The Impact of Electronic Cargo Tracking System (ECTS) initiative on transit fraud: The case of Zimbabwe Revenue

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Abstract: **The aim of this study was to investigate the impact of the Electronic Cargo Tracking system (ECTS) initiative on transit fraud: A case of Zimbabwe Revenue Authority. The main objectives were to examine the impact of the ECTS initiative on transit fraud and examine the impact of the ECTS initiative on revenue collection. The research questions were to find out what challenges are being faced by transporters due to the implementation of the ECTS? As well as what has been the impact of the ECTS initiative on revenue collection? The study is important to ZIMRA in that it will inform the revenue authority how to plug the loopholes in the system as well as bring efficiency in the movement of cargo. A descriptive research design was adopted for this study. The sampling technique that was adopted was purposive as it was deemed ideal by the researcher to effectively collect all the necessary data for the study. Data was collected through interviews that were carried with key informants, questionnaires as well as focus group discussion with other stakeholders. The study established that the system implemented so far has reduced corruption by thirty-eight percent. Furthermore, it noted that the system is greatly assisting in revenue collection and brought better control of cargo and there by reduced contraband stuff and reduced smuggling on large scale by the drivers of various companies. The study concluded that in order to implement the electronic cargo tracking system successfully it was important for the revenue collector to accurately define the system expectations and its benefits so that the vendors can be able to build a reliable system that will assist in achieving the set goals. ZIMRA is expected to identify and make operational performance a priority while availing resources for the execution of tasks and while evaluating the performance of the officers. The study recommends that emphasis should be put on the incorporation of the principles of operational performance to aide in the successful implementation of the cargo tracking system by the concerned sectors.**

Key Words: **ECTS, Cargo, transit, Electronic cargo tracking system.**

Abbreviations

BBP	**Beitbridge Border Post**
ECTS	**Electronic Cargo Tracking Systems**
FBP	**Forbes border Post**
IT	**Information technology**
RBZ	**Reserve Bank of Zimbabwe**
OPC	**Office of the President and Cabinet**
ZACC	**Zimbabwe Anti-Corruption Commission**
ZIMRA	**Zimbabwe Revenue Authority**
ZTA	**Zimbabwe Transporters Association**
ASYCUDA	**the Automated System for Customs Data**

I. INTRODUCTION

This paper dealt with issues of introduction of the impact of the Electronic Cargo Tracking system (ECTS) initiative on transit fraud: A case of Zimbabwe Revenue Authority. It further spells out how the research was conducted out in terms of background of study, research objectives, research questions, its significance.

Zimbabwe Revenue Authority (ZIMRA) implemented the ECTS project under the OPC's 100 Day Rapid Results Initiative, to facilitate speedier process to the national ease of doing business reform programme. The purpose was to curb transit fraud and smuggling of the goods into the country. The smugglers of goods were declaring their goods as being in transit on the bill of entry when they were for local consumption. The project was to cover the top 10 high risk products with fuel designated as the most important. It was implemented at Forbes border Post (FBP), Chirundu Border Post (CBP) and Beitbridge Border Post (BBP).

1.2 Background of the study

As part of the measures to detect and curtail smuggling, e-sealing of fuel in transit, containerised cargo and break-bulk cargo using modern electronic sealing gadgets has been introduced. The researcher seeks to assess the impact of this ECTS on transit fraud implemented by ZIMRA to the Authority and its stakeholders. Zimbabwe Revenue Authority (ZIMRA) implemented the ECTS project under the OPC's 100 Day Rapid Results Initiative, to facilitate speedier process to the national ease of doing business reform programme. The purpose was to curb transit fraud and smuggling of the goods into the country. The smugglers of goods were declaring their goods as being in transit on the bill of entry when they were for local consumption. The project was to cover the top 10 high risk products with fuel designated as the most important. It was implemented at Forbes border Post (FBP), Chirundu Border Post (CBP) and Beitbridge Border Post (BBP).

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cargo using modern electronic sealing gadgets has been introduced. The researcher seeks to assess the impact of this ECTS on transit fraud implemented by ZIMRA to the Authority and its stakeholders. The introduction of this system was after carrying of feasibility studies in East Africa as well as in European Union to ensure that ZIMRA does not remain behind in the Global Village. This was a direct result of the challenges and complains that had been received by ZIMRA with regards to many delays of cargo transportation as well as corrupt activities that are so prevalent at the border post in particular at Beitbridge. Where such a system has been introduced it plugged all the gaps and greatly reduced contraband of products especially by truck drivers as well as rampant smuggling of goods across the borders.

1.3 Statement of the problem

Absence of proper monitoring tool enables goods declared to be in transit to be offloaded in Zimbabwe resulting in loss of revenue to the state. The availing of the ECTS motivated the researcher to investigate the impact it has had on transit fraud, examine the challenges encountered, and suggest ways to minimize them. At the moment, ZIMRA has seals for tankers and containers and this has seen criminals preferring to transport goods as break bulk to evade the seals or use other routes avoiding Zimbabwe citing frustrations at the Border Posts.

1.4 Research questions

Main Question of this paper is what has been the impact of the ECTS initiative on transit fraud?

The secondary questions are:

- What challenges are being faced by transporters due to the implementation of the ECTS?
- What has been the impact of the ECTS initiative on revenue collection?
- What are the similarities /differences of intercepted recorded smuggling cases before and after implementation of ECTS?
- To what extent has the current monitoring measures been useful to both Zimra and Government?

1.5 Delimitation
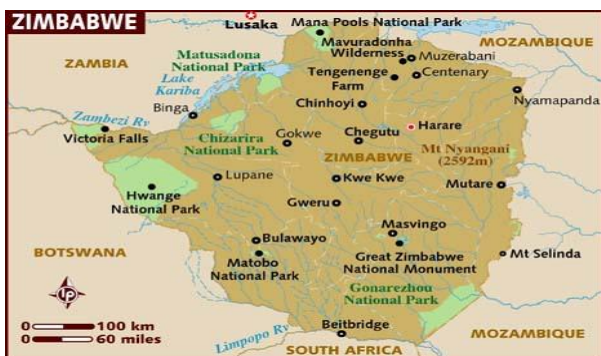
Source:https://www.lonelyplanet.com/maps/africa/zimbabwe/ accessed 19 April 2018

The Republic of Zimbabwe is a landlocked country in the Southern Africa, between the Zambezi and Limpopo rivers. It borders South Africa to the south, Botswana to the west, Zambia to the northwest, and Mozambique to the east.

The major entry ports include Beitbridge Border Post, Forbes Border Post, Chirundu Border Post, Nyamapanda Border Post, Plumtree Border Post, Mphoengs Border Post, Kazungula border Post, Kariba Border Post, Victoria Fall Border Post and Pandamatenga border Post with Bulawayo Port and Harare Port as inland Border Posts.

The issues being investigated by the researcher do cut across all the border areas therefore it will cover the whole of Zimbabwe's entry points.

II. LITERATURE REVIEW

This section deals specifically with literature review that covers major issues which are being addressed by this paper. It will specifically look at what cargo tracking, its importance and other related matters.

