental concepts, which is why they are widely used in international economics and trade analysis. Based on economic principles, this model examines factors that impact trade patterns between countries, such as economic size and distance, which is a proxy for trade costs. Bergeijk and Brakman, (2010, pp. 17-18).

Although economic size and distance were the primary factors considered in my research, there are also other factors, such as trade agreements (regional and non-regional trade agreements like the one between Zambia and SADC or Zambia and the European Union) and cultural ties (like the ties between Zambia and South Africa), that are also taken into consideration. The model is theoretically derived from the theory of international trade. The theory presents a structural approach, with emphasis on trade cost reduction, which examines how the Single Window system has impacted trade costs in Zambia and international trade. Other factors that influence international trade can be broadly categorized into fixed, variable, and uncertainties and it is essential to look at what role the single window plays in influencing these factors.

Lewis, (1946, pp.231-232) explains fixed costs as being expenses incurred by exporters and importers when engaging in trade that are independent of the volume of goods traded and remain relatively constant regardless of the quantity of goods traded. In the case of Kazungula OSBP, the fixed costs have been influenced by trade agreements (between Botswana and Zambia), government policies and infrastructure investments these costs include:

- Bridge toll
- Customs carriers license
- Initial investment in border infrastructure and facilities
- Carbon tax
- Weighbridge
- Council levy

In relation to the gravity model, Medin (2003, pp. 226-227) emphasizes the importance of fixed trade costs in determining the baseline trade potential between two countries. High fixed costs may deter trade, while a reduction in these costs may stimulate trade.

It is also important to consider the variable trade costs, which vary according to the particular transaction and are determined by the volume of trade. They play an important role in gravity models, Berthou and Fontagné (2016, pp. 54-55) state that lowering variable trade costs can encourage increased trade, as costs determine the relative competitiveness of goods on international markets, as well as the direction and extent of international trade flows. Furthermore, these costs are also influenced by trade agreements and government policies, and the implementation of trade facilitation tools such as the single window will contribute to lowering these costs. Examples of such tools include:

- Costs associated with transportation.
- Taxes, duties, and tariffs applicable to the goods.
- Variations in the exchange rate
- Expenses related to insurance and risk management.
- Fees for goods stored and handled during transit

Risks that affect both fixed and variable costs can arise, thus there are uncertainties in international trade, like the other two, and these influence the cost trading. *“Uncertainty also affects revenues to a larger extent because of the possible impact on prices and thus revenues.”* (Kahyarara and Simon, 2018, p. 135) Uncertainties like:

- Geopolitical tensions, trade disputes and political instability
- Pandemics and natural disasters
- Policy or regulatory changes

According to the gravity model, Novy and Taylor (2020, p. 749) refer to the *“2008-2009 Great Trade Collapse”*, The level of uncertainty in international trade may influence the willingness of firms to engage in international trade, thereby leading to a reduction in trade volumes and risk aversion. Currency hedging, market diversification, and contingency planning are often effective methods of reducing uncertainty, as well as risk management strategies.

“This model, in its basic form, posits the idea that trade is positively affected by the economic mass of the trading countries, which is gauged by their GDP and population, and negatively influenced by the geographical distance between them.”
(De Benedictis and Salvatici, 2011, p. 129)

According to the model, the economic size of any country influences its trading patterns, with large economies tending to trade more. That is the higher the GDP, the more likely these countries are to invest in new technologies, like the single window system, that leads to the reduction in trading costs to attract more trade. As evidenced by De Benedictis and Salvatici (2011, p. 56), citing Tinbergen (1962), *“to determine the normal or standard pattern of international trade that would prevail in the absence of trade impediments,”* he innovated the mirror model of Newton's law of gravity by suggesting that the volume of trade is positively connected to the economic size of countries involved in trade.

A country with a high GDP is expected to have a greater number of trade relations. De Benedictis and Salvatici (2011, p. 56) conversely, proposed that trade decreases as the physical distance between countries increases, suggesting that trade relations are strengthened by proximity to a country. The greater the distance the higher the trading cost. It is intended that the single window will mitigate the effects of distance through the reduction of trading costs by improving the efficiency of the process and simplifying the procedures and trade facilitation.

With this said the two factors considered, economic size and distance, for Zambia. Ranked among the nations that have exhibited some of the most significant levels of poverty and inequality on a global scale, according to the World Bank,

“Zambia’s economy rebounded in 2021, with real GDP growing at 4.6%, from a contraction of 2.8% in 2020, supported by firmer copper prices, favourable external demand, good rainfall, and post-election market confidence. In 2022, challenges in agriculture, mining, and construction slowed down the pace of post-pandemic recovery. Real GDP grew by 3.7%, year-on-year, in Q1–Q3, driven by services. The current account surplus narrowed to 2.3% of GDP in 2022 as spill overs from the war in Ukraine raised Zambia’s import bill while falling copper prices and output slowed growth in nominal export revenue. Uncertainty about debt restructuring reversed portfolio capital flows, triggering a more than 30%

depreciation of the kwacha between September 2022 and March 2023 and placing pressure on official reserves.”⁹

If the economic size works like a magnet between trading countries, and among the objectives of the single window system is to help reduce the trading cost then the system contributes to making it more attractive to trade with each other for Zambian businesses and its trading partners. This could be because the Single Window simplifies customs procedures, reduces paperwork, and saves time and money. As a result, trade may increase between Zambia and its trading partners due to the economic benefits offered by the Single Window.

Due to its landlocked position, Zambia relies heavily on its neighbouring countries and faces high transportation costs. Due to the lack of direct access to international markets, the country is dependent on transit countries. Consequently, the country is vulnerable to the policies and regulations of the transit countries, which may also have inadequate infrastructure and political instability, thus reducing its competitiveness.

Essentially, the Gravity Model suggests that the single window will increase trade volume by making it easier for traders to trade, thus making it more economically attractive. In the case of Zambia, distance plays an important role, as it contributes to levelling the trading field by reducing the costs associated with distance and border bureaucracies, making it easier for countries to engage in trading even if they are geographically distant.

Another theory worth adding to the study is the extensive and intensive margin of trade. According to Felbermayr and Kohler, (2006, pp. 642-643), the margins of trade are characterized by the alteration of the volume of existing bilateral trade relationships and by the establishment of new trade relationships or the abandonment of existing ones, respectively. Based on the previous I have used model; the focus is only placed on trade relations that have a positive trade flow. This approach has its

⁹ <https://www.worldbank.org/en/country/zambia/overview>

limits because it overlooks “*the action across time*” and the uncertainties regarding “*the exact interpretation of estimates obtained*”.

Zambia's involvement in international trade can also be examined from the standpoint of the extensive (yes/no) and intensive (how much if yes) margins of trade. Implementing the single window and other trade facilitation initiatives demonstrates Zambia's commitment to international trade. Persson (2008, p. 5) defines the “*intensive margin as exports per existing exporter and the extensive margin as the set of exporting firms, a reduction in variable trade costs will affect both margins positively, by making each existing exporter export more, and by increasing the number of exporters, since the threshold productivity level will drop*”.

