

## The Innovation of New Dry Ports in Zimbabwe: The Critical Success Factors (CSF) And Fault Lines



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**ABSTRACT:** This research is about, "The innovation of new dry ports in Zimbabwe: the Critical Success Factors (CSF) and fault lines." Zimbabwe wanted to start four new dry ports across the country and researchers wanted to help by carrying out research on critical success factors to make these dry ports a success, based on success stories elsewhere, and avoid having another white elephant or disappointment. Researchers used the survey questionnaire method as well as face to face interviews, expert panel interviews at universities, observation and literature review in this research. Findings revealed that dry ports required total connectivity to strategic national institutions and corporates like warehouses, bonded warehouses, airports, Ministries, roads, Customs and Excise Department and railways, and these must all fully embrace e-government/smart supply chain and be strategically linked to all importers and exporters as well as critical trade and related government departments. This is a new concept in Zimbabwe but quite old elsewhere. Systems and institutions have improved a lot but still needed further improvement in Zimbabwe to march SADC/COMESA competitors like South Africa, Zambia, Botswana and Mozambique. It was found that critical skills, ports, Customs and investment infrastructure in Zimbabwe needed to be improved as well as processing and turnaround time to match best practices in SADC/COMESA and globally. A One Stop Shop for investment was there but not fully operationalised to cover all transactions, is about partly operational. Delayed deliveries and wrong documentation were experienced sometimes due to port and Customs delays or transport and loading delays. Zimbabwe had made great strides no doubt and was marching on for stardom and big achievements. This paper is futuristic and will be mostly based on best practices globally which Zimbabwe can learn from and start successful dry ports that really add value to the national economy, and avoid toxic bottlenecks and cost overruns. It was time Zimbabwe started to seriously adopt smart blockchain technologies like South Africa to improve efficiencies and turnaround time. One of the biggest frustrations and costs in the value chain was customs delays, fuel shortages and power outages. Something must be done long-term to address these bottlenecks. Dry ports were just like any other business and were concerned about ease of doing business, national competitiveness, country of origin effect, and national image. A business was a business regardless of sector, as they all used the same benchmarks and standards, and deliverables were achievable in a conducive national business environment which generated maximum profits to shareholders and taxes to the government whilst creating thousands of jobs, giving a world-class logistics service, being a national prestige project, national pride and point of reference, giving wide product choice and prosperity to the nation, and operating with environmental protection and ethics in mind. Zimbabwean politicians, the population at large, NGOs, and industrialists needed to get this message as clear as possible.

**KEYWORDS:** Critical Success Factors, Dry Ports, Fault Lines, Innovation, Zimbabwe

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## BACKGROUND

In Southern Africa, Zimbabwe is a landlocked country. A country with no coastline is known as a landlocked country. As a result, a landlocked country is completely surrounded by land, has no direct ocean contact at its boundaries, and so has no coastline (Gichuhi, 2021). A landlocked country faces a geographic disadvantage due to its distance from seaports (Mokua, 2020). A landlocked country faces difficulties with maritime transit access as a result of its geographic disadvantage. To make matters worse, a landlocked developing country has a more challenging scenario as a result of both its physical location and economic issues (Chingarande et al., 2020). As a result, landlocked developing countries are frequently poorer than their coastal counterparts.

Dry ports have emerged as a result of containerization and globalization. Dry ports serve as hubs for freight moving from seaports to inland destinations and vice versa (Khaslavskaya & Roso, 2019). Dry ports have been hailed as an essential component of a modern multimodal transportation logistics system all over the world. Most African countries, for example, have adopted dry ports, with customs operations taking place there. In South Africa, for example, the City Deep dry port alleviates capacity issues at the Durban port.

Dry ports in landlocked nations, such as Zimbabwe, that are connected to seaports by efficient rail constitute an economic instrument for reducing maritime transport access constraints and enhancing landlocked countries' economic growth and competitiveness (Chingarande et al., 2020). Dry ports have been high on Zimbabwe's agenda for the past decade. While it is obvious that a close-range dry port will not only reduce seaport congestion but will also attract more cargo from Zimbabwe and neighbouring countries to the seaport, a dry port that is more than 2,000 kilometres away from the shippers is unlikely to benefit Zimbabwean shippers in eliminating the traditional costs of being landlocked because the issues of long distance and multiple borders remain unsolved.

Despite the fact that numerous nations in Southern Africa are investing in dry ports at various phases, the researcher believes that close-range dry ports in coastal states provide little economic benefit to shippers from landlocked countries if distance, time, and mode of transit stay constant. This study adds to the current body of knowledge on marine transport and logistics by focusing on dry ports as a topic of relevance to both landlocked and maritime countries. Furthermore, dry ports may provide a long-term answer to landlocked countries' challenges.