2.1 Cargo Tracking

In a move meant to usher in a new transit management regime in Zimbabwe, the Zimbabwe Revenue Authority (ZIMRA) commissioned the Electronic Cargo Tracking System on 15 May 2017 in Harare under the theme, "Curbing smuggling and transit fraud". The system was officially commissioned by the then Minister of Finance and Economic Development, Patrick Chinamasa. Speaking at the event, Minister Chinamasa said that "the Government remains committed to help ZIMRA to achieve its strategic goals and is aware of the need to make the Electronic Cargo Tracking System sustainable". (Gono 2017).

The Minister further took the opportunity to urge small -to-medium enterprises (SMEs) to be tax compliant and to take advantage of the moratorium. "I announced a moratorium for SMEs to register for Value Added Tax with ZIMRA without being charged penalties and interest for late registration in my 2017 National Budget Statement," he said. "The deadline for this registration exercise is 30 June 2017. I would, therefore, want to appeal to players in this emerging sector to take advantage of this window," added Minister Chinamasa.

Zimbabwe is a transit hub, catering for northbound and southbound transit traffic through its ports of entry and exit. The country is a gateway to East and Southern African countries and it serves Zambia, Malawi and the Democratic Republic of Congo, among other countries. Through the support of the Minister of Finance and Economic Development, Honourable Chinamasa and his officials at the Ministry; the strategic vision of the ZIMRA Board; financial support from African Development Bank and team ZIMRA's hard work, the electronic monitoring of transit cargo is now a reality.

The Electronic Cargo Tracking System involves the use of electronic sealing devices, which are put on transit cargo at the

port of entry. It uses geo-fencing technology and is supported by Google Maps to ensure the accuracy of location and movement of transit cargo, as the cargo is monitored in real time up to the point of exit. The electronic sealing devices send an alarm to the system's control room on any violations, which include seal tampering, seal opening and incidents of geo-fence violations. The system has also been integrated into ZIMRA's existing Customs clearance system – the Automated System for Customs Data (ASYCUDA).

According to Gono (2017), ZIMRA should hasten electronic cargo tracking system to avoid dumping of foreign goods. ZIMRA is hastening the rollout of the electronic cargo tracking system, which is designed to monitor trucks transiting through Zimbabwe, as authorities heighten efforts to prevent dumping of foreign goods on the local market. Government recently introduced Statutory Instrument (SI) 64 of 2016 in order to breathe life into local industries. However, there have been concerns that the country's porous borders continue to work against Government efforts. Border controls are presently being tightened to prevent smuggling, of restricted goods. Government has restricted the import of 43 different products such as cooking oil and building materials. Border posts are now equipped with detectors, mobile scanners, luggage scanners and closed circuit television (CCTV) cameras. Goods that are smuggled under the guise of being transported to other regional destinations are the ones being specifically targeted by the cargo tracking system. Ndlovu (2018, p 8) quotes ZIMRA statement as saying:

Government, through ZIMRA, is rolling out an electronic cargo tracking system to combat transit fraud in the country. In order to mitigate the adverse effects of transit fraud, Government with the assistance of the African

Development Bank, has put in place an electronic cargo tracking system this allows for tracking of transit cargo from point of entry to point of exit. The electronic cargo tracking system involves the use of modern electronic sealing devices, which are put on transit cargo at the ports of entry," said ZIMRA in a statement recently.

ZIMRA said the tracking system is integrated into the existing Automated System for Customs Data (ASYCUDA) World and allows real-time tracking of cargo up to the point of exit. The revenue collector highlighted that the move reflects the importance of digitalisation and automation in facilitating smooth trade and travel across international frontiers. The electronic seal devices report to ZIMRA in real-time any violations, seal and cargo tempering, and incidents of going off route which might occur. According to Ndlovu (2018), former Industry and Commerce Minister Dr Mike Bimha has maintained that Zimbabwe Government has begun computerising ports of entry, starting with Beitbridge Border post in order to bust smuggling syndicates.

S I 64 of 2016 was meant to do a lot to resuscitate the Zimbabwean industry and there has been some positives in the cooking oil sector, rubber, plastic sector, sugar and mealie-meal, among other sectors. The potential of S I 64 will not be fully realised unless and until Zimbabwean Government fully automate all its borders. Until June 2016, Zimbabwe as a country was losing total revenue of US$400 000 daily at Beitbridge Border Post. "As a result, ZIMRA has strengthened Beitbridge Border's automation including the introduction of online services, which allow online lodgement of returns, application and verification of tax clearance certificates, improvement of compliance levels and the reduction of compliance costs," argued Dr Bimha (Ndlovu 2018)

2.2 Electronic Cargo Tracking

An Electronic Cargo Tracking System (ECTS) is a multi-tiered system developed to remotely monitor goods electronically while on transit, and controls as the goods move along the supply chain from source to destination. Monitoring of the movement of the cargo is done on a real time basis. Implementation is done using Radio Frequency Identification (RFID) and GPS/GPRS technology. It is a legal requirement to have all outbound trucks/vehicles, tankers and containers loaded with transit goods fitted with a tracking device for basic tracking and vehicle monitor. In addition to this the vehicle should be fitted with an electronic seal which reports the truck location and reports on all violations on a real time basis (Musyoki, 2010).

In addition to this, the system users a series of features such as a virtual fence known as the

Geo-fence that is set-up along gazetted routes used by transporters carrying export cargo. The process starts with the collection of co-ordinates of the routes that the trucks will be using, this information is then stored. If the truck is driven off route, the system sends out geofence violations that are system generated. The Electronic Seal operates on dual mode frequency, UHF 433.92 MHz for long range communication and LF 125 KHz for short range communication. Communication is channelled with the use of a reader in the truck's cabin through the UHF communication channel (Landau et al 2007). It should be noted that the electronic cargo tracking system (ECTS) is an initiative who's primary objective is to assist Private and Public Sector organizations in the Corridor States to manage and monitor the process of movement of their general, dry and wet bulk cargos and bulk liquids cargos in effective and efficient manner and in real-time with an aim of reducing the cost of doing business in the region.

Electronic cargo tracking services provide among other services, the ability to view your vehicles on a real-time basis and remote and control in the movement of local and international cargo (Kraatz and Zamey 2007). The installation of the electronic cargo tracking system has been made mandatory in Kenya and its neighbours both Tanzania and Uganda. The main focus for this has been to help in various activities such as revenue collection, improve how cargo is handled and overall assisted to enhance the business environment of the respective countries and their trade routes.

This is being spearheaded by the state-owned tax collection agencies and the improved custom duty collection has not only enabled a reduction of import tax in some instances, but has also made it possible for governments to reduce tax on cargo.

