IOSR Journal of Business and Management (IOSR-JBM)
e-ISSN:2278-487X, p-ISSN: 2319-7668. Volume 28, Issue 4. Ser. 3 (April. 2026), PP 55-82
www.iosrjournals.org

Influence Of Coordinated Border Management Strategies On Land Border Trade Facilitation By Kenya Revenue Authority

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Abstract:
Trade facilitation is a crucial element in promoting international trade efficiency and economic development by simplifying, expediting, and streamlining the movement of goods across border while ensuring safety and security. Coordinated border management strategies, including the One Stop Border Posts, the Single window system, Border Management Committees, and Joint Operation Centers, play a significant role in enhancing trade facilitation outcomes. Trade facilitation is vital for economic growth as it promotes competitiveness, market integration, and attracts foreign investments. Failure to enhance trade facilitation may lead to several challenges for an economy, including increased trade costs, longer clearance times, reduced competitiveness, and limited market access. Additionally, inefficient border management processes may result in revenue loss, smuggling activities, and security threats, negatively influencing the overall economic performance of a country. The general objective of this study was to establish the influence of coordinated border management strategies on land border trade facilitation by the Kenya Revenue Authority. The specific objectives of the research were to determine the effects of the One Stop Border Posts, the Single window system, Border Management Committees, and Joint Operation Centers on trade facilitation by Kenya Revenue authority. The study adopted a descriptive research design and collected primary data using a semi structured questionnaire. The data from 63 KRA officers composing managers, assistant managers, and supervisors were from five operational One Stop Border Posts in Kenya. The research established that the CBM strategies as a block explained 34.0% of trade facilitation variance, which is substantial in terms of understanding the clearance efficiency. Among the four components, OSBPs was a significant positive predictor of trade facilitation, with JOC, SWS and BMCs perceived as important but did not have a significant statistical connection based on the regression model. Descriptive statistics revealed that there was high agreement on all constructs, and qualitative analysis revealed that there was improvement in clearance speed, predictability, security coordination and inter-agency collaboration. However, other difficulties identified by the respondents were inadequate infrastructure, delay in the technological systems, and duplication of manual operations and inadequate coordination of the agencies. It was also established that the results largely tally with the literature on CBM across the world and region, and this confirms the importance of integrated border operations in enhancing efficiency in trade. The study concluded that though CBM strategies have really improved the performance of the borders in Kenya, their potential is curtailed by structural, technological and organizational lapses that must be addressed through investments. The study recommended a reduction in redundant documentation, optimized inspections, and enhanced procedural harmonization across border agencies.

Key Terms: *Trade facilitation, Joint Operation Centers (JOCs), Joint Border Management Committees (JBMC), Single Window System, and One Stop Border Posts.*

Date of Submission: 20-04-2026 Date of Acceptance: 30-04-2026

I. Background Of The Study

Trade facilitation is important in improving the efficiency of international trade and stimulating economic growth because of its effect on competitiveness, promoting the integration of markets, and foreign direct investment (FID) (Norley & Rosenthal, 2019). Over the years, this has moved to the top of most countries' agenda, thus its recognition in WTO's TFA and multiple ITAs supporting young developing and transition economies (UNECE, 2015). Landlocked developing countries (LLDCs) face trade costs about 1.4 times higher

than coastal economies. Transport costs, border delays, and transit inefficiencies remain the main drivers of this gap.

The principal aim of trade facilitation is to make cross-border trade less complex, faster, less costly, and more certain while ensuring the integrity of the supply chain. This is done by standardizing and integrating business processes, working, and other related implements across the strands within the supply chain. All these marks can be achieved by government authorities' smooth cooperation and collaboration with the business sector (Organization for Economic Cooperation and Development (OECD), 2018).

Operational implementation of trade facilitation at international, regional, and national levels requires reform and modernization processes that depend on enabling environments built through strong political support, expert program management, and effective change management capabilities. It involves developing various activities and interventions to enhance trade facilitation (Wassie et al., 2025). Creating clear, concise, transparent legal and regulatory frameworks is critical to strengthening stakeholder engagement and information sharing (Asian Pacific Economic Cooperation (APEC), 2018). Developing regulatory frameworks that will enhance cooperation among stakeholders, the recommendations for enhancing infrastructure, developing human resources, narrowing technology gaps, and the capability to adopt multiagency "one-stop" controls are critical to enhancing trade facilitation (Asian Pacific Economic Cooperation, 2018). Involving all relevant stakeholders in all aspects will pave the way for reducing the time taken and costs incurred in trade transactions (Mahajan & Singh, 2024).

If adopted, automation and modernization of infrastructure may substantially support the cargo clearance process in all regimes: import, export, and transit, from self-declaration and payment of taxes to the release of the goods (Omosa, 2021). The automation of clearance processes plays a significant role in enabling a seamless flow of cargo across borders with limited human contact, thus addressing gaps in the progress of trade facilitation (Jepkosgei Mutai, 2022). Harmonizing business processes and procedures by customs administrations limits controls, formalities, and documentation required to ensure compliance with the existing legal provisions while clearing goods at the borders. It ensures uniformity, consistency, familiarity, and compatibility, enabling a more coordinated level of control (World Customs Organization, 2025).

Capacity building of customs implementing officials and stakeholders is an indirect critical investment to trade facilitation, which involves the development or acquisition of skills, competencies, processes, tools, and necessary resources required to improve the human capacity of national administrations. It is important to reflect on past practices and embrace the future by considering the changing operational environment, enhancing the expertise of customs and border officials while appraising them for existing world practices (World Trade Organization, 2022). Allowing trusted customs clients to enjoy preferential customs facilitation will enhance trade facilitation by reducing the time and cost of clearance at the borders. It encourages cooperation and collaboration among the customs, national, and private trade stakeholders using other enforcement tools like risk assessment and management and post-clearance audits to monitor compliance (World Customs Organization, 2025).

Global trade facilitation reforms since the WTO Trade Facilitation Agreement have reduced trade costs by about 5% on average (OECD, 2025). Global implementation of single window systems reached 61% as of January 2025. Nearly 4 in 10 countries still lack full digital border processing. Between Oct 2024 and Oct 2025, new tariffs affected USD 2.64 trillion (11.1%) of global imports. Tariff coverage since 2009 has risen to 19.7% of global imports. World merchandise trade grew roughly 4% in the first half of 2025, but growth is uneven. Border bottleneck improvement (3–7%), and average trade cost reduction from TFA (~5%) (International Chamber of Commerce & World Customs Organization, 2025).

The U.S.–Mexico border handles over 5 million commercial truck crossings per year. Laredo Port of Entry alone processes roughly 40% of U.S.–Mexico trade by value (Mahoney, 2026). In 2024, they experienced challenges such as aging border infrastructure, limited inspection lanes, urban congestion near ports, and rail crossing capacity limits. Physical capacity is struggling to keep up with near-shoring–driven trade growth. The U.S. has strong automation but high regulatory complexity. Staffing shortages contribute directly to longer wait times at land borders (U.S. Department of Transportation, 2024). About 30–40% of small importers report difficulty navigating electronic filing systems. Each one-hour delay at the U.S.–Mexico border can reduce trade by 0.5–1% for time-sensitive goods (Congressional Research Service, 2025). Congestion costs manufacturers heavily in just-in-time supply chains. Border inefficiencies are estimated to cost tens of billions of dollars annually in lost economic activity (U.S. International Trade Commission, 2024).