By the application of this theory, it is evident that the attainment of the objectives of the single window facilitates the reduction of fixed trade costs, which facilitates the entry into the market (extensive margins). A good example is Zambia's copper industry, which accounts for 70% of the country's exports¹⁰ and being among the top ten biggest copper producers in 2021¹¹. It is for this reason that the country continues to participate in international trade. By eliminating bureaucratic procedures, the industry will be more competitive on the international market and its margins will increase. On the other hand, the simplification of border procedures and reduction in clearance time will increase the frequency of transactions, hereby increasing the intensive margin. (Persson, 2008, p. 5)

¹⁰ <https://unctad.org/news/copper-dependent-zambia-eyes-growing-market-cotton-products>

¹¹ <https://natural-resources.canada.ca/our-natural-resources/minerals-mining/minerals-metals-facts/copper-facts/20506>

Chapter 3: Theory of Change

To understand the study of Single Window systems in Zambia, it is important to also understand the foundational tools that have enabled the systematic investigation and understanding of this phenomenon. A brief overview of the causal relationships involved in the theory of change is provided in this chapter. Using this visual framework contributes to the advancement of knowledge and the development of practical solutions.

One of the proposed frameworks used is the single window theory of change to set up a causal link between the key concepts in the study while relating it to the theories used in Chapter 2.5. In addition, a framework developed by the Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation (COMCEC) (2017) has been used as a supplement. The frameworks demonstrate how the impact of the system is achieved and evaluate the assumptions underlying how the system is to achieve the desired result. This will allow stakeholders to understand and know how and why the system is expected to work.

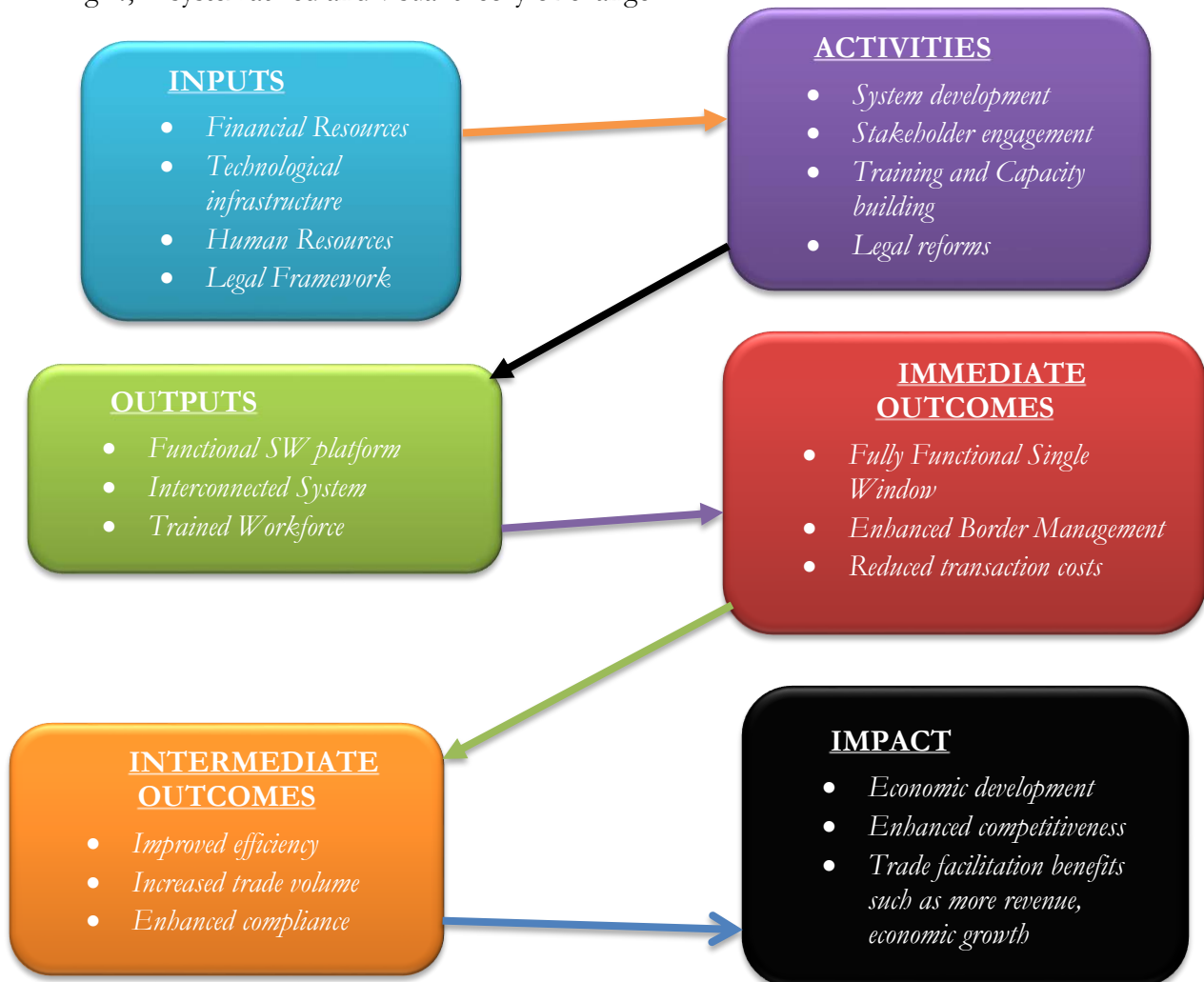
According to Reinholz and Andrews, (2020, p. 2), “*theory-driven evaluation aimed to move beyond a simplistic input-output notion of evaluation and instead required that program designers explicitly state how they expected a program to work, thereby making their implicit assumptions explicit*”. The empirical analysis in Fig. 4, simplifies and outlines the sequence of events, to achieve the desired impact while considering the internal and external conditions necessary for the system’s success.

The sequence of events includes:

- **Inputs:** resources and investments needed to develop and implement the single window system.
- **Activities:** Specific actions are determined and implemented based on the available resources (inputs) to achieve the intended results of the system.
- **Outputs:** Results of specific actions (activities).
- **Immediate Outcomes:** The immediate effects of the results or the changes that occur as a result of the results.
- **Intermediate Outcomes:** results of the initial changes or the consequences of the immediate outcomes.

- **Impact:** This is the result of the cumulative effects of the activities and outcomes, which is the ultimate change that the system is intended to bring about.
- **Assumptions:** These are the conditions necessary for the system

Fig. 4, A systematized and visual theory of change



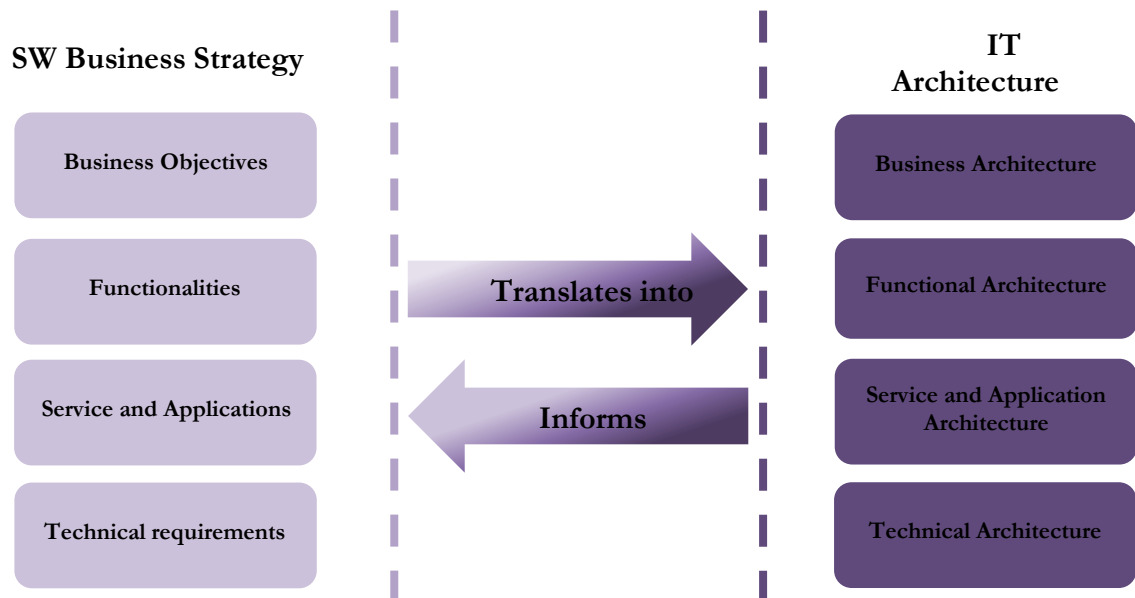
ASSUMPTION AND RISKS

- Stakeholder cooperation
- Technology reliability
- Legal and regulatory compliance
- Adequate Funding
- Regional Stability
- Favourable global economic condition
- Political stability