The disadvantages of being landlocked are presented in Figure 1 below:

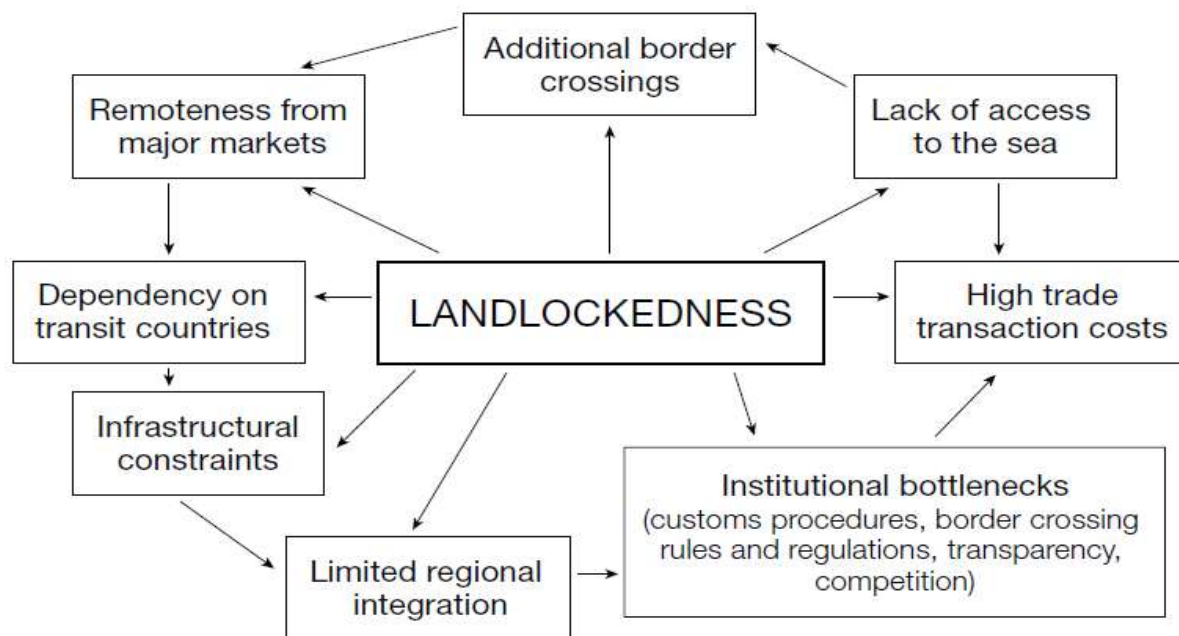


Figure 1: Disadvantages of a landlocked country

## STATEMENT OF THE RESEARCH PROBLEM

Two theories guide this research and these are the theory of market orientation and the accelerator theory of investment as they apply to dry ports. Market orientation is a company philosophy focused on discovering and meeting the needs and desires of a company's customers through its products mix, and in this instance dry port businesses will be expected to meet foremost the needs of their diverse portfolio of customers directly, then the needs society and the dictates of corporate social responsibility and sustainable business.

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The accelerator theory of investment, in its simplest form, is based upon the notion that a particular amount of capital stock is necessary to produce a given output. By definition, net investment equals gross investment minus capital consumption allowances or depreciation. Investment must be maximized for better productivity and profit maximization. Does Zimbabwe have an environment where this is possible? Researchers must put themselves in the day in the life of an investor, business person, business customer and government (the political class) – what do they want and expect? Only then can incisive analysis be done. This research would question and critique the levels of investment in the dry ports sector and why they are what they are, and what could be done to maximize investment and business in the sector. The purpose of this research is to contribute to the success of Zimbabwe Vision 2030 and diversification into logistics with focus on dry ports, and advance critical ideas to drive this plan forward. Zimbabwe is working to establish a solid logistics industry throughout the country as part of Zimbabwe Vision 2030 to diversify the Zimbabwe economy and industry beyond the agriculture and primary model driven model to a knowledge society insulated from reliance on agriculture and primary products income.

The country has achieved phenomenal and admirable progress in dry ports but more still needed to be done. The country faces many teething problems which have to be solved as the exercise progresses. Some of the challenges are economic sanctions imposed by Western countries, political polarization created by political opportunists and political mongrels, regular strikes and demonstrations, a semi-collapsed economy and health system, the flight of local skilled labour in supply chain, partly unproductive farms, marketing and other professions/disciplines to other countries, the slow operationalization of the One Stop Shop Concept throughout the country, cumbersome new business registration procedures, high corruption levels, lack of rule of law, endless farm invasions, shortage of foreign currency, pariah state status and negative country of origin effect. Logistics was one of the most difficult industries on earth linking firms, government, society and nations in a delicate matrix of trade, politics and economics. Moreover, Zimbabwe will be competing for investment, markets and talent with regional powerhouses like South Africa, Botswana, Namibia and Zambia, as well as facing global competition. American professors Friedman and Mandelbaum said that countries did not decline because of big mistakes but it was many small mistakes in policies and strategies which cumulatively did maximum damage to the economy. This warning needed to be heeded by national economic planners in any country. Research is required to inform government, industry and society about correct policies, alternatives, opportunities, risks and pitfalls for dry port excellence.