More than 95% of EU import consignments are cleared within 1 hour, reflecting strong digital customs systems. However, the rapid growth in trade volumes (especially e-commerce) is putting pressure on customs authorities and requires major reform. In 2024, only 42% of import declarations used customs simplifications, indicating room for efficiency improvement. Disruptions and controls still affect trade flows. 54% of businesses experienced border delays in 2023. 40% of firms linked longer delivery times directly to border difficulties (European Commission, 2024). Companies added up to 10 days to maximum delivery times to manage uncertainty. Europe's main challenge is regulatory and administrative complexity (Council of the European

Union, 2025). In Germany, border restrictions and disease controls caused rerouting and delays (E-commerce Germany News, 2025).

Nations worldwide strive to ensure easier and smoother trade while meeting their interests. According to WCO (2003), societal protection, revenue collection, and trade supply chain security have enhanced and eased trade, minimizing poverty and encouraging investment. Trade between states is a crucial driver of wealth creation and economic growth. The key element in trade is customs clearance, which ensures that international trade is effective by processing each consignment to ensure compliance with international multilateral trading regulations and national regulatory prerequisites. Usually, the customs administration considers mechanisms to minimize such limitations by utilizing the Authorized Economic Operator (AEO) programs.

Various strategies have been established to encourage effective legal cross-border trade. They include providing WTO accords and WCO agreements on easing trade. For instance, the Revised Kyoto Convention offers an arrangement and a legal framework of acceptable and consented standards to raise customs operations. According to the World Bank (2013), this aims to standardize and harmonize customs policies and procedures globally. Similarly, WCO's SAFE standards framework aims to ease legal trade by instituting customs-to-business and customs-to-customs association concepts.

In cross-border trade, terrorism is an acknowledged challenge and criminal activity affecting the global system. Besides, the criminals at the borders are making vast profits through smuggling networks; the activities are weakening countries by restricting their capacity to trade, given that they have to stop or prevent attacks that jeopardize their economies. Böhringer (2003) argues that states have begun scrutinizing existing procedures and policies grounded on global conventions (like the Revised Kyoto Accord) and global best practices to guarantee simple procedures and integrate contemporary mechanisms like information and risk management technology. Creating one-stop-border posts allows countries to enhance enforcement shared across borders and minimize the cost of executing business. Therefore, a successful transition from conceptualization to implementation dictates proper planning of these initiatives and stakeholder involvement.

African corridor analysis shows that in the Northern corridor of Africa, each 24-hour delay costs about USD 384 per truck. Sub-Saharan Africa recorded about 6.5% improvement, but from a low baseline (OECD, 2025). In East and Southern Africa corridor performance, average cross-border queue time is 5.5–7.1 hours across ESA region, average transit (processing) time is 5.7–6.9 hours, and weekly indirect cost of delays is up to US$36.4 million in Nov 2025. In Southern African Development Community (SADC) borders, border crossing times averaged ≈5.8 hours in 2025 (+23%). Some South African borders averaged ≈10.7 hours per crossing. Median crossing times around 9–11.6 hours reported in late 2025. Weekly delay costs estimated at ≈US$10.5 million in parts of the region. In the North–South Corridor hotspot evidence, median crossing time (southbound) is 28 hours, the queue time is ≈4.6 hours (Eastern Africa Revenue Authorities Technical Committee & partners, 2024). Worst-case crossing times are up to 119 hours. On truck flow and congestion patterns, Lebombo border handles ≈1,500–1,700 trucks/day, queue times commonly 3.4–4.9 hours at busy posts, and border delays remain “most severe” at key crossings such as Beitbridge and Kasumbalesa (Engineering News & industry logistics updates, 2025).

Typical ESA crossing is ≈6–7 hours, Busy SADC crossings is ≈10+ hours, and Worst hotspots is 24–119 hours. Weekly regional losses are US$9–36 million, and Corridor-level losses is ~US$10 million/week (World Customs Organization, 2025).

Preferential trade accords and development aid prerequisites have partially driven reforms to conform to WTO regulations. Many African states collaborating with global bodies have implemented these reforms, thus raising trade volumes. It has consequently raised its revenue collection. The customs modernization efforts and initiatives in most African states are significantly depended on as a technique to enhance Kenyan border trade. According to Funke & Nsouli (2003) African countries have been encouraged to encourage and improve trade facilitation, which will help them invest more in minimizing poverty levels. Most African countries are experiencing instability and insecurity along their borders, thus making them unable to meet their revenue targets.

Most of the developing countries' revenue administration structures have been unproductive and cannot meet the established revenue objectives. It has resulted in calls for reforms in the revenue collection sector across many developing nations. It aims to realize revenue adequacy, customs procedure simplification, economic efficiency and fairness, and equity among traders. Bird (2014) argues that such countries have received some policy advice concerning redesigning their tax procedures and policies via reforms. It has introduced new custom reforms with more efficient administrative mechanisms and tools to close tax evasion loopholes and cut tax exemptions to widen the tax base. For instance, South Africa employed modernization and reform approaches and has recorded substantial benefits concerning cargo clearing time by the customs administration. Besides, transparency among the country's customs officials and trading partners has increased (Wondemagegne, 2014).

From the local perspective, states have encountered numerous problems that necessitated the improvement of revenue administration professionalism. Concerning this, the KRA (Kenya Revenue Authority, 2024) initiated a continuous change approach in its activities, resulting in the RARMP (Revenue Administration Reform and Modernization Program). This program started in 2004 to change KRA into a modern, client-focused,

fully integrated organization. The East African Community Revenue Administration has adopted reforms that entail consultation of taxpayers as an important compliant achievement measure. Rwanda, Kenya, and Tanzania hold yearly events known as Taxpayers Day to discuss the significance of tax compliance. East African nations have also embraced information technology in operations at the customs administration, like Simba 2005 systems in Kenya, which are distinct from ASYCUDA, ICMS, and RECTs systems. Kenya abolished cargo pre-shipment inspection for customs purposes, while Tanzania has a pre-shipment firm that conducts pre-shipment inspections. A Single customs territory has since been implemented to ease trade at the borders. In addition, OSBPs have been established at various borders to enhance trade facilitation at a regional level.

Kenya embraced coordinated border management (CBM) in 2009 to reduce clearance document duplication, cost-benefit analysis, clearance time, and trade facilitation effectiveness. However, this has not been implemented because the primary objective of coordination has not been realized.

Several departments made numerous calls for collaborative border management within the borders and adopted the CBM concept of leadership that would integrate activities to enhance the effectiveness and efficiency of control policies and procedures, especially in traveler and goods clearance. Adopting the Revised Kyoto Agreement improves the CBM strategies while ensuring collaboration with all national agencies. Besides, the mutual Risk Management approach benefits CBM implementation by aiding outcome assessment through intelligence sharing. CBM implementation also benefits intelligence and risk management, enabling robust collaboration among partner agencies. It also offers the foundation for coordinating various mechanisms when implemented in line with the Revised Kyoto Agreement. According to the Logistics Performance Index run by the World Bank (2023), Kenya ranked 62nd out of 155 nations. Cargo importation and exportation cost between $2180 and $2793 regionally (World Bank, 2013). Thus, customs need to be further enhanced regarding cargo tracing and tracking, infrastructure, and logistics competence.