The empirical analysis, in Fig. 4 reveals that the immediate and intermediate outcomes were 'improved border management and reduced transaction costs' and 'improving efficiency and increasing trade volume'. They are aligned based on obtained evidence and insights gained during the study and demonstrate how these outcomes are resulting in various impacts in the long term of the intervention. However, if the relevant conditions are not met, that is a favourable global economic condition and political stability (assumptions) there will be a distortion in the outcomes, thus having a different impact.

In addition, the COMCEC (2017) visualised the single window strategy in the PowerPoint presentation held for the OIC Member States as shown in Fig. 5 below.

Fig. 5 The visualised single window strategy



Source: COMCEC PowerPoint presentation (2017)

The strategy in Fig. 5 outlines a well-thought-out plan to implement the single window. It has outlined the business objectives which should be measurable and time-bound to achieve the set goals. Functionalities are a set of capabilities to meet the needs of international trade such as determining how various stakeholders interact with the single window system. These allow for data exchange between agencies and the storage and retrieval function of the system, to carry out specific tasks without requiring manual intervention such as automatic validation of submitted data, the use of digital certificates for document authentication, automatic status updates of trade transactions. (UNECE, 2011, pp.19-21)

The strategy also has a service and application component where specific functionalities are assigned in this case, stakeholders interact with the system based on their role in the trade transaction process for example customs brokers will only have the input and submission of data into the system and view status updates of the process and not verification of documents and management of data which is assigned to another stakeholder. The other is the technical requirements, these are things to be put in place if the implementation is to be successful such as setting standard data formats and communication protocols while adhering to the set international data exchange standards, like those set by UN/CEFACT and WCO. (UNECE, 2011, pp.23-24)

All strategies translate into regulatory IT architecture which is a vital component of the single-window strategy because it allows for the use of technological operations to enhance processes and innovations and improve service provision.

The framework also includes the understanding of the processes and services involved that is the coordination of activities and services designed to make international trading and import and export clearance easy, as shown in Table 2. below. These processes and services include the auxiliary functions (Supporting Services) that are essential and fundamental activities (Core Business Processes) of facilitating the exchange of information and documents among government agencies, traders, and other stakeholders involved in cross-border trade. (Tijan et al., 2019, pp.134-135)

Table 2. Single Window Processes and Supporting Services

SINGLE WINDOW					
Core Business Processes		Supporting Services			
Declaration Processing	Permit Certificate Management	The filing and lodging of documents and data	Processing of applications/ decision making	Real-time status information	Messaging two-way communication/ feedback
User Profile Company profile	Transport and financial document management	Coordination of joined controls	Exchange of data between different systems and applications	Reporting and Analysis	Business Intelligence
Payments m-Payments	Manifest Management	Risk management/ selectivity	Data validation, authentication and authorization	Real-time container/cargo tracking	E-payment

Source: (Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9th Meeting of the COMCEC Trade Working Group, 2017)

Chapter 4: Methodology

This chapter serves as a guide and discusses the used methodology to answer the questions at hand. It looks at the chosen case study to investigate the contribution of the single window to CBM and trade facilitation. The data was derived from the specific chosen case study, and interviews conducted with each stakeholder or expert who agreed to participate beforehand. Aside from that, other methods have been used to help clarify the contribution of the system such as the extensive literature review and desk research which have provided the theoretical foundation for how my research is structured.

4.1. Desk Research

Another strategy used was desk research where I analysed existing literature, that is the publications, organisational articles, and papers about the single window concept. This was to understand the objectives of the development of the system and to get an in-depth view of its contribution to trade. It provided the foundation upon which an understanding of my research's context and background was built. The sources of the desk research were mainly online from reliable organisational websites like the WTO, WCO, COMESA, UN/CEFACT, OECD and ZRA. To understand the concept of the system and the laws, regulations, and frameworks already in place, these online sources provided the underlying support for the review.

4.2. Case Study

For this study, the Kazungula OSBP was chosen as the case study, Dul and Hak, (2008, p. 4) define it as “*a study in which (a) one case (single case study) or a small number of cases (comparative case study) in their real-life context are selected, and (b) scores obtained from these cases are analysed in a qualitative manner*”, to examine the contribution of the single-window system at Kazungula OSBP. Owing to its location and status it is an ideal case study for my research. It is along the North-South transport corridor and is a major transit point for goods within the region, as seen in Table. 3 below.

Table. 3 provides the traffic volume in and out of the country at the major borders under various traffic types, according to the ZRA monthly report for July 2023.

STATION	ENTRY						EXIT				
	Small Vehicles (CIPs/ Acquitted CTEPs)	Buses	Trucks				Small Vehicles (CTEPs/ Acquitted CIPs)	Buses	Trucks		
			RITs	RIBs	Final Clearance	Empty			RITs	Exports	Empty
Chanida	8	-	283	77	1298	-	8	-	114	337	756
Chirundu	555	421	2898	-	5482	-	552	267	2779	3528	2623
Kariba	133	-	-	-	1	21	121	74	-	29	1
Kashiba	9	2	3	-	44	0	1	-	43	13	-
Kasumbalesa	10	24	8401	-	164	2251	6	22	6900	1934	807
Katima Mulilo	131	7	394	-	1064	291	143	9	89	1242	251
Kazungula	763	36	2480	431	4158	-	650	89	1411	2431	-
Kipushi	5	-	-	-	169	-	5	-	255	138	-
Lufuwa	4	-	208	66	-	-	5	-	175	28	-
Lusuntha	8	-	-	-	80	5	8	-	-	-	3
Mokambo	14	-	3	-	1	3186	25	-	2107	2389	-
Mwami	368	-	22	-	500	893	282	-	272	500	-
Nakonde	62	-	8984	767	3966	315	52	-	3943	3855	5972
Nchelenge	-	-	-	104	-	-	-	-	9	-	-
Sakania	88	-	31	182	2	1183	35	-	5193	1042	3
Victoria Falls	156	-	1430	-	786	9	127	-	314	284	1498
Total	2,314	490	25,137	1,627	17,715	8,154	2020	461	23,604	17,750	11,914

Note: RIT (Removal in Transit) refers to the movement of goods through Zambia to another country while RIB (Removal in Bond) refers to goods that are moved from the Kazungula border to a warehouse, usually for storage, without the payment of duties or taxes.

The border is at the convergence of four Southern African countries: Zambia, Botswana, Namibia, and Zimbabwe, (African Development Bank, 2019, 17). Additionally, it gives insights into the physical and digital coordination aspects of CBM and trade facilitation because the single window system is not fully integrated. Being one of Zambia's biggest border items of trade volume and revenue collection, using it as a case study will also provide valuable knowledge for stakeholders, especially policymakers and will serve as an example to other countries where similar initiatives are being considered.