The USA has always had a five factor development strategy which helped them conquer the whole world economically and dominate global economic and political affairs and these were:- superior education system, best infrastructure, highly skilled immigration promotion, research and development and lastly appropriate national regulations, and said the USA had to ensure a steady supply of highly skilled immigrants in science, engineering and technology, among many critical disciplines (Friedman & Mandelbaum, 2011). The USA is well known for recruiting the best students and faculty from all over the world into its universities and on graduating granting them citizenship after a certain time frame working in America. This strategy was rare and frowned upon in many countries saying it caused cultural contamination, destroyed national identity and changed national demographics completely, yet it was the best strategy to outsmart other countries in innovation and new product development, and was most difficult to copy. That created the greatest concentration of brainpower in the world in the USA and created the world's largest economy and juggernaut. Where did Zimbabwe stand in this respect? Field research would shed light on this. With the unity of purpose in Zimbabwe nothing is impossible. This paper contributes critical research to this national ethos and debate.

Shah (2015), warned procurement practitioners and industrialists saying the ten major challenges future leaders in procurement would face were:- Focus on strategic relationships, continuously looking for new markets, global supply chain risk, exchange rate volatility, political instability, integrate risk management in sourcing, using free trade agreements and tax havens, using of big data and analytics, technological innovation and finally having the right skills and influencing skills which means working collaboratively with other experts in and outside your organization. How prepared were Zimbabwe businesses/government in these aspects? Logistics clusters depend on supportive government in terms of public infrastructure, paying for and maintaining and regulating the use of key infrastructure assets such as roads, railways, canals, ports and airports and user friendly regulations on land use, infrastructure use, conveyance operations and trade to promote logistics clusters. The Singapore government is renowned for both high efficiency and low corruption, an ill affecting many governments in the world, (Sheffi, 2014). There were lessons for Zimbabwe here as it works towards establishment of world class dry ports as engines to drive the economy and as diversification measures. Zimbabwe was unlucky to be one of the countries used as global examples of having the highest corruption levels in the world as well as impunity were known looters and thieves roamed the country scot free enjoying their loot. That destroyed investor confidence as well as public confidence and trust. Business was all about trust and confidence building. Business ethics was poor here as well as respect for rule of law. Those were clear fault lines damaging the country besides other issues.

Shipping and forwarding succeed when run by devoted patriotic citizens as it carries many risks for countries like smuggling, duty avoidance, transfer pricing, human trafficking and others. Zimbabwean people are hardworking, diligent, love their country fully,

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and full of patriotism and national identity. They loved and embraced the Zimbabwean flag, their symbol of nationhood. Unlike what one sees around the world where some countries do not have a large diaspora population, Zimbabwean people liked and loved to work in their own country and jetted out for studies and came back to serve their country upon graduation if they go on foreign studies on scholarships or self-funded. Patriotism orientation mostly originated in the USA where they teach Citizenship Education module to every student who enters college and one sees how much Americans loved their own country with valor. It is wrong and inconceivable for any country to exclude Citizenship Education as a compulsory course for all college/university students to build unquestionable patriotism.

### Objectives and research questions

The objectives of this research are to: -

- a. Establish status and issues affecting dry ports and their customers in Zimbabwe;
- b. Establish and evaluate Key Performance Indicators (KPIs) in dry port management in Zimbabwe;
- c. Establish global best practice in dry ports;
- d. Identify Zimbabwe's position in the SADC and the world of dry ports management;
- e. Establish the types of institutions and practices that are required for Zimbabwe to excel in dry port management;
- f. Do a comprehensive literature review to be educated on dry ports.

### The research questions to be answered by this research were: -

- a. What is the status and issues affecting dry ports and their customers in Zimbabwe?
- b. What are the KPIs of dry ports and were they being achieved in dry port management in Zimbabwe;
- c. What were the global best practices in dry port management?
- d. What is Zimbabwe's position in the SADC and the world of dry ports management?
- e. What were the types of institutions and practices that were required for Zimbabwe to excel in dry port management?
- f. What does a comprehensive literature review educate us on dry ports management?

## LITERATURE REVIEW

### Conceptual Framework

#### *The dry port concept*

Many scholars have defined the term "dry port," and the definitions show a broad understanding of the subject from various angles. It's worth noting that the definitions are based on the physical structure, function, and purpose of the institution. The criteria also arose from the fact that the periodic sharp increase in container throughput caused in overcrowding, congestion, and extended container dwell times (Roso et al., 2019). Trans-ocean vessels began to call at a single hub port as a solution to the challenges at the main sea ports, while feeder vessels, haulages, trucks, and trains connected to a number of smaller inland or dry ports.