The Malaba OSBP, Handles ≈2,000 trucks per day (≈1,400 outbound; 600 inbound), processes about 1,000 travelers daily, and accounts for over 80% of customs revenue at border posts. OSBP reforms reduced clearance time by 76% compared to pre-OSBP era, and typical traveler clearance now about 5 minutes (down from ~2 hours historically). Median heavy-truck border crossing time: ≈17.1 hours (Kenya → Uganda), top-5% worst cases: up to 45 hours, and about 1,300 trucks arrive daily in this direction. Despite OSBP gains, Malaba still experiences significant congestion for freight. Malaba remains the primary bottleneck on the Northern Corridor despite OSBP improvements (Kenya Revenue Authority, 2024).

In Busia OSBP, which is a critical gateway for regional trade and revenue collection, digital reforms aim to cut 1,200 truck waiting hours daily (≈1 hour saved per truck). Median crossing time (Kenya → Uganda): ≈15.6 hours, Queue time: ≈16 hours, and worst-case (top 5%): ≈28 hours. Average queue time: 71 minutes, Average crossing time: 77 minutes, and combined average delay: 149 minutes (~2.5 hours). Real-time corridor monitoring shows much longer delays than controlled surveys indicating congestion variability (InAfrika, 2025)

In Namanga OSBP, digital cargo tracking reduced transit time from Mombasa to inland borders (including Namanga corridor routes) from ~15 days to about 3 days (2024–2025). Namanga generally performs better than Malaba/Busia because traffic volumes are lower, but hard delay statistics are less frequently published (Monitor Editorial, 2024).

In Kenya–Uganda border, in 2024, >1,250 trucks stranded daily during ICT outages, queue lengths reached 7 km at Malaba and 5 km at Busia. The Kenya and Uganda ordered backlog clearance within 24 hours, queue caps of ≤4 km, and elimination of duplicative inspections (In Africa, 2025).

Statement of the Problem

The Kenya Vision 2030 identifies the trade sector as one that will play a key role in the country's growth and development due to its contributions to the gross domestic product (GDP). The sector has interlinked with all other economic sectors, creating a channel through which services and goods move from manufacturers and producers to consumers. Additionally, the sector creates employment opportunities for retailers and wholesalers, thus significantly reducing poverty by making it possible for youths, women, and vulnerable groups to earn a living. By supporting and encouraging medium, small, and micro enterprises (MSMEs) to participate by exporting their merchandise to the international market, the sector enables them to access fair prices in these markets, supporting economic growth. Due to the sector's importance in contributing to poverty reduction and economic growth, the sector has been prioritized among other sectors to contribute to the envisioned 10 percent economic growth and the realization of equity and social and economic development (Republic of Kenya, 2007).

In comparison to Europe, the Kenyan infrastructure quality is inadequate, customs automation is partial, Single window maturity is uneven, institutional coordination is weak in many corridors, security inspection intensity is moderate, trade volume pressure is growing, and informal payments issue is significant in some corridors. Kenya remains a regional logistics hub in East Africa, but persistent procedural and infrastructure bottlenecks continue to increase trade costs and reduce competitiveness. Approximately 15% of cargo delays at the port are linked to seal tampering and unauthorized access. Inefficiencies at the Port of Mombasa alone cost

traders about $50 million annually in demurrage and storage fees (Ibrahim et al., 2025). Nearly 30% of cargo clearance processes still involve paper-based documentation (TradeMark Africa, 2026).

Previous experiences at the border, such as loss of revenue due to the smuggling of goods and the unauthorized importation of arms and weapons, pose a security risk to the nation. With the adoption of coordinated border management, border agencies have achieved efficient service delivery and seamless information sharing; cost savings are achieved through economies of scale, efficient risk management and faster goods clearance, less paperwork duplication, and reduced transportation costs. However, clearance delays are still being reported at the critical main borders. The lack of cargo verification hinders timely cargo verification by various agencies such as health, standards bureau, and customs and security agents. Trade facilitation suffers bureaucratic delays and red tape burden traders worldwide, increased transaction costs due to inefficient regulatory and border compliance requirements, higher trading costs and longer border processing times, fragmented border management, infrastructure constraints, bribery alone costs about US$1.2–1.5 trillion annually globally, uneven digital transition, gender-specific constraints, and natural disasters and emergencies (OECD, 2025).

Objectives of the Study

The mentioned objectives guided the study.

General Objective

The general objective of the study was to establish the influence of coordinated border management strategies on land border trade facilitation by the Kenya Revenue Authority.

Specific Objectives

i. To assess the influence of One-Stop Border Posts on land border trade facilitation by the Kenya Revenue Authority.
ii. To examine the influence of Single Window System on land border trade facilitation by the Kenya Revenue Authority.
iii. To analyze the influence of Border Management Committees on land border trade facilitation by the Kenya Revenue Authority.
iv. To evaluate the influence of Joint Operation Centers on land border trade facilitation by the Kenya Revenue Authority.

Research Questions

i. How does One-Stop Border Posts influence land border trade facilitation by the Kenya Revenue Authority?
ii. How does the Single Window System influence land border trade facilitation by the Kenya Revenue Authority?
iii. How does Border Management Committees influence land border trade facilitation by the Kenya Revenue Authority?
iv. How does Joint Operation Centers influence land border trade facilitation by the Kenya Revenue Authority?