4.3. Mixed Methods

With the help of research assistants, the study used mixed methods, that is qualitative interviewing and quantitative data analysis. Connelly (2009, p.30) sheds light on the advantages of using this method, "to overcome the weaknesses of another method and therefore have stronger evidence for a conclusion." In this case, the qualitative and quantitative data were

insufficient if used separately. Qualitative was limited to the time spent at the border between entry and exit. It did not provide any information regarding the events at the border, whereas qualitative interviewing provided detailed information about the events at the border but did not provide information regarding the average time spent at the border. Mixing the two methods enhanced the credibility and reliability of my findings. In addition, desk research has also been used. to get a more comprehensive understanding of a research question.

4.3.1. Quantitative Method

The theory of change outcomes aligns with the research question by highlighting the change of the intervention (single window), particularly in reducing transactional costs, which are linked to time. To determine the average amount of time spent at the border, time stamps were collected from three different periods in the implementation of the single window in Zambia, that is 2016 just before its implementation, 2018 two years after its implementation and 2023 seven years after its implementation. The data collected was also used to estimate the trade volume for these different times. This was to determine the co-efficiency between the single-window system (the independent variable) and dwell time, which is closely related to and attracted to trade facilitation, (the dependent variable). This method allowed for the measuring of variables precisely and quantifying them, thus examining if the single window system has statistical significance on the dwell time at the border. Data were collected, analysed, and graphed using Microsoft Excel.

4.3.2. Qualitative Method

The strategy for the qualitative data collection was through three separate semi-structured interviews, with open-ended questions, with stakeholders identified by understanding how the system works and the role each plays interviewee in the process. This was done to explore issues surrounding the single window system, to reveal unexpected aspects, and to determine the impact of the system on staff and productivity, revenue and ultimately trade volume. The reason for having three separate semi-structured interviews was one was for experts or technical staff from various border agencies, the other was for the customs agents and the other was for drivers, exporters and imports. It should be noted that not all stakeholders approached agreed to participate in the interview.

The analysis was conducted using ATLAS.ti, which is a data analysis tool that aids in the analysis of quantitative data. In the initial coding process, I used open coding, which represented key topics that were discussed in the interviews.

4.4. Overview of Data Collection Activities

No specific sample size was decided, the aim was to reach saturation in data collection. The data collection was done through a three-step interview plan. In order to learn more about how the single window is progressing, since not all government agencies are integrated into the system, I set up questions for individuals from businesses, government representatives and customs agents.

With the help of two research assistants, In the first step, we spoke to experts and people who have a deep understanding of the single-window concept from different backgrounds. Some were customs officers who gave information on topics like enforcing rules, handling IT, and managing information. Another was the project manager who worked on developing and putting Single Window into action in Zambia. We also interviewed policy analysts from the Ministry of Commerce Trade and Industry.

The interviews took place between July 1st and July 16th, 2023, physically with my research assistants and on the phone with me. We then wrote/ transcribed everything that people said during the interviews closely to figure out how the processes were held when they were using the single window and before they were using the single window system.

In the second part, we focused on individuals who use the Single Window in their everyday work like physical inspectors and evaluators of taxes and documentation checking at Kazungula OSBP from customs and 10 other Government agencies found at the Kazungula OSBP. Additionally, we spoke with representatives from the Local Council and Customs clearing agents.

The third was importers and exports as well as track drivers. The single window system was intended to also serve the interests of these stakeholders, getting insights from their experience will provide first-hand exposure to the realities of cross-border trade. To avoid communication barriers, we translated questions into Bemba and Nyanja during interviews with some interviewees.

During the same period, we collected quantitative data as well by recording the time the track entered the border and the time it exited the border to determine its dwell time in the border. It should be noted that not all tracks were captured, this was because we focused on tracks carrying single consignments and not consolidated consignments.

This was done to avoid distortions of data as consolidated consignments make it difficult to identify the dwell time of individual consignments thus masking delays experienced on each consignment. It also does not reflect the actual waiting time experienced by different goods within the consignment which results in distortion of data. The other time records from 2016 and 2018 were collected from past gate-pass records issued to drivers at the point of entry and signed out at the point of exit. All collected data was then sent to me via e-mail. I then transcribed it into a text-based format for analysis.

4.5. Limitations and Ethical Considerations

4.5.1. Limitations

Several factors may have influenced the findings and generalizability of my study. Through a combination of mixed methods and desk research, these limitations were overcome. The limitations faced include:

There was a time constraint; a limited amount of time was allocated for data collection, analysis, and report writing. Consequently, the study's scope and depth may be limited. The volume of trade varies throughout the year, and this influences border operations, depending on the season.

For example, just before the end of the year, the border may record large trade volumes, increasing workload, containing festive items or end-of-year sales as compared to the beginning of the year when no festivities are going on. Therefore, the data collected does not reflect the true picture of the trade volume throughout the year. The data collection excluded data for consolidated consignments.

Data access was limited; the Zambia Electronic Single Window (ZESW) website was not operational; therefore, I was not able to obtain any information from there. Trade data is very sensitive thus I was not given complete access to it. I needed more time to get clearance to access the data and some data had privacy clauses. Over the past years two

versions of ASYCUDA, that is ASYCUDA version 2.7, and ASYCUDA++ and currently using the third version, ASYCUDA World.

I was not given access to the past versions because I needed prior clearance. The data collected for 2016, was obtained during the preparation and shortly before the launch of the system. The data does not represent, the actual dwell time before the intervention.

Limited financial and logistical resources; because of financial and logistical constraints, extensive fieldwork was not possible. Having insufficient funds for fieldwork resulted in data collection being conducted by research assistants, resulting in a lack of personal observations.

Some interviews were conducted over the phone and were affected by poor network connectivity, resulting in the other person not being able to hear me and vice versa. The results also lack the interpretation of non-verbal communication such as facial expressions as well as body language.

Positionality, I work as a customs officer for the Zambia Revenue Authority. Even though I positioned myself as a student my position, as a customs officer, may have influenced my results of the interview. There is a possibility that participants responded to obtain a reaction based on my position or that they were not free to disclose the truth.

4.5.2. Ethical Considerations

Both the researcher and the research assistants conducted the research with integrity, transparency, and accuracy. All interviews were conducted with informed consent, and participation was voluntary. Confidentiality of information shared has been safeguarded and is intended for academic purposes only.

4.6. Data Analysis

Quantitative Data Analysis

Below is the table containing the sample size for the quantitative data collected. Table 4. Contains the number of tracks that entered and exited the border in the periods shown and Table 5. Contains sample extract from Excel.