"An inland intermodal terminal immediately linked to seaport(s) with high capacity transport methods, where clients can drop or pick up their standardized unit as if directly as a seaport," according to Khaslavskaya and Roso (2020) This definition takes into account the fact that a dry port not only performs the traditional role of inland terminals in terms of transshipment, but also provides additional services such as consolidation, storage (both cargo and empty containers), container maintenance and repair, and customs clearance.

Distribution, consolidation, storage, customs services, and potentially equipment maintenance are all functions of a dry port. A dry port is defined as a common user facility with public authority status, equipped with fixed installations and offering services for handling and temporary storage of any kind of goods (including containers) carried under customs transit by any applicable mode of transport, placed under customs control, and with customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit, and outright export (Hui et al., 2019). This definition, while wide, is close to one that considers the value-added role of dry port.

A dry port is a governmental authority-owned facility with fixed facilities that enables temporary storage of products and containers, as well as customs processing. Dry ports, according to Jeevan et al. (2019), are located away from traditional borders but with access to major metropolitan centers, motorways, and labor bases. The following fundamental concepts are essential for properly understanding and interpreting the phrase "dry port."

- **Containerization:** is one of the three words that provide knowledge of the dry port's structure and function. This is due to the fact that dry ports are involved in both marine and domestic container handling, as well as other intermodal operations like swap bodies, consolidation, trans-loading deconsolidation, and small-scale manufacturing.

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- **Dedicated Link:** A high-capacity corridor must be connected to a dry port. Rail and barge are the most common linkages, although haulages and trucks can also be employed.
- **Massification:** A dry port must provide economies of scale in the distribution process, which means lower prices and faster delivery. Large quantities must be handled at the lowest possible unit cost and in the shortest possible time to have a beneficial influence on the supply chain network.

However, there is a distinction to be made between a dry port and an inland container depot. An inland container depot exclusively handles containerized goods, whereas a dry port handles a variety of cargo types in addition to the other services stated. Gateway(Sea) Terminals, Rail Terminals, and Distribution Centres are three types of dry ports described by Jeevan et al. (2019). For starters, a sea port serves as a link between inland and maritime freight delivery. In addition to transportation and storage, the rail terminal acts as a link to gateway terminals, while the third category (distribution centre) as it is known in Europe undertakes numerous value-added tasks such as sorting, debulking, labeling, grading, and inventory control.