Scope of the Study

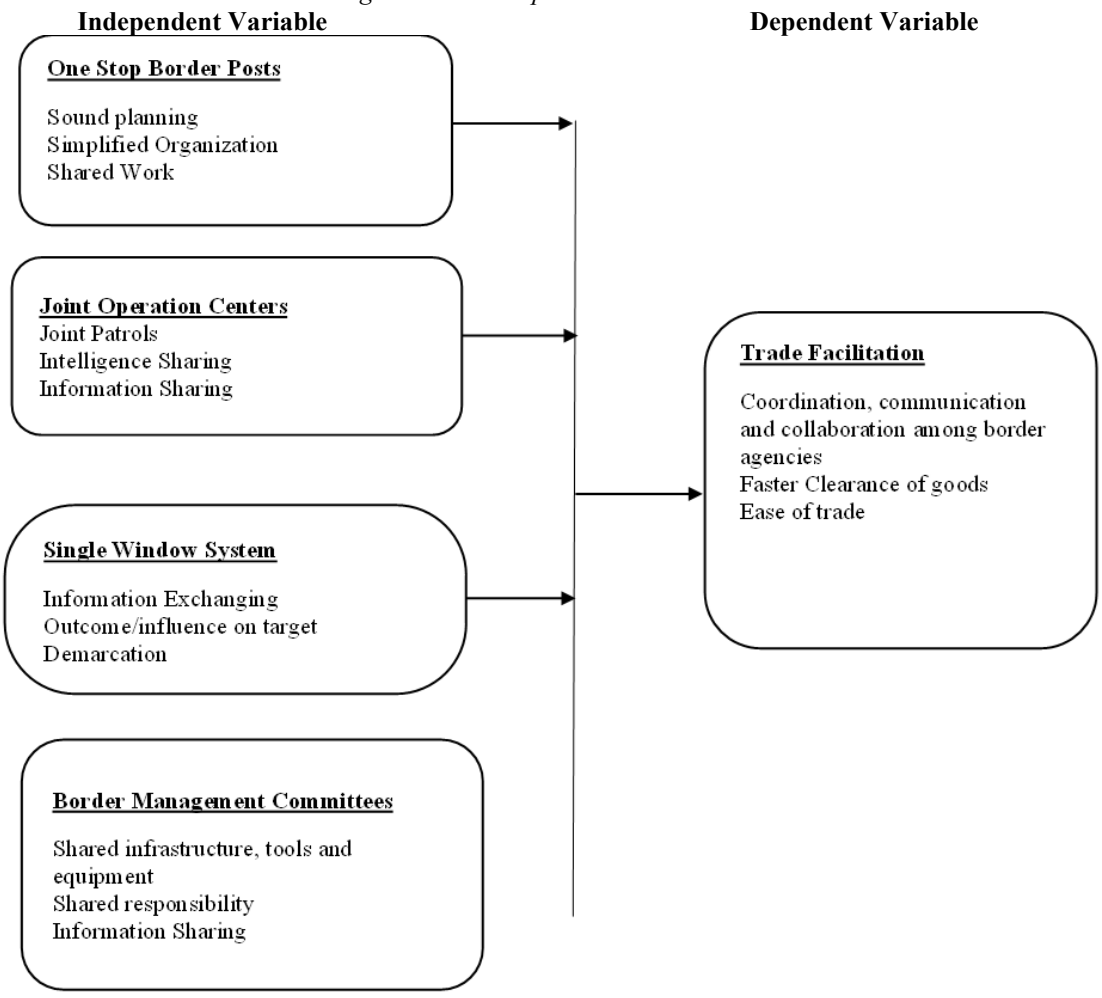
The study investigated the influence of the Coordinated Border Management strategies on land border trade facilitation by Kenya Revenue Authority. It targeted five operational One-Stop Border Posts (OSBPs). Despite several entities at the borders, such as the Kenya Bureau of Standards, Immigration, Port Health, and Kenya Plant Health, the study only collected data from the Kenya Revenue Authority. KRA is the lead agency at the land borders, is in access of all trade facilitation tools, systems and is in attendance of all trade facilitation and border management meetings. The target border posts are those where the Coordinated Border Management concept is fully operational. The study was conducted between February 2025 and February 2026. The study cost was amounting to a total Kenyan Shillings one million (Kes 1M).

II. Theoretical Review

This study drew upon several theories, such as business process reengineering theory (BPR), queuing theory, economic competitiveness theory, and innovation diffusion theory, to investigate the effects of coordinated border management strategies on trade facilitation.

Conceptual Framework

Figure 2.2: Conceptual Framework



Research Design

The research design acts as a managerial blueprint for eluding all the distorting factors inherent in doing research, thereby helping to achieve valid results (Cooper & Schindler, 2014). This study used a descriptive survey design (Jolley, 2014). Descriptive surveys are oriented towards the observation process and its documentation (Kothari, 2004).

Target Population

According to Cooper and Schindler (2014), the target population is the entire population of subjects or units that are of concern to the researcher regarding offering information on the phenomenon of interest. The study focused on KRA because it is a lead agency on land borders; can access all ICT systems as well as multi-agency initiatives related to trade facilitation and is a member of World Trade Facilitation Initiatives. The KRA leadership can access border management committees' recommendations for application. The study targeted all the 68 KRA staff from the KRA04 (Supervisors) to KRA06 (Managers) in the five operational OSBPs as in Table 3.1.

Table 3.1 Target Population

Grade	Busia	Malaba	Moyale	Namanga	Taveta	Total
KRA 06	1	1	1	1	1	5
KRA 05	3	2	-	4	1	10
KRA 04	14	14	7	9	9	53
Total	**18**	**17**	**8**	**14**	**11**	**68**

Source: KRA Customs Operations Office

Sample Size and Sampling Technique

This section outlines the identification process of the relevant study sample and the technique for determining the sampling procedure.

Sample Size

Identifying the sample size within the population is crucial as it helps the researcher identify the accuracy of the estimates and gives power to the researcher to draw study conclusions (Tang & Tu, 2023). The sample is a section of the population selected for investigation (Bryman, 2016). The sample size was 68 respondents as in Table 3.2.

Table 3.2 Sample Size

Grade	Busia	Malaba	Moyale	Namanga	Taveta	Total
KRA 06	1	1	1	1	1	5
KRA 05	3	2	-	4	1	10
KRA 04	14	14	7	9	9	53
Total	**18**	**17**	**8**	**14**	**11**	**68**

Source: Researcher

Sampling Technique

The study applied census sampling technique, hence the sample size of 68 respondents. The sample size was in strata. Due to this need for accurate representation and focused sampling, stratified sampling was appropriate for this study as it increases precision and reduces variance risk (Kim & Han, 2010).

Research Instruments

The research instrument was a semi-structured questionnaire. The questionnaire was Likert scaled as Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree, and open-ended questions.

Pilot Testing

The pilot study was conducted to ascertain the validity and reliability of the research instrument. The study estimates the reliability level inherent in the questionnaire according to Mugenda & Mugenda (2003). Mugenda & Mugenda (2003) have similarly asserted that 5 percent of a target population is sufficient for piloting. The pilot study was carried out in the KRA headquarters, in Nairobi, Kenya with a unit analysis of seven respondents. The respondents constituted managers, who are directly involved with border matters, and have driven the CBM concept at national levels, coordinating functions at all borders at strategic positions.

Validity of Instrument

The study carried out a validity test that ensured that the instrument measures the concept accurately. The industry players composing of senior KRA officials interrogated the questionnaire and noticed a number of errors including grammatical errors that were corrected. Similarly, the supervisors and lead discussants modelled the instruments to quality standards.

Reliability of Instruments

The instrument's reliability was established using the Cronbach alpha coefficient analysis. This analysis recommended an alpha of 0.70 and above. Cronbach alpha is a good measure of reliability as it provides an alpha coefficient while holding other factors constant. The more similar the test condition, the significant the internal consistency reliability. The researcher conducted a reliability analysis to determine the internal consistency of the five multi-item measures used in this research. The results are in Table 3.3. The results indicated Cronbach alpha coefficients greater than 0.7 for OSBP, SWS, JOC, and BMC. TF had a slightly lower Cronbach's Alpha (α). This underscored that the instrument was reliable.

Table 3.3. Reliability Test Results

Construct	Cronbach's Alpha (α)	Number of Items
One Stop Border Post (OSBP)	α = .832	6
National Single Window (SWS)	α = .775	6
Border Management Committees (BMC)	α = .851	6
Joint Operation Centers (JOC)	α = .883	6
Trade Facilitation (TF)	α = .697	4

Source (Researcher)

As in Table 3.3, the One Stop Border Post (OSBP) Cronbach's alpha coeffient (α = .832). The National Single Window (SWS) Cronbach's alpha coeffient (α = .775, while the Border Management Committees (BMC)

Cronbach's alpha coeffient (α = .851). The Joint Operation Centers (JOC) Cronbach's alpha coeffient (α = .883), and the Trade Facilitation (TF) Cronbach's alpha coeffient (α = .697). The TF construct yielded a lower Cronbach's alpha but marginally acceptable due to the limited number of items that were used to measure the construct.

Data Collection Procedure

The researcher got permission from the University through an authorization letter. The researcher got similar approval from the Institutional Scientific Ethical Review Committee (ISERC) and further approval from the National Council of Science, Technology, and Innovation (NACOSTI). The researcher further got approval from KRA management. Informed consent was also attained from the respondents.