Table 4. Quantitative sample size

1st - 16th JULY 2023		
Imports	Exports	Transits
1384	548	838
1st – 16th JULY 2018		
Imports	Exports	Transits
878	158	291
1st – 15th AUGUST 2016		
Imports	Exports	Transits
445	133	256

Table 5. Sample extract from Excel, time format (Day: Hours: Minutes)

HORSE TRAILER 1 TRAILER 2	BILL OF ENTRY	ENTRY	EXIT	DIFFERENCE
Anonymous	C...	17-Jul-2023 18:31	19-Jul-2023 07:45	01:13:14
Anonymous	C...	16-Jul-2023 06:48	16-Jul-2023 20:11	00:13:23
Anonymous	S...	17-Jul-2023 15:20	22-Jul-2023 11:45	04:20:25
Anonymous	S...	20-Jul-2023 15:23	21-Jul-2023 12:07	00:20:44
Anonymous	S...	16-Jul-2023 07:20	16-Jul-2023 20:05	00:12:45
Anonymous	S...	16-Jul-2023 12:23	16-Jul-2023 18:27	00:06:04
Anonymous	S...	15-Jul-2023 17:18	16-Jul-2023 12:06	00:18:48

Qualitative Data Analysis – Here are a few excerpts from ATLAS.ti of the codes I used:

“Enhanced Data Sharing”

“Less Paperwork”

“Challenges in User Training”

“Enhanced Transparency”

“Reduced Administrative Burden”

Later, the related codes were grouped into themes such as

“Benefits of Single Window Implementation”

“Implementation Challenges”

“User Training and Adoption”

“Operational Efficiency”

It is from these codes and themes that the findings were found.

Chapter 5: Legal Framework Analysis and Its Impact

5.1. International and National Laws Affecting the Single Window

Several legal frameworks influence the operations of the single window, CBM and trade facilitation. These offer a guide to how trade-related activities are to be carried out. Among the laws that have influenced the implementation and operations of the single window by different agencies, include:

- **World Trade Organisation Trade Facilitation Agreement (WTO TFA):** Following Zambia’s ratification to the TFA on 16 December 2015, which took force on 22 February 2017, is mandated to abide by the terms of the agreement which are aligned with the ZSW objectives. *“The TFA contains provisions for expediting the movement, release, and clearance of goods, including goods in transit. It also sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues. It further contains provisions for technical assistance and capacity building in this area.”*¹²
- **The Customs and Excise Act (Cap 322) of the laws of Zambia.** It offers a guide on all customs and excise procedures. In Part III and Part V, you will find information regarding the Importation and Exportation of goods, respectively. The Act also outlines the procedures for clearance, the tariff classifications, and the customs duties involved in the clearance process. Several customs operations are intertwined with ZSW, so this framework offers legal backing to the interface.
- **The Electronic Communications And Transactions Act, 2021,** governs electronic transactions and e-commerce in Zambia. This legal framework accounts for the electronic documentation and data submission, offering legal support to one of the objectives of the single window, single submission of electronic information. Part II, section 6 subsection 1, validates electronic signatures *“Where the signature of a person is required by law and that law does not specify the*

¹² https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm

type of signature, that requirement in relation to a data message is met if an advanced electronic signature is used.” The Act also gives guidelines in Part III section 23 and 24 “*electronic filing and issuing of documents*”, respectively.

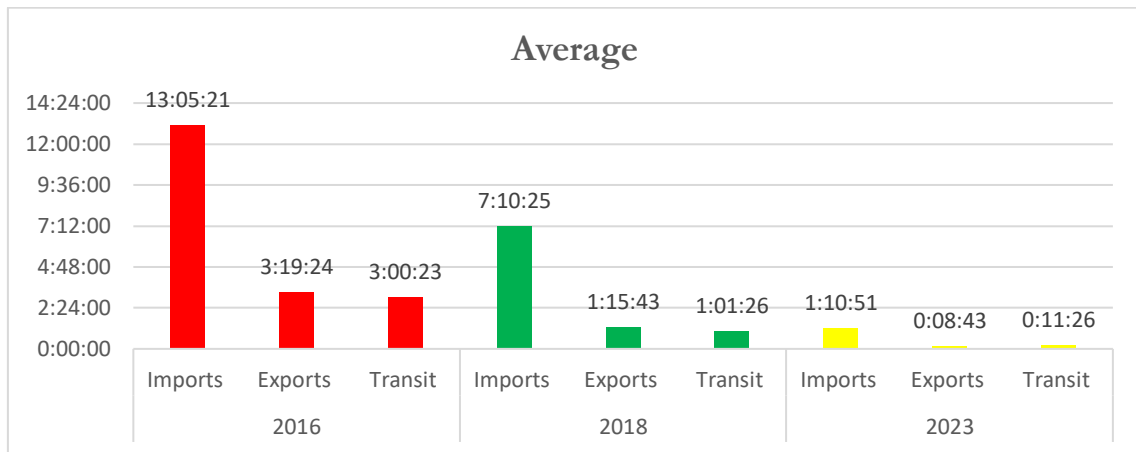
- **The Data Protection Act, 2021**, ZSW deals with sensitive trade-related data and it is therefore data privacy and protection is crucial. PART II, section 4, establishes the “*Data Protection Commissioner*” and outlines its functions, “*which is responsible for the regulation of data protection and privacy in the Republic*” and PART IV of the Act also gives “*Principles and Rules Relating to Processing of Personal Data*”, which is the framework for processing personal data and ensuring its privacy and security.
- **The Border Management And Trade Facilitation Act, of 2018**, this Act aligns with other international frameworks Zambia is a signatory. It addresses issues concerned with border management in PART II, “*Border Management*” and trade facilitation in Part IV and VI. The ZSW’s objectives perfectly fit into the Act, which is to reduce trade costs and streamline processes of trade.
- **Other Relevant Laws and Regulations:** The Information and Communication Technologies, Act of 2009, the Coordinated Border Management and Trade Facilitation Act of 2018 and the Value Added Tax Act (Cap 331) of the laws of Zambia.

Chapter 6: Results

6.1. Quantitive Analysis

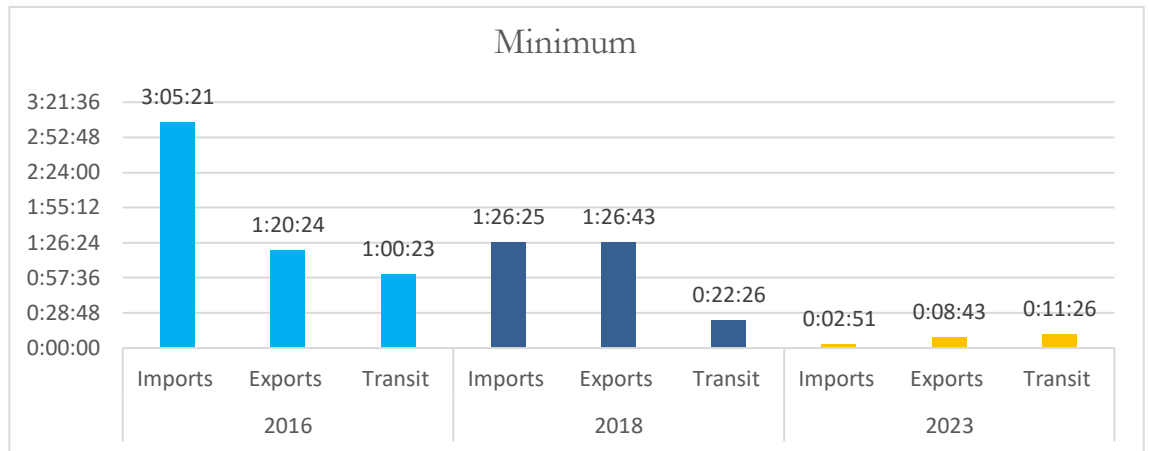
At Kazungula OSBP, there has been a significant reduction in dwell time since the introduction of the single window. The quantitative data results are presented in the three graphs below. A comparison between the dwell times at Kazungula OSBP for three-time stamps, August 2016, July 2018, and July 2023 during the same time of the year. 2016, has a different time of the year since it was difficult to access the data.