To be able to offer these services, organizations must obtain a license from Kenya Revenue Authority. The revenue authority is charged with the responsibility of vetting organizations that are interested in offering the service. The Freight Watch International reported that countries in Southern Africa are on the list of spots about the raise in cargo theft and this is quite a challenge facing their operations. Cargo theft is ranked together with corruption incidences, increase in crime and violence, poor infrastructure, weak governance, political instability and social unrest, (Griffin, 2015). The use of this technology will therefore assist Zimbabwe's customs processes so that trucks entering Zimbabwean territory are fully equipped with GSM/GPRS communication and this is an advantage to both governments and institutions for the system to be fully functional there are three important components that have to be set up in place by transporter that is moving the cargo from the entry point to the exit point at our borders (Tibbs, 2015).

According to Hayes et al (2005), the design of the system is a three-part component which includes movement visibility system whose components include the global positioning system receiver for delaying vehicle and cargo co-ordinates that give the location of the truck and availing it to the system user via the GSM/GPRS modem in real time down to five seconds. Secondly an active radio frequency identification reader, for interrogating the electronic seals to establish truck status every short interval and relay this information, status alerts and events to the user in real time via the GSM/GPRS modem. At the beginning of every journey the seal is armed and at the end of the journey when the cargo arrives to its destination the seal is disarmed.

2.3 Electronic Cargo Tracking System

Electronic cargo tracking systems have made it possible to inspect and clear containers within the pre-set organizational benchmarks. Before the introduction of the system it was virtually impossible to inspect all of the containers. It was not even possible to check even 10% of the containers. This challenge is addressed as the system is automatic and shares data on a real-time basis showing the location of every truck and its cargo whether it is rerouted, enroute to its destination or stationary. Detection of tampering while on transit is done immediately and hence preventing loss before arrival at the unloading port. Monitoring of any change is registered by RFID signals from the truck associated with the opening of the container. Real-time reporting of any exception and incident of container security violation to destination custom and port authorities for remedial action before arrival, (Cohen & Levinthal 1990).

Globally, transit trade is an important element in the economic movement. The transit trucks are considered as one of the most dangerous means of smuggling inside any country. So, truck transport monitoring has become inevitable for government organizations in any country. The new sophisticated real-time Electronic Cargo Tracking System (ECTS) helps government agencies in enhancing enforcement of cargo handing regulations, maintaining the region as the preferred trade route for cargo and thereby improving tax collection by curbing incidents of dumping (Kubai 2015).

Direct benefits to electronic cargo tracking to the transporters include increased efficiency and productivity, often thought of as cost reduction benefits. The system also aides in improved reliability and service quality, usually thought of as tools to retain good customers and grow market share and revenue and lastly there is improved shipment and container integrity, built around a core of security issues. The system similarly present benefits to the public sector in this case the Kenya Revenue Authority. With the implementation of the system, there is improvement in efficiency and effectiveness of operational performance.

Given that one of the core reasons of implementation of the system is security, safety and security are enhanced by setting up the system by both the transporter and the revenue authority. Statistics indicate that there is reduced congestion and expansion of the transportation infrastructure in general as strategic plans are laid down to facilitate the implementation of the system. Indirect freight network benefits will include tapping into economies of scale and decreasing unit cost of network expansion. There is visible exponential increase in total benefits as costs drop and usage grows and it is clear that productive derivation of benefits in industries that depend on freight transportation also improves (Lindau et all 2007).

2.4 Operational Performance

Operational performance can be defined as the alignment of all business units within an organization to ensure that they are working together to achieve core business goals (Fraser, 2009). Thus, when looking into Operational Performance one needs to appreciate the fact that it also need to include practices and strategies applied to ensure the smooth running of organizational activities. Operational practices are internal organizational factors that contribute to the competence development of the employees; therefore, resulting to a competitive advantage for firms (Hayes et al 2005). In this sense, both the operations strategy and the resource-based view support the notion that offer and secure a competitive edge through the creation of operating practices. The above views were strongly supported by (Gono, 2017) who goes further to say that operational efficiency of companies is seen by their best practices in corporate governance systems.

Matching operations excellence to customer requirements lies at the heart of any operations based strategy. It has been noted that management must be involved in the implementation process, especially since it is a common belief that strategy is

a completely separate issue from daily organizational activities. To an extreme extent, strategy can be viewed as a cerebral activity performed by superior beings who ought to be removed or even separated from daily operational pressures. Mintzberg and Quinn (1991), brings to light the misunderstanding of managers becoming isolated from the fundamentals of the enterprise The research paper will look at impact of operational performance at the Kenya Revenue Authority with the implementation of the electronic cargo tracking system based on the critical three factors i.e. Safety, Cost and Efficiency.

Efficiency

Efficiency refers to doing things right, i.e. whatever is performed, it is performed in the most suitable way, given the available. A well-known and accepted definition of efficiency is embedded in more technical terms and it states that this is a measure of the ratio of output to input (Rutgers and van der Meer 2010). This definition is especially acceptable when we are dealing within a system of well quantifiable measures of inputs and outputs. However, it can be noted that efficiency takes on a whole new perspective and meaning when we try to study it in an environment of traditionally measured quantities in a system that is heavily based on values, inspirations, and human perceptions, this gives a unique perspective to efficiency.

An organization needs to run efficient operations to be able to be successful and profitable. To begin with the organization must first and foremost learn how to use the implemented system. Teece and Pisano (1994) state that organizations need to learn how to make use of most of its existing resources and competences to learn how to develop new capabilities. The current business world thrives to ensure that we work more hours and feel more stress trying to get more done. The introduction of technology, is aimed at simplifying our lives, sapping our attention and stealing our time. In highly simplified terms, efficiency concerns the cost of input for the output produced in other words, the best use of resources and the least waste of time and effort.

There has been a long debate between the management consultants and business professors on the relative merits of efficiency as it pertains to the business world. Areas where efficiency can be optimized is the work force and this is through increasing individual productivity has described efficiency as cost effectiveness; this is the efficient solution that has the least cost. The Electronic Cargo Tracking System (ECTS) works in a similar way, it enables the revenue authority to get more and more cargo cleared every day at a much faster rate. This move is aimed at all decongesting the border points and ensuring that cargo that is moving across the border arrives to its destination at the expected time and date dependency (that is how organizations got to their present position), the dynamic nature of the capabilities on which organizational success ultimately depends on the role of organizational learning in any given institution. Data captured on the system is shared on a real time basis resulting to

reduced dumping, reduced tax evasion and cargo theft in the country. All cargo transported by road is closely monitor on the electronic system as it is received into the country and transported to its destination. The users of the system capture the details of the driver, the cargo, the vehicles, the routes; the origin and destination of the cargo are recorded on the system. Successful implementation of the system requires that data is standardized. Consistent data definitions are fundamental to IT process integration and supporting technologies. To realize greater efficiency, there is need to consider data reconciliation and integration into a single data dictionary that will serve as the standard for the organization. (Kumar et al 2011)

The ECTS offers a platform where data can be analysed accurately. Kenya Revenue Authority is able to generate useful insights into its operational performance and this is done on a real time basis and therefore the information collected and circulated is timely and relevant. Having an electronic system means the elimination of the old methods of doing business that involves a lot of paperwork. IT is an integral part of the business fabric and is fast reaching a utility status in the enterprise that is increasingly assisting to improve service quality and enhancing personnel resource optimization. The key IT management drivers now revolve around quality of service and cost control. Better reactive and predictive approaches to service performance issues will now be viewed as the best methods of maintain quality service at border points. This is especially since goods arrive at the border points and are quickly cleared to leave for the next station. Technology allows for faster processing of data, easier retrieval of information, and in some cases automation leads to the reduction of human errors. When technology is used in repetitive operational tasks, there is a reduction in mistakes or complete elimination, and the time taken to complete a task is greatly reduced. In addition to this, processes are made quicker and information is kept to date. Elimination of paper work cuts down on the time taken to search through a room of file cabinets and it deals with the challenges of guessing how to store the information, with a few clicks of the mouse a customer file is opened, information is updated and eventually stored on a database that is easily accessible to all stakeholders. What used to take several minutes to an hour can now be done instantly (Daniels and Ho (2005).