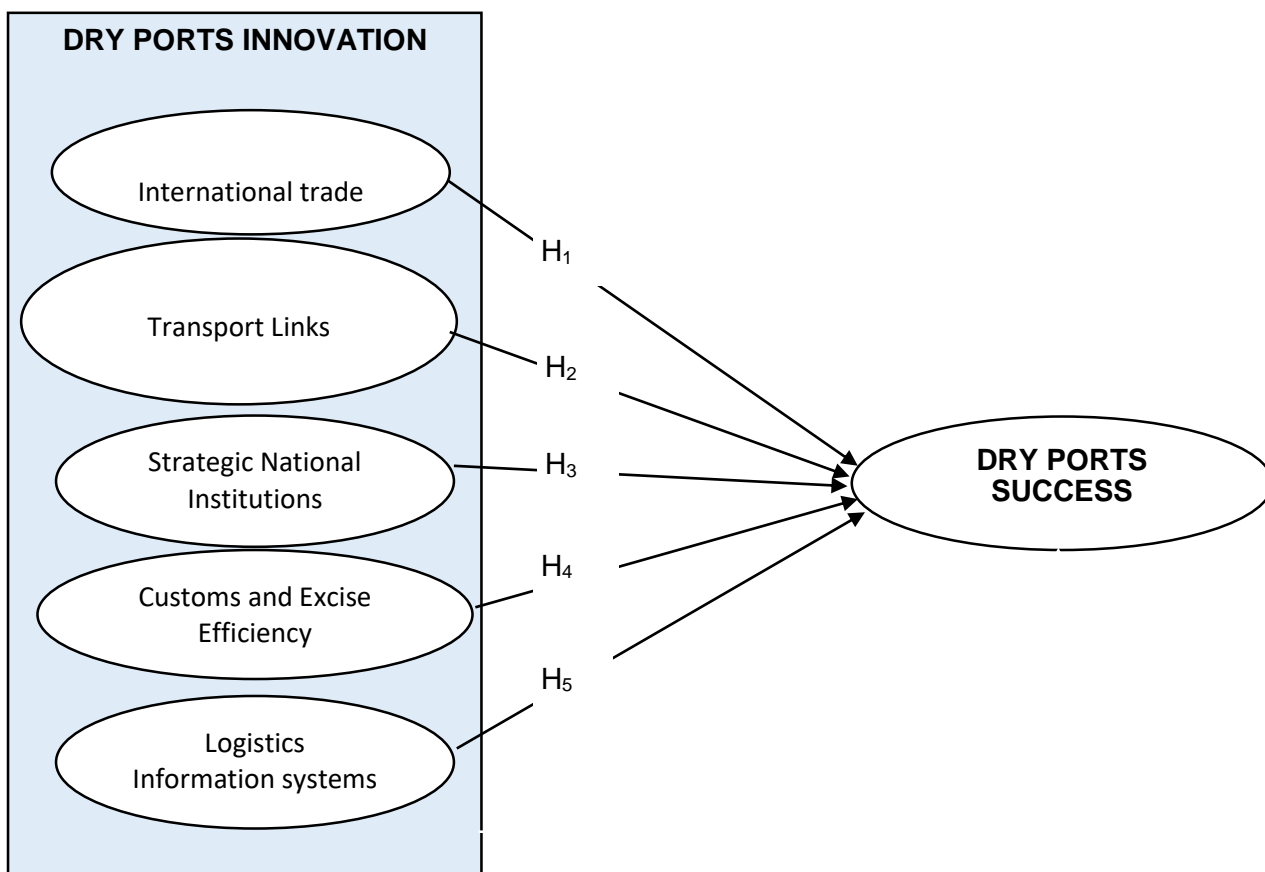


Figure 2: Conceptual framework

Research hypotheses for the study are as follows:

- H<sub>1</sub>: International trade positively influences the success of dry ports
- H<sub>2</sub>: Transport links have a positive effect on the success of dry ports
- H<sub>3</sub>: Strategic national institutions have a positive effect on the success of dry ports
- H<sub>4</sub>: Customs and excise efficiency impacts positively on the success of dry ports
- H<sub>5</sub>: Logistics information systems have a positive impact on the success of dry ports

### THEORETICAL FRAMEWORK

Two theories guide this research and these are the theory of market orientation and the accelerator theory of investment (Tokarczyk et al. (2007) as they apply to dry ports. Market orientation is a company philosophy focused on discovering and meeting the needs and desires of a company's customers through its products mix, and in this instance, dry port businesses will be expected to meet foremost the needs of their diverse portfolio of customers directly, then the needs society and the dictates of corporate social responsibility and sustainable business.

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### **Transport links**

A transportation route is the path that a movement of people or products takes on a regular basis (Wang et al., 2020). By increasing air quality and reducing oil consumption, as well as through better land-use rules, public transportation contributes to a healthier environment. It also aids in the expansion of company and employment prospects. It's also crucial in emergency scenarios that necessitate a quick and safe evacuation.

People, businesses, the environment, and the broader economy all benefit from good transportation connections Jeevan et al. (2019). Good transportation, for example, can: Make it easier for people to find work. Good transportation linkages can assist people find work by expanding their job search region.

### **Customs and excise department efficiency**

The Department of Revenue and Customs' customs and excise division is one of four divisions responsible for the entire administration of indirect taxes, including the collection of taxes on traded goods and the facilitation of international trade. The Customs and Excise Act imposes Customs Duty on imported goods, whereas the Excise Tariff imposes Excise Duty on some locally manufactured items and other imported commodities that fall under the Excise Tariff, even if they are entered under Trade Agreements (Lakhmetkina et al., 2019).. The Customs Tariff Handbook, which is published as a statutory instrument, specifies the applicable rates of Customs and Excise Duties.

### **Logistics information systems**

Abdoulkarim et al. (2019) define a logistics management information system as a collection of records and reports – paper-based or electronic – that are used to aggregate, analyse, validate, and display data (from all levels of the logistics system) that may be used to make logistics decisions and manage the supply chain.

To organize, regulate, and measure logistical processes, a logistical information system is a component of a management information system (Nguyen & Notteboom (2019). It connects to marketing, financial, and production data systems and delivers data to top management to aid in the formulation of strategic decisions for the entire company.

In logistics management, the primary purpose of an information system is to establish successful links between suppliers, consumers, and rivals. The mode of making these linkages might be offensive or defensive, depending on the logistics management strategy (Wu et al., 2017).

### **Drivers for dry port development**

The growth of dry ports is influenced by the following variables and trends in shipping and transportation operations.

#### ***Seaports and global terminal operators***

The major motivator for dry port development is capacity constraints at seaports. Rapid commerce growth causes port incapacitations (Lakhmetkina et al., 2019). Furthermore, truck congestion causes port inefficiencies. As a result, seaports are forced to relocate some port services to inland dry ports. Furthermore, the development capacity of seaports is limited by their closeness to sensitive shoreline industries such as tourism, aquaculture, and urban regions. Furthermore, the private sector, mostly global terminal operators with inland logistics interests, manages contemporary ports and railway projects.

#### ***Containerisation and standardisation***

Containerization, which began in 1957, led to the standardization of cargo transport units for inland multimodal transit (Hervás-Peralta et al., 2019). Seaborne freight was unitized and containerized, resulting in greater cargo handling efficiency. Dry port expansion was aided by containerisation, and door-to-door delivery services grew rapidly.