Graph 1. Average Dwell Time (Days: Hours: Minutes)



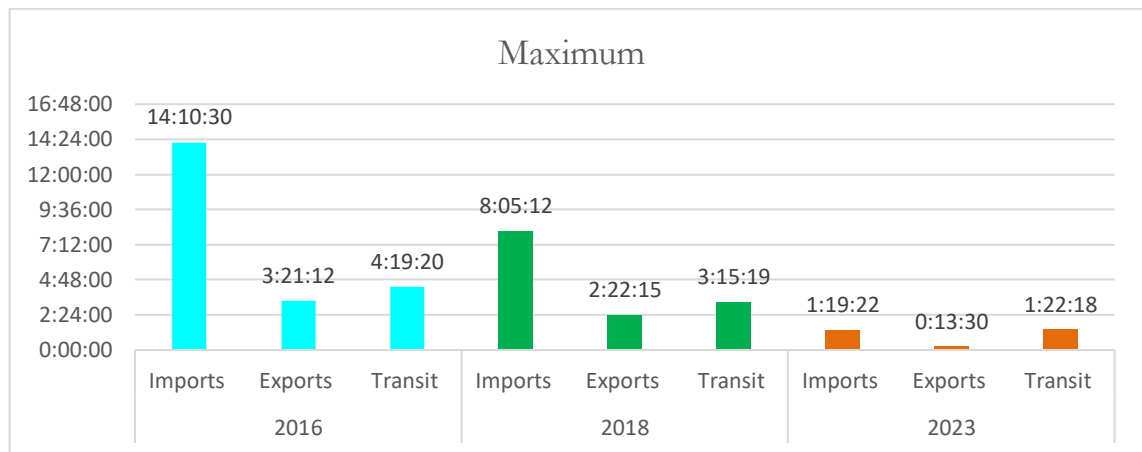
Graph 1 illustrates the average time spent at Kazungula for imports, exports, and transits in 2016, 2018 and during the study period in 2023. It is estimated that imports took an average of 13 days, 5 hours, and 21 minutes in 2016, compared to 7 days, 10 hours, and 25 minutes in 2018. In 2023, dwell time decreased significantly to 1 day, 10 hours, and 51 minutes, as shown in the graph above. A similar distinction can be made regarding exports and transits.

Graph 2. Minimum dwell time (Days: Hours: Minutes)



As shown in Graph 2, the minimum amount of time spent at Kazungula for imports, exports, and transits during the study period is 2023. The time it took for exports in 2016 was 1 day, 20 hours, and 24 minutes, while in 2018 was 1 day, 26 hours, and 43 minutes. By 2023, the dwell time had decreased significantly to 8 hours and 43 minutes. Transits and imports can be distinguished similarly.

Graph 3. Maximum dwell time (Days: Hours: Minutes)



Graph 3 presents the maximum amount of time for imports, exports, and transits at Kazungula. Transits in 2016 took 4 days, 19 hours, and 20 minutes, while transits in 2018 took 3 days, 15 hours, and 19 minutes. A significant reduction in dwell time had been achieved by 2023, with the dwell time being 1 day, 22 hours and 18 minutes. There is a similar distinction that can be made between imports and exports.

Based on the quantitative analysis, it can be concluded that there has been a decrease in dwell time at Kazungula compared to previous years. One thing that cannot be

determined from the dwell time is whether or not the single window system has been the sole cause of the reduction in dwell time. The qualitative interview will be used to identify the cause of the reduction in dwell time.

6.2. Qualitative Analysis

Based on the interviews conducted, a reduction in administrative burdens, costs and time, were the three important points identified. Based on the number of times they appear in the interviews. A considerable number of stakeholders recognized the importance of these points in clearing goods and services. In spite of the fact that the exact cost reduction could not be determined.

The interviews with the experts revealed many insights regarding the ZSW and its contribution to CBM at Kazungula OSBP, including the paperwork reduction. The source cited the instance that during COVID-19, workers were advised against the exchange of documents to avoid contracting and spreading the virus. (Anonymous, 2023)

There are substantial efficiency gains that have been associated with the reduction of paperwork in general, which have contributed to the efficiency of clearance as well. As a result of the single window system, government agencies have been able to share information in real-time, enabling accurate data collection and transparently managing data.

Additionally, experts noted that during the initial implementation phase, they faced challenges which were resolved such as resistance from other stakeholders who wanted full control over their data and business activities, as well as some who may have engaged in corrupt practices to gain control, and internet connective was a challenge, but the government have invested in high speed not just at Kazungula OSBP but also at other crossing points. The other challenge has been the unification of individual systems, it is a great challenge for systems to have uninterrupted communication. (Anonymous, 2023)

Several others have commented on the fact that they are very comfortable with the system since it has legal backing at both national and international levels. There are plans to integrate more agencies into the system before the end of 2023. (Anonymous, 2023)

However, some agencies also raised concerns about customs brokers contributing to delays in the clearance process, citing that they do not respond to queries on time and others altered documentation before submission. (Anonymous, 2023)

The other interview was done with the customs brokers who act on behalf of the exporter or importer, their job is to offer advice to importers and exporters, lodge declarations on behalf of the consignee (importer or exporter), check for status updates of the clearance process and to respond to queries concerning the declared consignment. (Anonymous, 2023)

The interview highlighted pleasant and unpleasant experiences. They raised concerns about the number of officers available, and limited manpower at almost all stages of the clearing process which resulted in delays. They were pleased with the single digital submission of documents which served them a lot of time. They were also pleased with the pre-clearance initiative because it also contributed to reduced time at the border. (Anonymous, 2023)

The third type of interview done was with the drivers, exporters and importers who collectively compared the clearance procedure 10 years ago with the current situation, how it lacked transparency, and it was not easy to make payments (through the e-payment platform of the single window) and track past trade transactions. They also expressed the pleasant experience of the OSBP, saying it served them time by just stopping once citing that “*it was a two-in-one experience*” that allowed them to undergo procedures of two countries at one location. (Anonymous, 2023)

It was worth observing that some drivers left the trucks packed at the border even after the clearance process was done to attend to personal matters outside the border. The border offers security to all consignments and once the truck leaves the border it is at risk of theft if left unattended to.

Chapter 7: How does the Zambia Electronic Single Window contribute to enhancing Coordinated Border Management and Trade Facilitation at Kazungula Border One Stop Border Post?

7.1. What are the challenges and positive outcomes of the single window to Coordinated Border Management and Trade Facilitation?

In the theoretical background, provided in Chapter 2.5, small economies like Zambia face a lot of challenges and its geographical position does not make trade any easier. However, these challenges are being resolved by the investment and implementation of trade facilitation tools like the single window system, the pre-clearance initiative, and other tools like the One Stop Border Post.

Among the other challenges faced is the cost of developing and implementing a Single Window system, these costs are direct and indirect. *“They include network investment costs, hardware/software investment costs, cost of requirement analysis and design, continuous software development, operational support, research and development, training, change management, and new requirements. Cost issues related to government inter-agency communication and institutional cooperation may also be included”*, (UNESCAP and UNECE, 2012, p. 62) as seen in the theory of change, in chapter 3, framework.