Kidd and Crandall (2006) are of the view that expansion of infrastructure and transportation networks is a key pillar of the government's vision 2030 economic development plan. Kenya represents a critical lifeline for landlocked neighbouring countries. While increased competition, ongoing delays among roads and ports projects, and a host of non-tariff barriers pose serious challenges to future expansion. The government has steadily been seen increasing expenditure on the transport sector and this comes as a result of the enactment of Public-Private Partnership (PPP) Act, 2013 which have seen transportation reforms improve dramatically in the medium to long term (The Kenya Report, 2016). Year growth in port traffic in the last four years has been noted to be at 8% annually according to the trade promotion agency. In the year

2012 Mombasa handled a total of 21.92M tonnes while container traffic rose to 903,443 twenty-foot equivalent units, this lead to an increase of transit traffic by 18.4% this therefore means the introduction of the Electronic Cargo Tracking System was well required. (Kisembe, 2014).

Cost

At the early stages of development cost-effectiveness remains thus a challenge for all and efforts need to be channelled towards both now and in the near future. This would be geared so as to boost effectiveness in generating value in the long-term and to prove that money is well spent if organizations want continued funding for systems propel growth upwards. The set-up of ECTS comes at a significant cost, especially given that the system is still at the introductory stage of being rolled out. Both the transporters and the authority are required to use resources to be able to implement the system across the country. (Bolo and Nkitole 2012)

A proper Information Technology system must be set up to facilitate the smooth running of the system. The system much have a proper back-up mechanism given that the information captured on a daily basis is quite a lot (Belissent, 2009). It is paramount that personnel in-charge are trained on how to use the system which means there is a cost factor to this. Majority stakeholders affiliated in this sector i.e. the transporters and the government will be able to see the consolidation of infrastructures using virtualization which would be a cost at first, however eventually this shall transition to be a reduction in cost. KRA formulated a list of IT specifications that vendors had to adhere to so as to be selected as a vendor on their panel for the provision of cargo monitoring services (Musyoki, 2010). This includes both the hardware and the software expectations. IT support was noted to be critical as the revenue collector required that it gets viewership 24hours, seven days a week for all the days of the year. The system is required to be web- based, ensuring that it is accessible from anywhere in the world.

A World Bank Report (Manji, 2015) observed that infrastructure contributed to just 0.5% to the annual per capita GDP growth between 2001 and 2011. The report found that if Kenya were to improve the infrastructure this would increase to 3%, however due to problems of congestion, delays at Customs and upgrades required for networks the report found that Kenya would need to allocate $4bn to infrastructure develop annually until 2011. The Zimbabwean government has to increase its expenditure on improving the road network so as to facilitate the smooth transition the roads need to be in good condition so as to make the movement of trucks from the ports to ports easy. About 93% of all freight and passenger traffic travels by road. There are two angles to which we will address safety, one is the safety of infant industries that are upcoming and second is safety of consumers on the type of goods brought in for their consumption. In the international trading arenas, there are quite a number of occurrences that place countries disadvantaged or injured positions in the course of conducting trade with other countries. Such injuries

often result in the closure of small and infant industries due to inability to compete with the imports and another resulting effect is the loss of employment due to closure of these same companies. (Karanja, 2012)

Kenya has challenges with dumping. Dumping is an informal definition for the practice of selling products in foreign countries often for lower than the price identified and set-up in its domestic country, or the cost of producing the commodity. It is important to note that, the top leading sectors in the anti-dumping initiations include base metals and articles; chemical and allied industries; resins, plastic and articles; machinery and electrical equipment; and textile and articles and all these are key sectors in any economy in the world. The fight against dumping of transit cargo in the Zimbabwean market has gone a notch higher with the tax collector initiative of introducing an electronic cargo tracking solution to monitor movement of goods between the port of Mombasa and Busia and Malaba border points through which goods have an entry point to the landlocked Great Lakes Region, (Manji, 2015; Gono 2017).

ZIMRA issued a public notice introducing the new electronic system of monitoring transit cargo. The system uses a radio frequency identification solution. The system will replace the conventional mechanical seal that is quite cumbersome where the cargo is accompanied by escorts to the borders, which has previously not been effective. The taxman has not been able to seal loopholes as importers ride on the inefficiency to dump goods destined for neighbouring countries in Zimbabwe. This in itself not only ensures that the revenue collector efficiently collets taxes but it also promotes consumer protection. Majority of decision-makers in IT take into consideration that predictive analysis of the application workloads that are candidates for virtualization, as well as the predictive sizing of the structural infrastructure that is supportive of the virtual elements, are the most effective methods used to avoid problems in production. In fact, studies have shown that, the best resolution to production issues and the impact of this on the business workforce, capacity building management processes and tools is to control both service levels and costs at the IT level resulting in the reduction of the productivity and negative financial impact at the business level. Zimbabwe's road network needs extensive rehabilitation especially now that regional trade is intensifying in the region. Expansion of infrastructure and transportation network is a key pillar of the government's Vision 2030 economic development (Gono 2017), without this being hastened, we will keep having trucks arriving late and therefore the delay of clearing trucks as soon as they arrive is not totally handled and dealt with.

2.5 The need to monitor goods in transit

There are a number of reasons why goods or cargo should be monitored in transit, according to Hayes et al (2005) it is critical to monitor goods in transit because transit goods can be diverted into market thus providing "duty free" and such goods cause undue competition to those who dully pay their taxes. In addition, transit diversion if not checked can throw

genuine taxpayers out of business. This has ripple effect to the nation such as loss of business results into loss of employment and government revenue. It has to be noted that government cannot provide services to its people without revenue. Zimbabwe's Ministry of Finance argues that 75% of government expenditure is financed by revenue collected by ZIMRA. Thus, absence of public services and employment may in advanced stages lead to crime increase subsequently leading to a failed state. In this vein, Ndlovu (2018) is of the strong view that failure to monitor goods in transit has resulted in serious loss of revenue for several government and various institutions globally. ZIMRA, according to Pasi (2013) cited by Gono (2017) lost several millions of dollars as a result of failing to electronically monitor goods as unscrupulous companies and individuals were able to change tonnage as well as empty fuel being imported and exported into Zimbabwe.