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### ***Government Initiatives***

Efforts by the government to increase marine access may lead to the construction of dry port projects (Wu et al., 2017). The goal to reduce transportation costs and enhance overland logistics and supply chain efficiency is the most critical motivation for LLDCs (Murebwa et al., 2023). As a result, governments that invest in dry ports get both economic and social advantages, as dry ports boost commerce while also creating jobs.

Abdoulkarim et al. (2019) looked at dry ports and came to the conclusion that governments play a significant role in developing policy and regulatory measures to help dry port development. Government engagement promotes regional integration and harmonization of policies such as customs processes and border agency cooperation, according to studies by Nguyen and Notteboom (2019). Governments are working to develop sustainable transportation solutions that will lower their carbon footprint in order to combat climate change. Dry ports are a good development that not only enhances marine access but also helps governments accomplish their environmental goals since they facilitate transshipment from road to rail.

### ***International trade***

Demand for marine transportation has risen in response to the significant development in international commerce demand from both regional and worldwide shippers (Vega-Muñoz et al., 2021). As a result, seaports have responded by investing in dry ports to address capacity issues and maintain control over the supply chain. In context, Zimbabwe is a developing country with an agricultural economy and substantial natural resources that are now sold in semi-processed form to importing countries. The demand for seaborne trade is boosted by these cargoes. Similarly, containerized freight traffic is increasing significantly.

### ***Road congestion***

Road transit dominates freight transport to seaports in southern Africa. This is mostly due to trucks' ability to handle intermodal transport components. Furthermore, road transport has the capability of providing door-to-door delivery (Wang et al., 2020). In coastal cities and in corridors, however, automobile transit causes severe congestion, noise, and pollutants. The goal of dry ports is to reduce congestion.

### ***Environmental Concerns***

Pollutants such as carbon dioxide, nitrogen oxide, and other hydrocarbons have severe environmental consequences. This is hazardous to peoples, animals, and environmental health. Road transit emits five times as much pollution than rail transport. The result is that rail travel is at least three times more efficient than road transport, making it a more energy efficient and ecologically benign means of transportation (Jeevan et al., 2019).

### ***Globalisation of supply chains***

Seaports have been turned into value-added logistics hubs as supply networks have become more global (Oruezabala & Balima, 2021). The port and shipping sectors have been reshaped by deregulation, logistical integration, and containerization. Value addition has boosted demand for marine transportation (Denhere et al., 2023), and modern ports are drawing demand from their surrounding areas by providing value-added services to shippers. The construction of dry ports in the hinterland areas has been prompted by the flood of activity around the port.

## **RESEARCH METHODOLOGY**

The research methodology looked at the design of the questionnaire measures, sampling technique and methods as well as data collection methods. A structured questionnaire with Likert-type questions was used to collect quantitative data from academics and government officers. As for qualitative data collection, interviews were conducted with industrialists. The pragmatic paradigm was employed in the study. It has often been observed in the literature that no single paradigm is superior or better than any other methodology (Benbaset et al. 2014). With this approach, the study has the freedom to choose any method, procedure, and technique. Pragmatism uses both quantitative and qualitative approaches as they are not committed to one system of philosophy and reality. This study used the descripto-explanatory research design. According to Saunders et al (2009), the descripto-explanatory study is a combination of descriptive research design and explanatory research study. The Descripto-explanatory study adopted refers to "a study whose purpose is both descriptive and explanatory where, usually, description is the precursor to explanation" (Saunders et al, 2009; p 591).

The study offers a description of the dry port operations in Zimbabwe. However, to test the framework that augments dry port operations, there is a need for explanatory designs in explaining the cause-and-effect associations, impact, and directions of the relationship/s between dry port operations in Zimbabwe.

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## Target population and sampling

### Sampling

Clustering was used for comparative purposes. Guided by Krejcie and Morgan (1970), at 95% confidence level and 5% margin of error, a minimum sample size of 120 for the survey was collected as well as 9 face to face interviews. The study used both primary (interviews, participant observation, and questionnaires) and secondary data sources. The participants were chosen using data provided in Zimbabwe.

### The design of research instruments

The structured questionnaire was used to collect quantitative data comprised 5 sections that focused on digging information pertaining to the status of dry ports in Zimbabwe, international trade links, transport links in Zimbabwe, customs and excise efficiency, and logistics information systems. Several items were developed under each section and these were measured using Likert scale-type questions that ranged from 1 (Strongly disagree) to 5 (Strongly agree). All items were borrowed from previous related studies and were modified to suit the current study. The interview guide was made of questions meant to gather data from industrialists in Zimbabwe as regards the innovation of new dry ports in Zimbabwe: The Critical Success factors and fault lines.