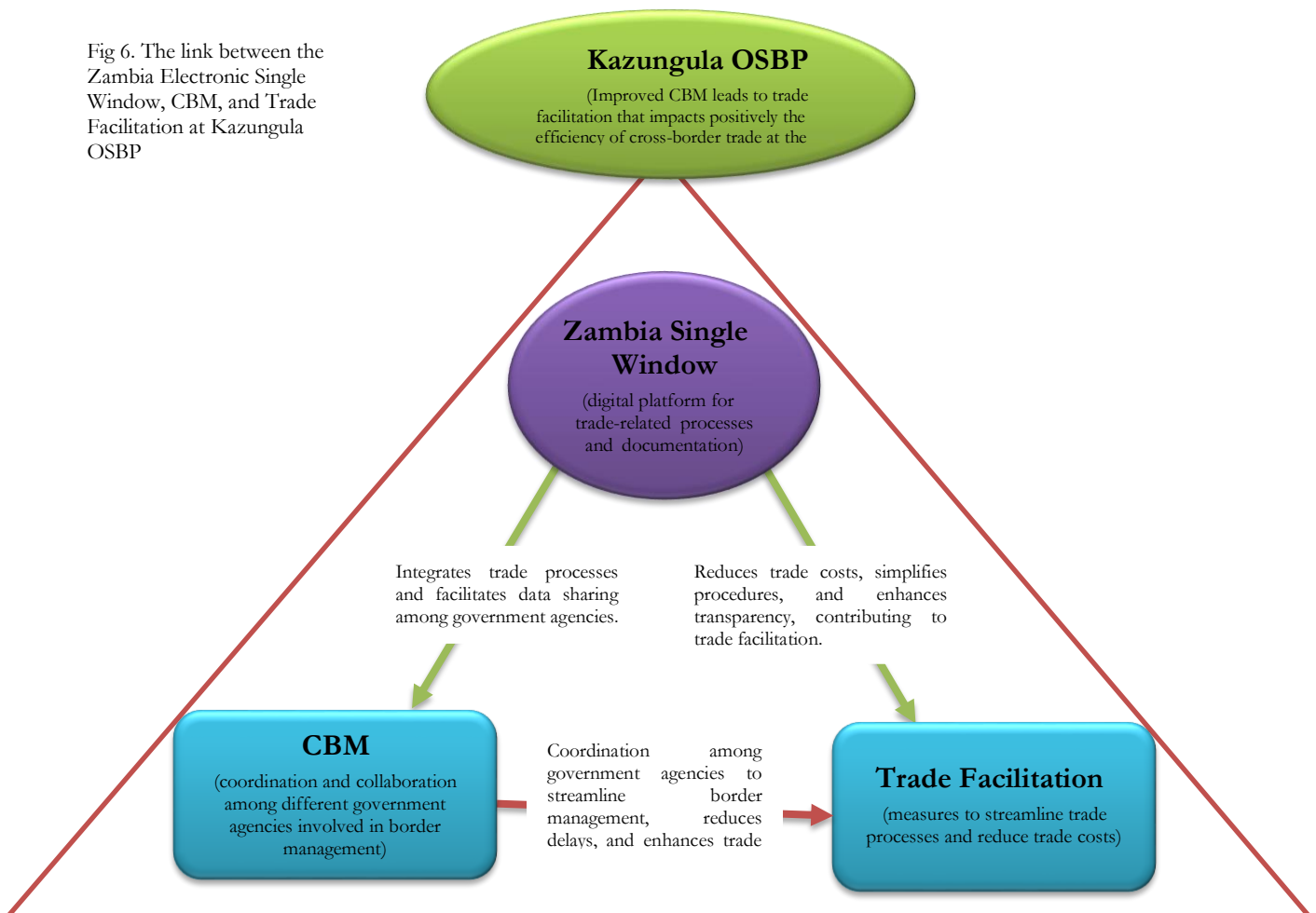
Other costs as outlined by the UNESCAP and the UNECE, (2012, p. 62) include, the *“size of the economy, extent of existing systems, support through public-private partnerships, geographical diversity, Openness to change, the sophistication of design in terms of technology and equipment, need for network development and infrastructure, existing Customs automation, need for software licenses, training costs, marketing and promotion of the system.”*

UNESCAP and UNECE, (2012, p. 62) have cited the UN/CEFACT Single Window Repository, “a *Single Window* project can cost between 11 million and 56 million USD for implementation alone. Operation costs can range from 227,208 USD per annum to 9.2 million USD.” That is why the implementation of the system, in Zambia, has been done in phases.

As a digital trade facilitation tool, the Zambia Electronic Single Window (ZESW) is an essential tool in which the Zambian Government recognises the importance of improving the country's trading environment and attracting investment. And enhancing competitiveness in line with international best trade practices. This system was implemented in 2016 because it aims to simplify and streamline processes related to cross-border transactions, which contributes to the country’s economy. The objective of the ZSW is to improve the efficiency and transparency of trade activities, reduce trading costs, and simplify business operations, thus leading to facilitating trade, and coordination at the border stimulating economic growth, increasing trade volumes and creating a favourable trading environment.

In addition, Fig 6. illustrates the interactions between the Zambia Electronic Single Window, CBM, and Trade Facilitation at Kazungula OSBP.

Fig 6. The link between the Zambia Electronic Single Window, CBM, and Trade Facilitation at Kazungula OSBP



The evidence obtained during the study subsequently shows that ZSW has significantly contributed to CBM in many ways. WCO, (2020, p. 9) states that the fundamental principles that govern the “*flow of information within the CBM system*” are based on the hypothesis that the provision of high-quality information enabled by transparency and simple submission procedures results in improved decision-making capabilities by cross-border agencies. The fundamental principles include:

“*Regulatory Transparency, Streamlined Submission, Information Sharing, and Information Protection*”, align with the objectives of the single window system.

According to the interviews, the connection between the three concepts has had technical complexities, that is, the unification of individual systems. Resistance to change from stakeholders has been another challenge among others like the formulation of new laws to align with the new practices and ensuring that these are of international standards.

There have been positive outcomes as well, from the quantitative data collected there has been a significant reduction in dwell time at Kazungula OSBP and in paperwork, which may be translated into cost reduction in terms of no demurrage or costs related to variable trade costs.

In addition, other factors that enhanced border control, and reduced clearance time and costs include reduced paperwork through digital submission and the creation of a work trail., Duval and Mengjing (2017, p. 1).

According to the World Bank (2020) “*Doing Business 2020 report*”, there has been an improvement in the ease of doing business, overall, at all border points in Zambia as compared to the past decade and encourages economic growth¹³.

¹³ <https://archive.doingbusiness.org/en/reforms/overview/economy/zambia>
<https://archive.doingbusiness.org/en/reforms>

and

There has also been more collaboration among government agencies in the recent years.

The support from the legislative branch has enabled the system to significantly contribute to the coordination of border procedures and facilitation of trade.

7.2. How are various agencies contributing to the efficiency of the single window?

There are various agencies present at Kazungula OSBP but not limited to, the Ministry of Health, the Ministry of Agriculture (Plant Quarantine and Phytosanitary Services, the Agribusiness and Marketing, Seed Control and Certification Institute), the Ministry of Fisheries and Livestock, Interpol, the Zambia Information and Communications Technology Authority (ZICTA), the Zambia Compulsory Standards Agency (ZCSA), the Ministry of Mines and Minerals Development, Forestry Department, the Drug Enforcement Commission, Kazungula Local Council.

Collectively, they have contributed to implementing electronic customs declarations, according to the World Bank “*Zambia made exporting and importing easier by implementing a web-based customs data management platform, Automated System for Customs Data (ASYCUDA World)*.”¹⁴

There is legal backing for each government agency in line with border operations that prescribes their role at the border and the support they render to each other to ensure coordination among themselves and the facilitation of trade.