2.6 How does ECTS work?

Shamsuzzoha et al (2011) do explain that electronic cargo tracking systems operates well and goods can be tracked at every stage of the way. It therefore operates by using GPS/GPRS technology, an effective tracking technology. It therefore, targets box body trucks, tankers and containers ferrying transit goods under ZIMRA's control are fitted with a tracking device which sends the seal status, truck location and any violation information to URA on real time basis. Once the seal is activated, cargo is monitored from start to destination. In this regard, the truck is expected to move along gazetted geo-fenced routes charges. This eliminates delayed departure as a result of waiting for physical cargo escort. In this case, everything that happens to the cargo is recorded and reported simultaneously with every incident being time stamped together with the location of occurrence. More importantly, real-time monitoring of transit cargo. This results in safe and secure arrival of the goods to their destination. This assist the transporters, clearing agents and freight forwarders have an opportunity to efficiently monitor their respective businesses in the logistics supply chain. More importantly, the clearing agents are saved the burden of suspension due to transit diversion. It has better negotiation grounds for discount on insurance costs.

2.7 Operational Performance and Electronic Cargo Tracking

Implementation and delivery of the electronic cargo tracking system covers a wider aspect of quality. Previous empirical studies regarding the linkage between setting up of systems and the advantage to the institutions affiliated has shown significant and positive results. The main focus of the system is to improve overall operational performance and improve on service delivery. Successful implementation of the system will give benefits in improving how the regulator clear cargo and cargo trucks that enter and exit the Kenyan borders and charge taxes and levies accordingly. The system will also assist Kenya Revenue Authority in monitoring all inbound and outbound goods. Effective implementation that needs to improved operation performances can generate marked improvements in service quality which then results in increased profitability (Grant 2016). It has been established that employees have useful organizational knowledge and skills are critical in delivery of quality service and the same inherent assets can be used to raise employee morale and satisfaction and eventually empower them accordingly (Kerlinger 2008).

2.8 Electronic Cargo Tracking System a Cost-Effective Tool in Transit Trade

Trailer and cargo tracking provides multiple benefits for the logistics industry in the globe and in SADC Region. In Zimbabwe, the sector accounts for about eight to nine percent of the country's GDP and is likely to remain a major driver in the growth of the economy. This sector has also been boosted by the improved infrastructure which has created potentially lucrative opportunities for both logistics providers and fleet management and vehicle tracking companies. In fact, industry players say the growth of Africa's logistics market is being driven by higher trade volumes as local economies diversify and expand, domestic consumer demand goes up, global demand for natural resources escalates, and as infrastructure improves, boosting intra-African trade. As this sector expands, the need for fleet management and cargo tracking systems also increases. These solutions, not only help truck or vehicle owners to keep control of their fleets' movements but also act as a theft prevention measure. The solutions should, therefore, be a priority for monitoring and controlling all company vehicles, including cargo, public service vehicles as well as transport vehicles.

According to Labaree (2009), governments and even private companies need the capability to monitor fleets. This is where our solutions like the Electronic Cargo Tracking System (ECTS) come in hand to ensure security of both cargo and the country. "As a Zimbabwe Revenue Authority (ZIMRA) Licensed ECTS provider, we provide solutions that enable real-time tracking of cargo from point of loading to point of discharge.'' She says.

These solutions, not only help government agencies enforce cargo handling regulations but also prevent theft of goods in transit and dumping of goods in transit through a given territory. Borderless Tracking provides this cargo tracking solution to more than one thousand clients across the region. Unlike vehicle tracking solutions, which uses just GPS and GPRS technologies, ECTS uses GPS which provides co-ordinates to give cargo location on the map, GPRS, which provides data system for sending data to the server and Rfid to provide the security of the cargo. The objectives of ECTS are to provide cargo visibility by providing real-time location and status of the cargo and expedite clearance at loading and off-loading points. The technology enables quick inspection and clearance of cargo. It also provides ready data which helps in decision making. Borderless Tracking provides reports on the movement and location of trucks to clients which are easily accessible. (Belissent, 2009)

"The number of container goods that is lost due to theft, accidents and even damage is unfortunately increasing. Real-time remote containers tracking and monitoring with solutions like ECTS can help prevent these cases, as well as provide actionable information in order to retrieve goods or minimize damage.'commented Karanja (2012).

The clue of the Electronic Container Tracking System is to ensure end-to-end supply chain security safety. Companies using the system do not always have to worry about the security of their goods in transit. Borderless Tracking is one of the nine, Kenya Revenue Authority ECTS licensed vendor. In Tanzania, the company is also one of the five approved vendors of ECTS by the Tanzania Revenue Authority. Its solution is also in use in Libya, Thailand, Central America, Singapore Defense Forces among others.

2.9 Challenges of electronic cargo tracking

Kamau (2018) argues that transporters are up in arms over the implementation of the Electronic Cargo Tracking System (ECTS). The truck owners claim that they are delayed at Mombasa port as the firms contracted to offer the service lack adequate capacity. Zimbabwe Transporters Association (ZTA) Chairman Paul Moyo argued companies engaged to offer the service do not have enough of the new gadgets. ECTS is part of reforms being fact-tracked under the Single Customs Territory introduced early this year. ZIMRA directed that all vehicles carrying local or transit cargo to be fitted with the new devices by April 30. Karanja (2017) is of the strong view that the devices currently in the market are expensive and might affect the growth of their businesses. To bring the cost down, Karanja (2017) called on the taxman to contract more companies, possibly, to bring the number to over 50. The delay in installation of the gadgets, Moyo added has caused delay in delivery of cargo in the region and locally. Vehicles targeted include trucks that deliver containerised cargo to Rwanda, Uganda, Kenya and South Sudan. Others are motor vehicles that also operate in the region. The electronic device which has replaced security bond assists to monitor and get real time information on location, security and condition of cargo and assets. Custom authorities in many parts of the world are currently grappling with the problem of significant tax loss, cargo theft and regulatory compliance. Zimbabwean Commissioner of Customs confirmed the exercise has been experiencing capacity limitations. The situation is also instigated by the fact that majority of the engaged companies are yet to aggressively promote their services in the market. There has been an insinuation in the market that it is only Borderless Tracking System that has been offering the services. ZIMRA has approved other four companies to offer the services. We urge transporters to seek services from the other firms as well to avoid delay at the port. (Ndlovu, 2018).

III. RESEARCH METHODOLOGY

The researcher adopted the use of qualitative research design for this paper. The respondents were sampled through purposive sampling to get all the key matters from major stakeholders involved in this matter. In addition, systematic random sampling was also adopted in picking respondents from Clearing Agents and truck drivers at the entry and exit points that is borders.

The focus of qualitative research is that of establishing true inner meaning and new insights into an idea. Kothari (2004) reflected that neither of qualitative and quantitative is better than the other; they are just different albeit having their strengths and weaknesses. They argue that either of the two can accomplish objectives that the other cannot. The choice therefore lied on the approach and research context. Given the objectives of the research which is more evaluative, descriptive and interpretive, the qualitative research was considered to give better outcome. It provided a deeper understanding of the subject matter of the research. Golafshani (2003, p89) make valid observation about qualitative research in order to understand the different meanings that people place on their experiences often requires research techniques that looks more deeply into people's hidden interpretations, understandings and motivations. Qualitative research is designed to tell the researcher how (process) and why (meaning), things happen as they do. For this study therefore, the target population included the different classes of customers from ZIMRA, Customs Officers, Confederation of Zimbabwean Industries, Cross Border Association, truck drivers, as well as Interpol members and other clearing agents organisations.