Response Rate

Out of the sixty-eight questionnaires that were issued, sixty-three were returned. This presented a response rate of 92.6% that was considered sufficient. The response rate is as in Table 4.1.

Table 4.1 Response Rate

Particulars	Numbers	Percentage
Questionnaires returned	63	92.6
Unreturned Questionnaires	5	7.4
Total questionnaires	68	100

Source: Researcher

Other studies such as Dillman et al., (2014) and Babbie (2016) had a response rate of 92.6%, which was considered excellent for survey research and minimizes the risk of non-response bias. This enhanced the enhancing the credibility of the findings.

Demographic Analysis

Length of Stay in the Organization

The study explored how long the respondents have been in the organization. This was aimed at ascertaining the level of experience and exposure of the respondents in the activities of the organization, including the strategic approaches as they exist today. The results were as in Table 4.2.

Table 4.2: Length of Stay in the Organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	7	11.1	11.1	11.1
	6-10 years	22	34.9	34.9	46.0
	11-15 years	14	22.2	22.2	68.3
	More than 15 years	19	30.2	30.2	98.4
	Less than 1yr	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

Source: Researcher

From Table 4.2, 11.1% had worked in the organization for a period between 1 and 5 years, 34.9% had worked in the organization for 6 to 10 years, 22.2% of respondents had worked in the organization for 11 to 15 years, and 30.2% had worked in the organization for more than 15 years. From the findings, 87.3% of the respondents had worked in the organization for more than five years. This showed that the respondents had wide experience in the organization and were well acquainted with the strategic leadership approaches of the organization. Most of these people have been in existence in KRA during the development and implementation of the Coordinated Border Management concept. Sekaran & Bougie (2016) suggested that 87.3% of the respondents who had worked in the organization for more than five years possessed adequate organizational experience to provide reliable information.

Descriptive Statistics

The study investigated the extent to which KRA has implemented the following Coordinated Border Management (CBM) techniques and their effects on Trade Facilitation.

One-Stop Border Posts

The study sought to understand the contributions of OSBP to trade facilitation. The findings are in Table 4.3.

Table 4.3. Descriptive Statistics of OSBP Findings

	N Stat	Range Stat	Min Stat	Max Stat	Mean		Std. Dev Stat	Variance Stat
					Stat	Std. Error		
Has improved the infrastructure at the border	63	4	1	5	4.02	.149	1.184	1.403
Has enabled quicker release of goods	63	3	2	5	4.41	.084	.663	.440
Has reduced duplication of processes and procedures	63	3	2	5	4.25	.111	.879	.773
Has streamlined the border operations and procedures	63	2	3	5	4.40	.083	.661	.437
Has improved communication and collaboration among border agencies	63	3	2	5	4.30	.100	.796	.633
Has improved the working conditions at the border	63	4	1	5	3.92	.145	1.154	1.332
Valid N (listwise)	63							

Source: Researcher

The findings, as in Table 4.3, infrastructure at the border has been improved. Kaunda (2024) established a significant positive relationship between improved infrastructure and border functionality, with better roads linked to lower clearance times and reduced trade costs (Kaunda, 2024). Mutua and Felix (2023) asserted that One-Stop Border Post (OSBP) concept significantly reduces cargo clearance times and trade costs in Kenya, indicating the benefits of improving border infrastructure and systems (Mutua & Felix, 2023). Ogutu (2025) found that improved enforcement and structural systems strongly correlate with reduced illicit trade and is a key indicator of better infrastructural and procedural performance (Ogutu, 2025). Vincent & Njong (2021) established streamlined import procedures and upgraded OSBP practices support faster trade flows that is indirectly reflecting the role of infrastructural and procedural improvements. Simfukwe & Nsama (2025) also established that efficient customs clearance processes are a key component of border infrastructure, and they contribute to improved trade facilitation outcomes (Simfukwe & Nsama, 2025).

The study established that quicker release of goods has been enabled. A finding by Nkundabaramye & Njong (2021) established that implementation of OSBP initiatives in Rwanda significantly streamlined and expedited the movement of goods across border customs posts by removing unnecessary barriers and inefficiencies in procedures, facilitating quicker transit of cargo (Nkundabaramye & Njong, 2021). de Melo et al., (2024) found that implementing trade facilitation agreement provisions, including simplified customs procedures and integrated border processes can reduce time spent in customs by several days for both imports and exports, indicating significant improvements in time to release goods (de Melo et al., 2024). Zambia's Ministry of Commerce, Trade and Industry & Zambia Revenue Authority (2024), time release survey at Chirundu & Kazungula OSBPs, showed reduced border clearance times for goods by about 60% from over 48 hours to under 14 hours at key OSBPs.

The finding also established duplication of processes and procedures has been reduced. Cheruiyot & Rotich (2025) found that the implementation of One Stop Border Post (OSBP) strategy significantly improved the efficiency of customs services and other government agencies by avoiding unnecessary duplication of clearance procedures (Cheruiyot & Rotich, 2025). A study by the University of Nairobi. (2022) established that joint controls and integrated border procedures reduce duplication of procedures and processes, because agencies from both countries work in a shared facility and share information and resources, cutting down on repetitive clearance activities that were common under traditional "two-stop" systems (University of Nairobi, 2022). According to Mendez-Parra & Calabres (2023), ODI report on OSBPs in East Africa finds that the introduction of these facilities reduces duplication of customs procedures and long dwelling times by eliminating repetitive stops and harmonizing clearance processes, which lowers transport costs and waiting times for goods and vehicles (Mendez-Parra & Calabrese, 2023). The OSBP model integrates cross-border government administrations into one facility, reducing redundant paperwork and procedural duplication that previously caused delays and higher costs (Kinyua, 2025). Further finding established border operations and procedures have been streamlined. Oche (2022) established strong positive relationships between improved procedures and trade facilitation indicators (Oche, 2022). Ndireza (2023) established streamlining border processes such as electronic document clearing and coordinated checks that significantly reduce procedural delays and enhance border efficiency (Ndizera, 2023).

The study also established that communication and collaboration among border agencies have been improved. Mutua and Felix (2023) also established that improved collaboration among customs, immigration, and other regulatory bodies, which in turn enhanced communication flows and facilitated more unified decision-making at land border crossings. Moraa et al., (2023) established that enhanced communication structures and collaborative mechanisms among agencies at Namanga led to streamlined processes and better information

sharing, which supports improved clearance and coordination at the border (Moraa & others, 2023). Mwakangale and Rwabishugi (2024 emphasizes that cooperation and information exchange among these agencies are key to improving operational efficiency and national security outcomes at the border (Mwakangale & Rwabishugi, 2024). From Zambia monitor (2025), One-Stop Border Posts (OSBPs) model enables border agencies from both countries to operate in a single facility, which cuts duplication of procedures and improves the speed and transparency of clearance processes a practical instance of reduced procedural redundancy (Zambia Monitor, 2025).