### Sampling and data collection

The targeted population comprised academics, industrialists and government officers in Harare, Zimbabwe. These were selected to participate in the study due to their knowledge and experience of the dry ports situation in Zimbabwe. A cross-sectional survey of 120 academics and government officers was undertaken to gather quantitative data. Also, 9 interviews were conducted with government officers to further understand the subject matter. Questionnaires were distributed to the targeted populations through physical distributions to those premises that were accessible. As for the inaccessible premises, the researcher reached the respondents through the online questionnaires. The same with interviews, participants were interviewed face to face and some were interviewed online.

Out of the 120 questionnaires distributed to respondents, 110 were returned and usable. As for interviews, the saturation point was reached at the 9<sup>th</sup> participant of which it was no longer necessary to continue with the exercise. The sample profile for respondents who participated in the quantitative study is represented in Table 1.

**Table 1: Sample Profile for Respondents**

Characteristic		Frequency	Percent (%)
Gender	Male	70	64
	Female	40	36
Age	Below 25 years	5	4.5
	25-34	55	50
	35-44	37	34
	45-50	8	7
	51+	5	4.5
Level of education	Below diploma	13	12
	Diploma	30	27
	First degree	49	45
	Master's	10	9
	Doctoral	4	3.5
	Other	4	3.5
Work experience	1 - 5 years	29	26
	6-10 years	37	34
	11-15 years	27	25
	Over 15 years	17	15

The majority of respondents that participated in the study were male (64%) with the remainder made up of females (36%). The age group that dominated the study was 25 to 34 years (50%). As of educational level for respondents, first degree holders were the majority (45%). Most of the respondents had work experience that range from 6 to 10 years.

### Analysis and results

Preliminary tests such as scale validation that included reliability and validity tests were conducted before research hypotheses test was conducted. As for qualitative part of the study, trustworthiness was taken into considerations and this included activities



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like credibility, transferability, conformability and dependability. The results from preliminary tests confirmed positive results that warranted hypotheses tests to be conducted. Thus, the scale was valid and results from the Cronbach's alpha test indicated results above 0.7 as recommended by Bagozzi and Yi (1988).

### Hypotheses test results

The researchers tested research hypotheses using the structural equation modeling in AMOS 21. The hypotheses tested were:

H1: International trade positively influences the success of dry ports

H2: Transport links have a positive effect on the success of dry ports

H3: Strategic national institutions have a positive effect on the success of dry ports

H4: Customs and excise efficiency impacts positively on the success of dry ports

H5: Logistics information systems have a positive impact on the success of dry ports

The results obtained from the tests are indicated in Table 2 below:

**Table 2: Results of hypotheses testing**

Hypothesis	Hypothesised Relationship	SRW	CR	Remark
H <sub>1</sub>	International trade → Dry Port Success	0.301	8.217***	Supported
H <sub>2</sub>	Transport links → Dry Port Success	0.294	4.626***	Supported
H <sub>3</sub>	Strategic national institutions → Dry Port Success	0.278	5.016***	Supported
H <sub>4</sub>	Customs and excise efficiency → Dry Port Success	0.412	9.004***	Supported
H <sub>5</sub>	Logistics information systems → Dry Port Success	0.496	9.345***	Supported

Notes: SRW standardized regression weight, CR critical ratio, \*\*\* significant at  $p < 0.001$ ,

Results shown in Table 2 indicate that international trade influences the success of dry ports. Thus, H<sub>1</sub> was supported. Also, the results show that transport links have a positive influence on the success of dry ports, hence supporting H<sub>2</sub>. H<sub>3</sub> was supported, meaning to say that strategic national institutions positively impact on the performance of dry port success. Customs and excise efficiency were found to have a positive influence on the success of dry ports. Accordingly H<sub>4</sub> was supported. Finally, logistics information systems were found to influence the success of dry ports, hence the research hypothesis was supported.

### Findings from interviews

Major themes that came up from qualitative data analysis included decreased exports in Zimbabwe. Thus, participants highlighted that the country was experiencing low exports and imports hence defeating the need for dry port success. Also, most participants noted the inefficiency of some clearance agents which they said contributed to the failure of dry ports. Slow clearance of goods on most border posts was also noted as one of the factors that affect dry ports' success. A bad transport system within the country was said to be hampering the dry ports' success. Most roads were said to be in a bad state which hardly allows swift movement of cargo. Some participants acknowledged abundant resources in Zimbabwe, but the problem was cited as failure to put the resources into proper use to allow dry ports innovation. Some of the items raised from the interviews conducted include; little involvement of stakeholders in matters to do with dry ports, lack of cooperation between the Zimbabwean government and stakeholders, poor infrastructure like rail and roads, few trade partners for the country that buy products being produced by the country.

### Theoretical implication

Few studies have focused on the effect of innovation on the development and success new dry ports in Zimbabwe. The current study was carried out to close this gap. Therefore, the current study sought to contribute to the logistics and supply chain management body of knowledge by examining the role played by innovation in the development and success of the dry ports.