IV. RESEARCH FINDINGS

This section deals with findings from the research. The chapter gives the results and pertaining to the research on the investigation into the impact of electronic cargo monitoring by ZIMRA. The findings are explained and inference made as well making reference to the available literature. Analysis of the results is drawn from responses obtained from various officials from ZIMRA employees, Interpol, Clearing Agents, Truck drivers and Criminal Investigating Officers. The chapter gives presentation, analysis and interpretation of the findings. The findings are based on interviews, focus group discussions and questionnaires that were carried out with various stakeholders.

The response rate was high from all the stakeholders, the researcher managed to reach eighty-nine percent of the targeted sample. Forty-five percent of the targeted respondents were male and fifty-four point two percent were female. This indicates the gender distribution of the respondents' population and can be compared to 2012 Zimbabwean census, data for most areas in Zimbabwe which indicates that provinces are populated by fifty-one point seven percent females and forty-eight point three percent males. The percentage of women in the study is slightly higher than in census values. The distribution of questionnaires to various stakeholders is to ensure that there is a wide range of views from all the stakeholders. This was necessary for the study to get a balanced picture of the respondents' views.

Thirty-six percent of the respondents are in the age group of between 36-35, followed by the 36-45 age-group which constituted twenty-nine percent, 18-25 age-group constituted fifteen percent, the 56+ age-group constituted twelve percent and the 46-55 age-group constituted eight percent. It can therefore be concluded that the all of the respondents are mature enough to understand these critical current issues under discussion. It further shows that the organisations have young, innovative professionals who are well educated to appreciate the issues that are under the study. This was shown by the types of the responses which they were giving during the interviews as well as their questionnaire responses.

4.2 Importance of electronic cargo tracking systems.

There were mixed reactions from the various stakeholder categories of respondents. The diagram below summarises the percentages. Fifty percent of the respondents from ZIMRA strongly believed that electronic cargo tracking systems will benefit ZIMRA and the nation at large in that the system will bring transparency and accountability in the process of carrying goods from Zimbabwe to other countries as well as goods that will be in transit.

According to these respondets, companies that transport goods sometimes collude with their drivers and some unscruplus people who are a combination police officers, immigration officers and clearing agents. Thus, the introduction of this system and all the other scanning systems at the borders will greatly reduce all the corruption which is very serious at the Border Posts.

According to the above respondents, corruption at the borders have worsened because so much is being smuggled into the country as well as from Zimbabwe to various destinations and this has come at a huge cost to the Zimbabwean Government. Thus if goods come sealled while they are in transit it can easily be picked up by the system as the drivers stop along the way or go out of the geo-fenced area.

Thus, government will benefit from all the revenue that will accrue and since all loopholes will be plugged. The success of the system will be determined by working together of all the stakeholders in the border areas.

Twenty three percent of the industrialists and twenty person of the Cross Boarder Association members wer of the view that they have lost money through unethical drivers who smuggled own contaband such as tobacco from Zimbabwe, bales of second hand shoes and clothes from Mozambique and Zambia. This has been done with collision of border patrol officers bot6h members of Zimbabwe Republic Police , Zimbabwe National Army.

Figure 1
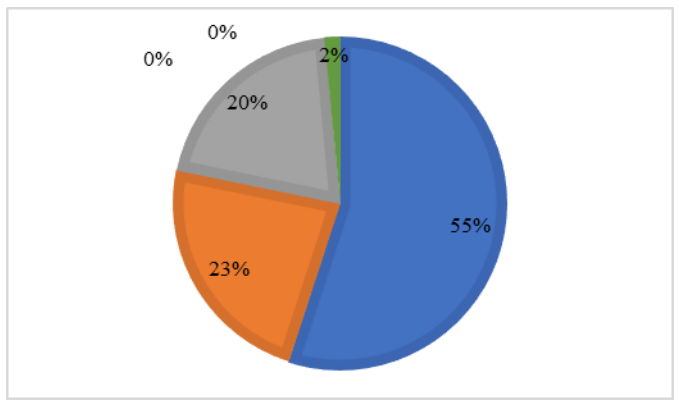
Surprisingly, two percent of the respondents strongly argued that everyone at the border are equally corrupt and they will sabotage the system as the introduction of the system means they run out of money and other gifts from the people who bring their goods but either under-declare or falsely declare products that they pay almost nothing to the Zimbabwean Government. They questioned the wisdom of the system saying that the whole border area has cameras but nothing has come out of it.

Figure 2 Cargo carrying or transporting companies
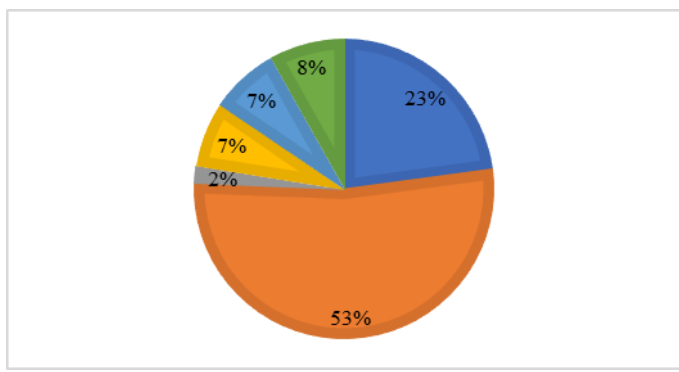
Source: researcher field word

Cargo carrying companies strongly argued that they supported the introduction of electronic cargo tracking systems will go a long way in reducing costs and other unnecessary costs as they were forced by circumstances to pay huge fines to the border authorities when their vehicles were either confiscated by border authorities after being caught with banned products, goods and other stuff.

Fifty-three percent strongly argued that truck drivers are major culprits of smuggling. Once these cargo trucks are detained at the border they run away and leave company vehicles. The companies have no choice save to pay hefty sums of money in order to have their vehicles released. However, twenty- three percent of the drivers interviewed were of the view that these companies under pay them and they work long hours and they are always far away from their families. Thus, the only way they can gain from their long stay away from their families, is to "sell diesel in varying quantities per trip, smuggle goods to

and fro and sell these goods to various people and also assist cross border traders to transport their contraband".

The other seven percent were of the view that tightening the border is not easy at all because all the individuals at the border are making serious revenue from illegal transactions that take place daily at the borders. The other two percent was totally indifferent to the situation. They were of the view that Zimbabwe lacks political will to be serious in this matter to control cargo as most ministers and highly connected bring their goods free of duty payment. According to them it is just a telephone call to the border officials on duty.