However, the working conditions at the border have not yet improved. Brook et al (2022) established that border security personnel face high occupational stress, poor support, insufficient training, inadequate equipment, high workload, and perceived organizational injustice, all is linked to poor working conditions and negative worker wellbeing outcome (Brooks et al., 2022). Bosworth (2023) found that lack of clear purpose, involving duplication of paperwork, and offering no real improvement in job conditions, reflecting broader systemic issues in border control labour (Bosworth, 2023). Yengkangyi & Agyei (2023) identifies inadequate logistics, equipment, and insufficient border security personnel clearly imply persistently poor working conditions for officers and hindering effective border management (Yengkangyi & Agyei, 2023).

Single window system

A quantitative investigation was carried out to show the influence of SWS, a CBM technique on trade facilitation.

Table 4.4. Descriptive results of SWS

	N	Range	Min	Max	Mean		Std. Dev	Variance
	Stat	Stat	Stat	Stat	Stat	Std. Error	Stat	Stat
Has enhanced transparency in the customs clearance process	63	2	3	5	4.38	.080	.633	.401
Has increased the compliance of traders	63	2	3	5	4.17	.086	.685	.469
Has enabled faster clearance of trade documents	63	2	3	5	4.41	.074	.586	.343
Has reduced duplication of processes and procedures at the border	63	3	2	5	4.17	.103	.814	.663
Enabled online enquiries and downloading of Trade permits	63	2	3	5	4.29	.089	.705	.498
Improved interconnectivity for information exchange	63	3	2	5	4.16	.118	.937	.878
Valid N (listwise)	63							

Source: Researcher

From the findings as in Table 4.4, there is enhanced transparency in the customs clearance process. In 2025, the Kenya Revenue Authority (KRA) reported that its integrated customs management system and other automated solutions have greatly enhanced efficiency and transparency in the cargo clearance process, reducing delays and increasing accuracy in assessments and clearances (Kizito, 2025). Kenya has reported to invested heavily in digital trade systems, to include electronic single windows, automated customs platforms, and data-driven risk management tools, to improve transparency, reduce leakages, and speed up clearance (kiptoo, 2024).

Further findings show that there is increase in compliance between traders. The 2025 OECD Trade Facilitation Indicators (TFIs) report shows that measures accelerate trade flows while ensuring regulatory compliance are driving progress in streamlining border procedures. This includes reforms that strengthen traders' adherence to customs rules and facilitate predictable, transparent interactions with authorities, which improves overall compliance (Organisation for Economic Co-operation and Development, 2025). In 2025, the Philippine Bureau of Customs expanded its Authorized Economic Operator (AEO) and Super Green Lane (SGL) programmes, accrediting more companies for expedited treatment based on compliance performance (Bureau of Customs (Philippines), 2026) Study also established a faster clearance of trade documents enabled. The Kenya Revenue Authority launched an E-Customs mobile application at the Busia One-Stop Border Post in November 2025 to enhance customs process efficiency and transparency (Kenya News Agency, 2025). National Board of Revenue (NBR) of Bangladesh reported significant improvements in document clearance speed through automation and policy reform (National Board of Revenue (Bangladesh), 2025).

The study also established reduced duplication of processes and procedures at the border. In January 2025, Bangladesh's National Board of Revenue (NBR) soft launched its National Single Window, integrating multiple customs related agencies to allow single entry submission, tracking of applications, and real time feedback on permits, licenses, and clearances. The system's benefits include quicker clearing times, a more predictable customs process, and reduced opportunities for corruption through greater transparency, since all transaction stages are visible online (BSS News, 2026). The Federal Government of Nigeria is advancing a

National Single Window (NSW) policy at its seaports expected to roll out by 2026, noted that the NSW will harmonize documentation across agencies, minimize human contact, and bring full transparency to the cargo clearance process enabling all stakeholders to view the customs requirements and statuses via a single digital platform (State House, Abuja, 2025). In November 2025 report, Nigerian officials described the NSW as a single platform that harmonizes documentation, reduces manual processes, and brings full transparency to cargo clearance, helping to identify requirements in advance and reduce opaque procedures. The initiative is also tied to reducing overall cargo clearance time (Marine and Economy, 2025).

The study similarly established enabled online enquiries and downloading of trade permits. Electronic Certificate of Origin (eCOO) was launched in October 2025, allowing exporters to register and apply online, obtain certificates digitally, and share them with customs authorities electronically (Kenya News Agency, 2025). In November 2025, the eCUSTOMS mobile application was launched at the Busia One-Stop Border Post (OSBP) to digitize customs processes (British High Commission Nairobi, 2025). Kenya's National Electronic Single Window System (NESWS) processed more than 4,000 permits daily, with over 70 % of them completed within 24 hours by November 2025 (Government Advertising Agency, 2025). The study also found that there improved interconnectivity for information exchange. In October 2025, the World Customs Organization (WCO) released an Interconnectivity Framework for Certificates of Origin (COs) that standardizes how electronic CO data is exchanged between exporting and importing customs administrations, that enables systems to connect more seamlessly and share origin information in near real-time across borders, reducing delays and errors in customs processing (World Customs Organization, 2025). By 28 November 2025, the Democratic Republic of Congo (DRC) fully integrated its customs data exchange system into the EAC Single Customs Territory platform, connecting systems used by Kenya, Uganda, Tanzania, and Rwanda (Aluong, 2025).

Border Management Committees

Table 4.5 Descriptive Statistics of the Influences of Border Management Committees

	N	Range	Min	Max	Mean		Std. Dev	Variance
	Stat	Stat	Stat	Stat	Stat	Std. Error	Stat	Statistic
Has enhanced communication and collaboration among border agencies	63	3	2	5	4.16	.104	.827	.684
Has clearly defined the responsibilities among border agencies	63	3	2	5	4.19	.113	.895	.802
Has improved the sharing of resources among border agencies	63	3	2	5	3.89	.118	.935	.875
Has led to feasibility and accessibility to policies related to border management	63	3	2	5	4.08	.109	.867	.752
Has enhanced the responsiveness of the Kenyan government to border issues	63	4	1	5	3.84	.134	1.066	1.136
Has provided opportunities for joint workshops and training forums on current customs and trade issues	63	4	1	5	3.89	.136	1.079	1.165
Valid N (listwise)	63							

Source: Researcher

From Table 4.5, there is enhanced communication and collaboration among border agencies. BMCs facilitate regular information exchange among them and ensuring alignment with national border policy directives. Under the Border Management and Trade Facilitation Act (2025) in Zambia, these committees enhancing border agency coordination, implementing border policies, and advising authorities on operational border matters promoting structured communication and collaboration. The Gambia (2025), the national revenue authority and partner agencies that focused on stronger inter-agency cooperation, shared information management, and joint operational approaches to border control and trade facilitation. The finding also established that BMCs clearly define the responsibilities among border agencies. Kenya's Border Control and Operations Coordination Committee (BCOCC) supported by legal instruments and institutional structures uses Border Management Committees (BMCs) at ports of entry/exit to ensure clear coordination between agencies. Up to late 2024 early 2025, Somalia has focused on establishing Inter-Agency Border Management Committees (IBMCs), the foundational purpose is similar to assign clear coordination roles across immigration, intelligence, and health, finance, and police agencies for shared responsibilities at border points.

The study also found that BMCs have not resulted in improving the sharing of resources among border agencies. These legacy issues around resource sharing stem from institutional barriers and remain relevant unless specifically resolved by policy and funding reforms. The inadequate resource allocation and operational

discrepancies among agencies significantly hinder their ability to operate jointly. The study has also established that BMCs have led to feasibility and accessibility to policies related to border management. The policy frameworks are not just formulated but also accessible and intelligible to agencies working at points of entry a direct outcome of BMC operational linkages with policy oversight bodies. BMCs are structured to regularly consult, share minutes, and raise operational issues including changes in procedures and policy directives among agencies (Border Management Secretariat, 2026).