¹⁴ <https://archive.doingbusiness.org/en/reforms/overview/economy/zambia>

7.3. To what extent do national laws affect the contribution of the single window system to CBM and trade facilitation?

The national laws have enabled the operations of the single window system in line with CBM and trade facilitation, to a larger extent, making it more effective as outlined in Chapter 5., Legal Framework and Its Impact. The frameworks have been harmonized to meet the objectives of the system, CBM and trade facilitation.

As a digital trade facilitation tool, the Zambia Electronic Single Window (ZESW) is an essential tool in which the Zambian Government recognises the importance of improving the country's trading environment, attracting investment. And enhancing competitiveness in line with international best trade practices. This system was implemented in 2016 because it aims to simplify and streamline processes related to cross-border transactions, which contributes to the country's economy. The objective of the ZSW is to improve the efficiency and transparency of trade activities, reduce trading costs, and simplify business operations, thus leading to facilitating trade, and coordination at the border stimulating economic growth, increasing trade volumes and creating a favourable trading environment. In addition, Fig 6. illustrates the interactions between the Zambia Electronic Single Window, CBM, and Trade Facilitation at Kazungula OSBP.

Fig 6. The link between the Zambia Electronic Single Window, CBM, and Trade Facilitation at Kazungula OSBP

Chapter 9: Conclusion and Recommendations

In conclusion, the Zambia Electronic single-window system has indeed contributed to CBM and trade facilitation at Kazungula OSBP. However, like Ndonga's (2013) and Nizeyimana and De Wulf's (2015) findings, it is not the sole factor in these results but together with other trade facilitation tools and initiatives, including the introduction of mandatory pre-clearance (clearing of goods before arrival) and the mandatory processing of exports from inland stations rather than at the border, along with the introduction of the one-stop border post.

There are several other ways in which the system is contributing to CBM and trade facilitation. The move from multiple paperwork submissions to a single digital submission and the introduction of electronic payments are points worth noting that have contributed to the coordination of border processes and allowed for the simplification of trade procedures. Similar to Nizeyimana and De Wulf's (2015) findings, there has been a significant reduction the processing time for imports and exports.

The unification of individual databases into a single database has resulted in the harmonization of trade procedures and the sharing of documents between border agencies has been made easier. As a result, transparency has been achieved among government agencies.

Moreover, the government has demonstrated a commitment to comply with international agreements and best trade practices by aligning the system's objectives with national laws.

Recommendations

In light of the factors that affect CBM and trade facilitation, the following recommendations are provided.

The government needs to allocate and mobilize more resources, that is financial, infrastructure and human capital, to fully integrate all agencies into the single window system to completely migrate to paperless trade. There is also a need for the government to partner with the private sector to develop and implement trade

facilitation initiatives, new technologies and upgrades. The objective of this is to promote best practices in global trade and to create a competitive environment.

The government to restructure its agencies to reduce or remove bureaucratic procedures to strengthen border operations and general performance. It is also necessary to increase the organizational capability, that is, to increase manpower in all the agencies, as well as to invest in their development of skills. In order to attract more trade, there needs to be an adequate number of professionals to meet the growing demand for trade and quick processes.

Avenues for future work

- Evaluate the average reduction in cross-border costs caused by trade facilitation tools.
- An analysis of other systems similar to the single window system.

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11. Appendices

Appendix 1.

Interview questions - Experts

I am currently a student at the International Institute of Social Studies of Erasmus University Rotterdam. I am conducting research in partial fulfilment of my degree requirements. My focus is on the contribution of the single window system to the facilitation of trade and coordination at the Kazungula border.

Every piece of information shared by me is intended solely for academic purposes. The information you provide will be kept confidential and cannot be traced back to you.

Taking part in the interview is entirely voluntary, and you are free to refuse to participate at any time during the interview without penalty or loss of benefits.

The interview will take approximately 30 minutes. In case you have any questions regarding the study, please do not hesitate to ask the researcher.

1. What is your background and expertise?
2. What is your current position?
3. how long have you had your current position?
4. Can you explain what a single window is?
5. What are the benefits of a single window system?
6. How have you contributed to the development or implementation of single-window systems?
7. What challenges have you encountered in implementing single window systems based on your experience? Are you able to cite examples, if any?
8. How were these challenges resolved?

9. how important is border agency collaboration?
10. what strategies have been employed for collaboration among various government agencies involved in trade facilitation?
11. Is there any investment in ensuring that new technologies are incorporated into the system?
12. Are there any improvements you have observed since the system was implemented?
13. What measures have been taken to ensure the integrity and confidentiality of information shared among stakeholders?
14. What legal aspects do you encounter in your position?
15. What other comments do you have regarding the single window, coordinated border management, and facilitation of trade?

...End...

Thank you for your participation...

Appendix 2.

Interview questions - Border Agencies

I am currently a student at the International Institute of Social Studies of Erasmus University Rotterdam. I am conducting research in partial fulfilment of my degree requirements. My focus is on the contribution of the single window system to the facilitation of trade and coordination at the Kazungula border.

Every piece of information shared by me is intended solely for academic purposes. The information you provide will be kept confidential and cannot be traced back to you.

Taking part in the interview is entirely voluntary, and you are free to refuse to participate at any time during the interview without penalty or loss of benefits.

The interview will take approximately 30 minutes. In case you have any questions regarding the study, please do not hesitate to ask the researcher.

1. In what capacity do you currently serve at the Kazungula border and what are your responsibilities?
2. Do you share your responsibilities with other colleagues? If any, how many?
3. For how long have you been working on the Kazungula border?
4. What is the daily workload and routine of your job?
5. From your experience, how does the single window function?
6. What training have you received for the use of the single window?
7. In terms of workload, how has the single window met your needs?
8. what changes have experienced since the implementation of the single window?

9. What challenges have you encountered while using the single window and in executing your duties?
10. What has been your experience in interacting with other border agencies?
11. What challenges have you faced with interacting with other border stakeholders?
12. Has there been any changes in interaction with other border agencies since the single window was implemented?
13. What other initiatives have been implemented to enhance cooperation and speed up processes at the border?
14. In terms of other stakeholders' experience at Kazungula, what feedback have you received?
15. What other comments do you have regarding the single window and its effects on border activities?

...End...

Thank you for your participation...

Appendix 3.

Interview Questions – Importers, Exporters and Drivers

I am currently a student at the International Institute of Social Studies of Erasmus University Rotterdam. I am conducting research in partial fulfilment of my degree requirements. My focus is on the contribution of the single window system to the facilitation of trade and coordination at the Kazungula border.

Every piece of information shared by me is intended solely for academic purposes. The information you provide will be kept confidential and cannot be traced back to you.

Taking part in the interview is entirely voluntary, and you are free to refuse to participate at any time during the interview without penalty or loss of benefits.

The interview will take approximately 30 minutes. In case you have any questions regarding the study, please do not hesitate to ask the researcher.

1. In what capacity do you participate in cross-border trade?
2. How long have you been involved in trading goods through the Kazungula border?
3. How frequently do you use the Kazungula border?
4. Before the goods are released, how long do you spend at the border?
5. What has been your experience with trading goods through the Kazungula border?

6. Can you give instances of delays and challenges you encountered at the Kazungula border?
7. Can you tell me how you submit import/export/transit documents?
8. How do you apply for permits and certificates for imports/exports/transits?
9. At every stage of the clearance process, are you kept informed?
10. What feedback have you provided to the border management at Kazungula?
11. What other comments do you have regarding the services received at the Kazungula border?

...END...

Thank you for your participation....