The study established that all the sub variables; logistics information systems, transport links, strategic national institutions, customs and excise efficiency and international trade influences have a positive influence on the development and success of dry ports. This implies that dry ports are likely to be successful more support is given in the form of improved logistics information systems, transport links, strategic national institutions, customs and excise efficiency and international trade activities. This finding proffer significant contribution to the logistics and supply chain management body of knowledge as there are few studies that have focussed on the improvement of dry ports business paying particular attention to logistics information systems, transport links, strategic national institutions, customs and excise efficiency and international trade influences. Also, findings of the study confirm extant literature that the success of dry ports require the support and initiation by relevant authorities (Hervás-Peralta et

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al., 2019; hmetkina et al., 2019; Jeevan et al., 2019; Lakhmetkina et al., 2019; Nguyen & Notteboom, 2019;Notteboom, 2019; Vega-Muñoz et al., 2021; Wang et al., 2020).

### Practical implications

It is imperative for the government of Zimbabwe to understand activities that affect the establishment of a successful dry port. The government and relevant stakeholders are advised to improve international trade links with more global markets as this may influence the promotion of dry ports. It is also necessary to ensure the availability of good transport link as this positively impacts on the promotion of dry ports. The government needs to spearhead the implementation of strategic national institutions that will support dry ports establishment in Zimbabwe. The Department of Customs and Excise must be efficient in the way it deals with customers since this influences the performance of dry ports. This also attracts more customers to do business with the country and results in the establishment and success of dry ports. Logistics information systems need upgrading to regional and global standards as this has a positive impact on the success of dry ports.

### Implications for future research

The sample size was limited to respondents and participants in Zimbabwe only. Future studies could be improved for foreigners doing business with Zimbabwe as they may provide useful information that may help the establishment and success of dry ports in Zimbabwe.

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### APPENDIX A: Instrument used to collect quantitative data

Codes	Status of Dry Ports in Zimbabwe	Source
SDPZ1	Zimbabwe has sufficient warehouses/bonded warehouses	Chingarande et al. (2020), Chikwere et al. (2023)
SDPZ2	The country has functional airports to support dry ports	
SDPZ3	There are good roads to link the country	
SDPZ4	The country has functional railways for transport connectivity	
SDPZ5	Customs and Excise Department is efficient and supports dry ports	
Codes	International Trade	Source
IT1	Tariff and non-tariff costs are favourable	Jeevan et al. (2019), Hui et al. (2019)
IT2	The Zimbabwean Government promotes foreign transactions	
IT3	There are less restrictions on international business	
IT4	Clearing agents in Zimbabwe are efficient	
Codes	Transport Links	Source
TLZ1	Zimbabwe enjoys various transport modes	Khaslavskaya and Roso (2020), Chikazhe et al. (2023)
TLZ2	The infrastructure in Zimbabwe promotes transport links	
TLZ3	Transport network in Zimbabwe promotes trade	
TLZ4	There is smooth flow within the transport system in Zimbabwe	
TLZ5		
Codes	Customs and Excise Efficiency	Source
CEE1	Taxes imposed on exported goods in Zimbabwe are reasonable	Chikwere et al. (2022), Roso et al. (2019)
CEE2	Taxes imposed on imported goods in Zimbabwe are reasonable	
CEE3	This department prevents conflicts and disputes between trade partners	
CEE4	Control bonded warehouses	
CEE5	Supervise trade to ensure that no duty is charged and collected on goods destined to another country.	
Codes	Logistics Information systems (LIS)	Source
LIS1	Zimbabwe use LIS to improve routing and delivery schedules	Hui et al. (2019)

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LIS2	Zimbabwe use LIS to select the best modes of transportation	
LIS3	Zimbabwe use LIS to improve transportation budgeting	
LIS4	Zimbabwe use LIS for order processing	
LIS5	Zimbabwe use LIS for connecting suppliers and consumers	

### APPENDIX B: INTERVIEW GUIDE

#### INTERVIEW QUESTIONS

- 1) Do you think that the volumes of imports and exports in Zimbabwe have increased to warrant dry port establishment?
- 2) Does the time taken to clear goods significantly warrant dry ports to an extent of attracting importers and exporters?
- 3) Does Zimbabwe have good transport system that supports dry ports establishment?
- 4) How do you rate the available resources and involvement of senior management towards the support dry ports establishment?
- 5) Are there adequate resources and involvement of senior management to address the operational challenges affecting dry ports establishment?
- 6) There is cooperation between different stakeholders in Zimbabwe such as importers, customs staff, clearing agents. Do you agree to this?
- 7) Various Government agencies are anxious about embracing dry ports in Zimbabwe. What is your opinion?
- 8) The personnel are sufficient to match the level of commitment required for dry ports management within the SADC region and beyond. What's your take?
- 9) What could be the major cause of dry ports establishment failure in Zimbabwe?



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