The study found that BMCs have not resulted to enhanced responsiveness of the Kenyan government to border issues. Despite the existence of committee structures intended to improve responsiveness, real changes in day-to-day border operations have lagged because systemic and infrastructure challenges persist. Analysis of South Africa's border control system reported that border management remains underfunded and understaffed, with vacancy rates above 70%, limited technology, and porous stretches still poorly patrolled findings that highlight significant institutional responsiveness issues rather than strong performance, despite the existence of a Border Management Authority (Kersten, 2025). A ProtectionWeb analysis summarizes that South Africa's Border Management Authority cannot effectively patrol broad areas beyond ports of entry due to resource constraints and incomplete transfer of responsibilities, indicating persistent gaps in governmental responsiveness to border security challenge (Teixeira, 2025). South Africa's Parliamentary Select Committee on Security and Justice established that that border operations were not aligned across agencies and outdated infrastructure needed urgent attention, implying gaps in responsiveness and cohesive state action at border posts (Parliament of South Africa, 2024). Institutional arrangements alone (like committees) have not resolved deeper operational problems, which still limit how quickly and effectively the government can respond to border issues such as trade bottlenecks, smuggling, and procedural delays. Structural complexity can dilute both accountability and the speed with which the government responds to emerging border management challenges, meaning that committee recommendations don't always translate into swift governmental action or reforms.

Finally, the study established that BMCs have not provided opportunities for joint workshops and training forums on current customs and trade issues. In January 2026, a regional workshop on border security and transnational threats was hosted in Nairobi under the International Organization for Migration (IOM) Export Control and Border Security (EXBS) programme. The World Customs Organization (WCO), in partnership with GIZ and EU-sponsored programmes, has held training workshops on customs technical subjects, such as Rules of Origin for KRA officials. BMCs in Kenya have not been the organizing body for such multi-agency training forums; rather, these joint workshops are typically driven by external partners, multilateral organizations, or specialized programmes, not the BMC mechanism itself.

Overall, these findings mostly coincide with the theoretical assumptions regarding the merits of the CBM but also demonstrate the challenges of applying it that characterize the situation in developing countries. World literature emphasizes that the success of CBM depends on how the policy is adopted in addition to appropriate infrastructure, assimilation of the regulations, technology preparedness and fund sustainability (World Bank, 2020). Such theoretical warnings are consistent with the fears of the respondents regarding the deterioration of infrastructure, the absence of a place to work, and the absence of funding to support the OSBP. Better still, the reality that even after automation, there remain manual processes proves the theoretical premise that the process of modernization must be supported with institutional capacity-building, change management and system harmonization to effectively exist.

Joint Operation Centres

Table 4.6. Summarizes the Descriptive Findings of JOC.

	N	Range	Min	Max	Mean		Std. Deviation	Variance
	Stat	Stat	Stat	Stat	Stat	Std. Error	Stat	Stat
Has improved information sharing among border agencies	63	3	2	5	3.98	.105	.833	.693
Has coordinated border management and risk assessment	63	3	2	5	3.89	.111	.882	.778
Has enhanced responses to security threats and illegal activities	63	3	2	5	3.97	.122	.967	.934
Has enhanced compliance with trade documentation and legal regulations	63	3	2	5	4.00	.118	.933	.871
Has ensured joint Patrol interventions that are closely integrated with broader policing arrangements amongst border agencies	63	4	1	5	3.94	.130	1.030	1.060
Has improved the organization of policing and management of resources allocated	63	3	2	5	4.03	.124	.983	.967
Valid N (listwise)	63							

Source: Researcher

From the findings, as in Table 4.6, Joint Operation Centres have not improved information sharing among border agencies. Lack of broad institutional integration means that even where JOCs exist, information sharing remains siloed and does not extend to all border agencies, undermining the real-world effectiveness of multi-agency coordination structures. There is no specific report showing that all border agencies are integrated into a shared information exchange network. Despite the establishment of Joint Operation Centres (JOCs) to facilitate multi-agency information sharing and collaboration at border points, practical integration of *information* systems across all border agencies in Kenya remains incomplete, with key institutions still unable to access or share data across platforms (Joint Operation Centres (JOCs), 2024).

Further findings showed that JOC has not coordinated border management and risk assessment. Official Border Management Secretariat (BMS) description of Joint Operations Centres (JOCs) states their intended functions but does not show that they have delivered coordinated border management or comprehensive risk assessment across all relevant agencies in practice. Official performance data or independent evaluation assessing whether JOCs have coordinated risk assessment or inter-agency operations are provided. Strategic Risk Assessment exercises at Kenyan border points (e.g., Busia and Lunga Lunga) were conducted by multisectoral teams led by health and border officials, not through JOCs themselves. While there are reports showing coordination challenges among multi-agency teams on border security in Kenya, that also signal broader issues in information sharing, joint intelligence, and risk assessment practices, none specifically confirm effective JOC-led improvements. official government descriptions do not include independent performance evaluations showing that JOCs have delivered effective coordinated border management or systematic joint risk assessment across agencies. The absence of explicit outcomes showing that government mechanisms like JOCs are effective in coordinating risk assessment or fully integrated information sharing can be cited to argue that UN reports do not confirm that JOCs have solved coordination and risk assessment challenges (United Nations in Kenya (UNDP/UN system), 2019).

JOC has not enhanced responses to security threats and illegal activities. Effective inter-agency coordination to address security threats and illegal activities remains limited. Report on Kenya's border governance structures notes that there is evidence of poor coordination, lack of resources, and implementation challenges that undermine the effectiveness of coordination of multi-agency operations and target border threats. BMS leadership appealed for more funds from the exchequer saying that with enough resources the entity "intends to establish more joint operation centres in all entry and exit points (Modachi, 2024).

Findings also established that JOC has enhanced compliance with trade documentation and legal regulations. BMS has come up with standard operating procedures for officers so that they can know when to collaborate, what to inspect and to verify jointly, and how to report. They also came up with a new curriculum for the joint operations centres, and officers trained at the Kenya School of Government. They have also invested heavily in this technology and infrastructure (Modachi, 2024). JOC has not ensured joint patrol interventions that are closely integrated with broader policing arrangements amongst border agencies. Inadequate funding to the security body cripples implementation efforts to scale up proper surveillance across the border points (Modachi, 2024). JOC has improved the organization of policing and management of resources allocated.

The case of JOC showed a strong positive correlation, but the level of significance at 0.05 was slightly high, implying that the strength of JOCs can be attributed to increased coordinated enforcement, collective intelligence sharing, and multi-agency operational planning, enhancing not only the area of security but also enabling the smooth movement of compliant trade. The findings suggest the validity of the global customs modernization theories, which emphasize combined versions of border management and risk-based constraints as the origin of efficiency. Joint Operation Centers (JOCs) play a major role in risk assessment, security coordination, and compliance management aspects, which indirectly, but effectively, improve the facilitation of trade. These observations can be supplemented by Osinta (2019) and Curvey (2019), who state that JOCs contribute to better real-time monitoring, intelligence sharing, and rapid decision-making. These findings also compare with those of Seko and Mincu (2019), who underline that the simplification of the interagency coordination process can reduce the redundancy of the operations and enhance their efficiency. Thus, the findings corroborate the body of literature that shows that JOCs are required as part of the packages of security processes and facilitations at the borders.