The other seven percent were of the strong view that the introduction of the new system is the best thing ever to happen at the entry point. Pressed further to say explain why this was the situation, they argued that the current system of manually checking the cargo only benefited ZIMRA officials and drivers who carry these cargoes. They went further to point out that companies tend to give their drivers money to "grease" the hands of the officials or police officers in the process.

4.3 Regulatory framework governing electronic cargo transfer

Figure 4
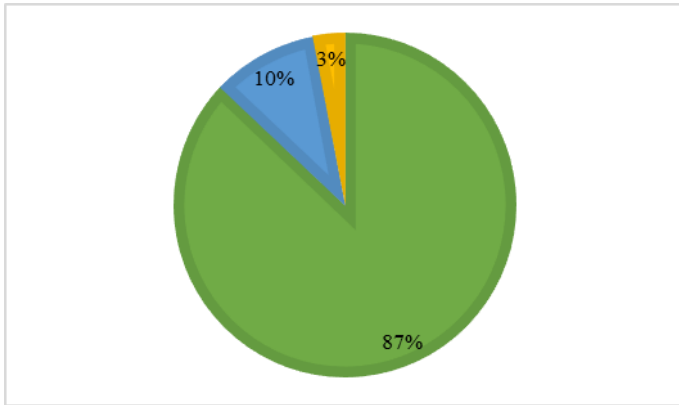
Eighty- seven percent of the respondents were of the strong view that the current system introduced by ZIMRA is the best police so far that has been introduced by ZIMRA and it has better benefits to the ZIMRA and all the related stakeholders. Their major reasons for this position are that the system is user friendly and cost effective. The regulatory framework shows the linkages with other Customs and revenue collecting institutions across SADC and so far the systems are being coordinated so that they link up. This means that the whole region of SADC must have a well synchronised system. According to these respondents, the revenue authorities include Zambia, Zimbabwe, Tanzania, Botswana, Mozambique, Malawi and Angola. Accordingly, DRC is still very far from implementing a better revenue collecting system such that its integration becomes very difficult to implement.

Ten percent of the respondents were of the view that the adoption of the regional cargo electronic tracking system with

all the checks and balances and well thought out process will result in the greater success of cargo traffic for the region. Accordingly, these respondents were of the strong view that there has been serious progress and success in the implementation of similar system in Central and East Africa. Therefore, understudying the system and improving it will bring better results for this region and ultimately for African Continent.

In addition, these respondents argued that the success of the whole framework is determined by better governance and strong institutions.

The remaining three percent of the respondents were highly sceptical of the future of the system. The argument being that there have been many attempts to introduce systems of similar nature but these failed mainly due to different political cultures, in some countries very weak institutions which don't allow accountability systems and effective administrative systems because of the governance culture of these countries. These respondents concur that SADC has to come up with extremely strong institutions which ultimately will promote this work and thereby its success.

4.4 Challenges faced in the implementation of the system

Figure 4
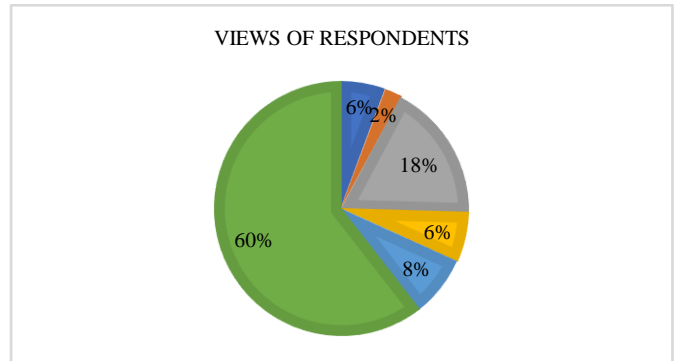
Sixty percent of participants' in this study were of the strong view that the major challenges facing the implementation and success of cargo electronic tracking system is mainly weak governance systems and weak institutions which prevent the success of the system. This argument is based on strong views that corruption at borders is extremely bad, there are numerous people who tend to benefit from such corrupt activities.

The above view was supported by another eighteen percent which is of the view that such cases are rampant and resulted in ZIMRA firing several of workers especially at its Beitbridge Border Post and relocation of several hundreds of workers and the same happened to the Zimbabwe Republic Police which transferred its officers including those from the Criminal Investigation Department and Border Patrol Officers.

The other eight percent were of the different views that a new culture of doing things will bring results. Total commitment is greatly needed by all parties and as such all things can work

well. European Countries have done it with regards to integrated systems hence it can be done in this region too. Furthermore, wars have ended in Angola and Mozambique as such it is now possible to build new systems and strengthen democratic institutions which in turn will assist in strengthening of all systems.

Zimbabwean politicians as well as their military allies are the most serious offenders in the process of smuggling goods in and out of the country. As a result, six percent of the respondents were strongly against the interference of many unprofessional fingers that interfered with daily operations of ZIMRA. As such the systems that were installed at the Beitbridge were disconnected after it was discovered that half of the people were all involved in the corrupt activities at the border in one way or the other. In this regard, it has thus been argued that if the state institutions that are supposed to protect the system are defeating the very system, then the future of electronic cargo tracking system is doomed from the word go.

4.5 Promoting efficiency of electronic cargo tracking system

Figure 5

RESPONDENTS VIEWS ON EFFIENCY OF ELECTRONIC CARGO TRACKING
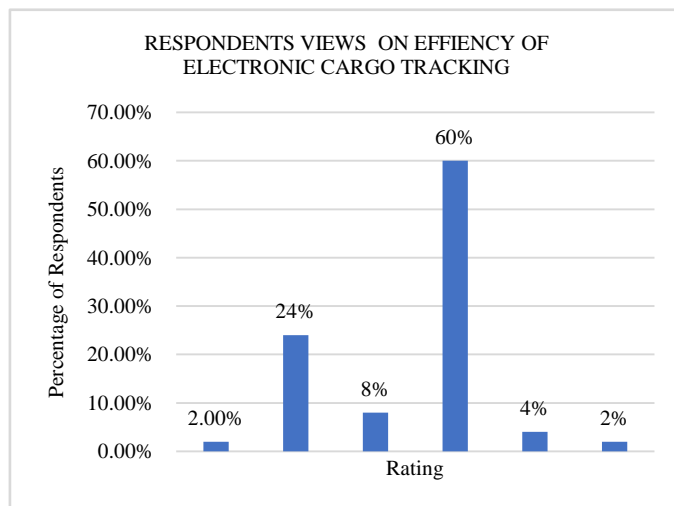
Sixty percent of the respondents perceived that the efficiency of electronic cargo is going to be determined by multi-sectorial approach that is adopted by various stakeholders. With Zimbabwe's new dispensation and its openness for business has created the desire by ZIMRA to improve its professionalism and efficiency thereby improve revenue collection. These respondents go further to argue that it is their strong views that Zimbabwean Government will do all it can to ensure the success of this implementation of electronic cargo tracking. The major reasons for this strong belief are that ZIMRA is the most dependable source of revenue collection and without it, the government cannot meet its obligations because it has no other reliable sources of getting money. Furthermore, this is the only institution that has tried its best in collecting revenue for the government despite other corporate governance issues it has faced in recent times that is 2016 to 2017.

According to twenty-four percent of the respondents, the chances are very high that Zimbabwe Government has to strengthen the institutions and work with key stakeholders to enable accountability of the whole system. They cite the success of Rwanda and Kenyan systems of electronic cargo tracking and there is high likelihood for the success of the system.

Eight percent of the respondents are of the strong view that the opening up of Anti-Corruption Unit in the Office of the President is a good indication that matters will be resolved quickly especially corruption that has been a cancer in the Zimbabwean systems. The Ministry of Finance emphasised that resources and training has been set aside for the process of capacity build staff and purchasing of the equipment that is required for this electronic cargo tracking. Furthermore, this researcher was informed through the interview with ZIMRA that a member of ZIMRA has done joint trainings with other officers from SADC Region. The aim being that all revenue collecting boards should have same understanding of the system. In this manner, the implementation has been smooth so far.

Most of six percent of Clearing Agents were of the strong view that the system negatively affected them in that bribes are no longer available as the new system is too clean and it also reduces border congestion. According to these respondents, it is congestion that enable them to get bribes and other moneys as they work hand in glove with other border authorities.

4.6 Cargo tracking success

There was a great consensus by almost all stakeholders interviewed by this researcher. Ninety-one percent of the respondents strongly argued that the preparedness of ZIMRA and its working together with other revenue collecting bodies throughout the SADC Region as well as the linkage and association with European Union, intense trainings and government willingness has so far led to current success of cargo tracking system in this country. According to these respondents, it is in the best interests of all the stakeholders such as, Government, Cross Border Association, and Confederation of Zimbabwean Industries and many others to ensure that the new system is supported and it is a win - win situation for all these categories of stakeholders.

V. SUMMARY OF THE FINDINGS

The implementation of the electronic cargo tracking system and operational performance at Zimbabwe Revenue Authority and by the road transporters has revealed a positive impact in the findings. The revenue collector has to a great extent been able to improve their internal operational performance as the system gives them control while seated at the office. The research findings of this study imply that some of the constraints are the successfully setting up of the system using the requirements as the guideline and also rolling out the

system to be able to successfully be used by the revenue collector and the transporters.

The system can be seen to be beneficial in improving the overall operational performance for both Zimbabwe Revenue Authority, Cross Border Association, Confederation of Zimbabwean Industries and the transporters who have already implemented the system and are using it especially for the cargo that is outbound. Based on the findings most of the users appear to be neutral especially on critical matters such as the system infrastructure and its capabilities. This is a reflection that there is need for further sensitization of the system and what the authority aims to achieve with its implementation.

The transporters appear to have embraced the system and are actively using it in their day to day activities. This is reflected by their response about the system being able to be used using the multiple browsers and in their response on whether one can be able to work while offline. There is still quite a number of things that need to make the transporters feel like this system has much more to offer other than just being a legal requirement. Together these two set of users (ZIMRA and other stakeholders) can be able to streamline the system and collectively eliminate some of the current challenges the system is trying to adjust and resolve.

Over Sixty nine percent of the respondents also concurred that, the organization has a culture that is flexible to internal changes, the organizational culture accommodates external changes, the organization has an organizational culture that focuses on control, the organization has an organizational culture that focuses on stability in the organization, the organization has an organizational culture that encourages internal efficiency and that the organization has an organizational culture that encourages adherence to company policy and the law. These results show that ZIMRA has appropriate organizational culture.

It is also evident from the study that the electronic cargo tracking system is timely and it will lead to an improvement in operational performance not only at Zimbabwe Revenue Authority and at the transporters' premises but at the organizations that are served by these two entities. The cost of initially implementing is quite high and Zimbabwean Government has had to borrow money from Chinese Bank as well as European Union for this purpose.

VI. CONCLUSIONS

The study concluded that in order to implement the electronic cargo tracking system successfully it was important for the revenue collector to accurately define the system expectations and its benefits so that the vendors can be able to build a reliable system that will assist in achieving the set goals. Zimbabwe Revenue Authority

is expected to identify and make operational performance a priority while availing resources for the execution of tasks and while evaluating the performance of the officers.

Top management acts as the driver for the implementation of the system and are the key to the improvement of the organization's operational performance in its activities. The study established that for the system to effectively work it requires employee and transporters participation and contributions and ideas for recommendations where applicable. Participation by both parties will not only drive the system to work effectively but it will also lead to the evolution of the road transport industry. The study findings demonstrated that acceptance of the system and the sensitization and conscious training from both the vendor and the service providers will assist in operational performance. Proper training program are required and also systematic gathering data especially of emerging expectations and needs both locally and globally.

The study ascertained that feedback was a critical part in the successful implementation of the system. Feedback should be from both the revenue collector and the transporters that are using the system. Furthermore. these programs empower the employees of the transport companies and also at ZIMRA to resolve and carry out tasks effectively.

VII. RECOMMENDATIONS

The study recommends that emphasis should be put on the incorporation of the principles of operational performance to aide in the successful implementation of the cargo tracking system by the concerned sectors. The role of the vendors offering the service, the role of the leaders both at ZIMRA and in the transportation organizations, the participation of the employees and the spirit of empowering them, feedback, training and communication are critical to be able to succeed. Overall business productivity, profitability for the transporters and increased revenue collection will be actualized over a period of time as its implementation will pay off.

The study further recommends that the concerned parties should establish a channel of communication and a way to work together so as to be able to make progressive steps while using the system. Lack of proper infrastructure, cost of implementation, lack of training, lack of understanding the requirement are some of the challenges faced in implementation of the system. The implementation of cargo tracking system has potential even in some of the manufacturing industries as it will aide in reaching set goals like have systems like Just-In-Time. Electronic Cargo Tracking System has positively impacted both users and improved operational performance and growth.

In addition, the study recommends that government should carry out awareness campaign targeting all stakeholders so that as the project has already taken place and is proving to be successful, all stakeholders should be aware of the part they to

take for the success of the implementation of electronic cargo tracking. From the research findings, it does appear that the other stakeholders are not so much aware of what is taking place.

It is further recommended that ZIMRA should invest heavily on technology which in the long run is very much cheap and cost effective unlike the patrols that they randomly carry which is saddled with corruption, in that way, it will reduce unnecessary salary and other perks that people get.

Finally, it is recommended that continuous trainings involving all the key stakeholders such as those involved with border passage should be done to enable stakeholders to carry out their duties professionally and efficiently.

Suggestions for Further Research

The study only focused on operational performance of the implementation of the electronic cargo tracking system with a focus on ZIMRA and the transporters who have implemented the system. The effectiveness of the implementation of the system in the study was studied from the point of the two parties which was again measured by efficiency, cost and safety. However, other major objectives like ensuring transparency especially with what is being ferried from one boarder to the other, reduction of corruption, if studied in future research, then it would add more value to our national revenue collector.

A comparative study can also be carried using systems implemented by our neighboring countries. This will assist in establishing any similarities and differences that may exist as far as the electronic cargo monitoring system is concerned.

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