Trade Facilitation

Table 4.7. Descriptive Findings of Trade Facilitation

	N	Range	Min	Max	Mean		Std. Deviation	Variance
	Stat	Stat	Stat	Stat	Stat	Std. Error	Stat	Stat
Has enabled the reduced cost of doing business	63	4	1	5	3.97	.120	.950	.902
Has an increased volume of cargo clearance	63	4	1	5	4.19	.108	.859	.737
Has enhanced the ease of clearance at the border	63	2	3	5	4.49	.075	.592	.351

Has reduced the time taken to clear goods at the border	63	3	2	5	4.35	.085	.676	.457
Valid N (listwise)	**63**							

Source: Researcher

Table 4.7 summarises the descriptive findings of all four items of trade facilitation. Many respondents rated the influence of TF highly, with an average of 4.49 out of five on its influence on ease of clearance at the border. From the findings, TF to have the least influence on the cost of doing business, and that TF has not reduced cost of doing business. Automation and simplification of customs processes typically reduce trade costs by only 2–3% in low-income countries, suggesting relatively small gains (KIPPRA, 2021). Internal processes by trade regulatory agencies in Kenya remain inefficient and often increase the cost of doing business (Kiriti-Nganga, 2019). Increases in customs procedures raise the cost of doing business and reduce trade competitiveness in Kenya (Muhia, 2021). Portugal-Perez & Wilson (2012) noted that the trade facilitation can only cause conditional cost reductions depending on factors like investments in physical infrastructure and the level of automation and streamlining procedures to avoid things like bribery. Therefore, this assertion may have been influenced by the levels of automation and investments in infrastructure and not the overall influence of TF.

Nonetheless, other findings showed a positive effect on TF. The respondents noted that TF has an increased volume of cargo clearance, something that is consistent with empirical findings from the research done by Wilson et al. (2003) who found that improving the trade facilitation infrastructure and improving the efficiency of customs and the ports increases the volume of goods cleared and exported. National Electronic Single Window System (Kenya TradeNet System) significantly reduced cargo clearance time and increased the number of consignments processed annually (KenTrade, 2023). Trade facilitation measures particularly border process simplification and digitalization are associated with increased trade volumes and faster cargo movement in developing countries, including Kenya (World Bank, 2020). Implementation of the Trade Facilitation Agreement improves border efficiency, enabling customs authorities to process greater cargo volumes within the same time frame (World Trade Organization, 2022).

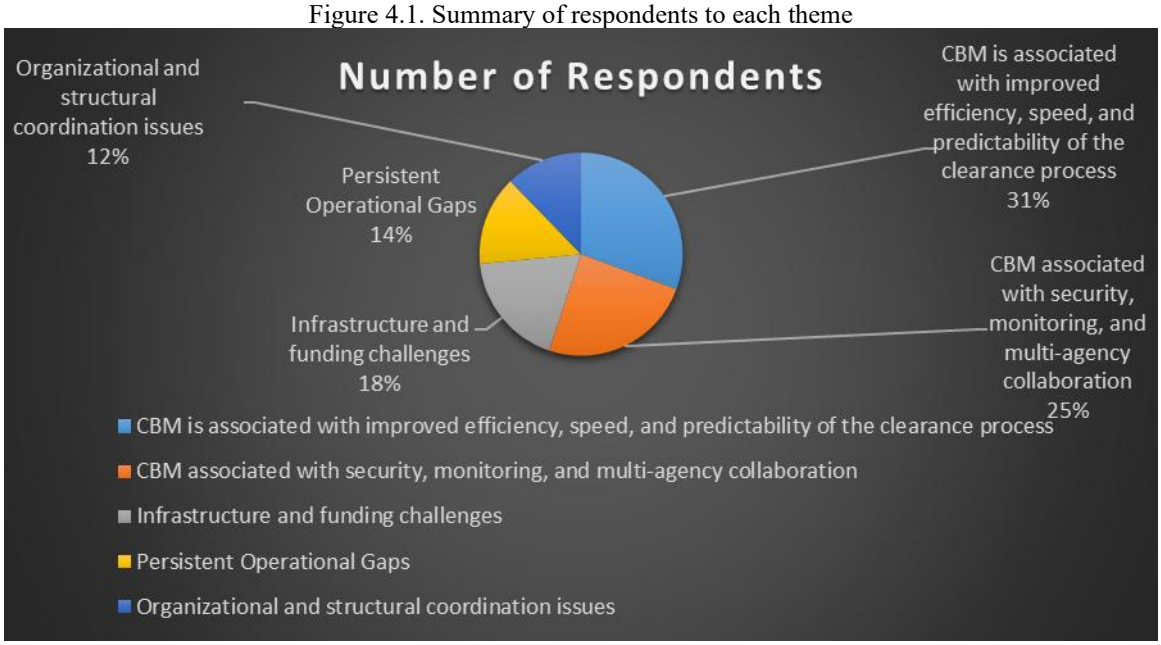
In addition, the respondents noted that TF has enhanced the ease of clearance at the border. These findings are consistent with the assertions of Wilson et al. (2003) who note that institutional reforms that include simplifying documentation and harmonizing procedures can improve the management of custom procedures to meaningful standards and this is why the respondents felt that TF has enhanced the clearing process. Kenya's reforms in customs automation and risk-based inspections significantly reduced the time required to clear goods, improving the trading-across-borders indicator (World Bank, 2020). OSBPs at key crossings such as Malaba and Busia have cut border crossing times and simplified procedures for traders (TradeMark Africa, 2022). The Kenya TradeNet System has streamlined submission of trade documents, reduced physical interactions, and improved clearance efficiency at border posts (KenTrade, 2023)).

Finally, the respondents noted that TF has reduced the time taken to clear goods at the border, an assertion that critical because cross country evidence presented by Djankov et al. (2010) shows that even an additional day of delay reduces trade volumes to a substantial level therefore reducing the clearance time creates invaluable economic benefits.

Qualitative Analysis on the influence of Coordinated Border Management Techniques in Enhancing Trade Facilitation at Your Border

At the end of the survey, participants were asked to give a general comment about coordinated border management. Out of the 63 questionnaires that were returned, 32 of them had various comments which were treated as qualitative data. The researcher analyzed these comments using excel. From this analysis, five themes were selected. Figure 4.1 shows how respondents included each theme.

Figure 4.1. Summary of respondents to each theme



Source: Researcher

From the findings, CBM is associated with improved efficiency, speed, and predictability of the clearance process. Fifteen respondents out of the thirty-two who added a comment pointed out that coordinated border management (CBM) has been an influential tool in enhancing the performance of the border activities. One-Stop Border Posts (OSBPs) are automated systems that have greatly reduced the waiting time of cargo and passengers. Other aspects that the respondents reported were a rapid clearance period, enhanced predictability of trade processes and greater trade, with small and medium enterprises (SMEs). CBM got the credit for simplifying operations, reducing waiting time, and making traders use the official border routes instead of using money routes. In most cases, according to the arguments of the respondents, the CBM has been considered to have significantly contributed to service delivery, speed, and transparency in the activities on the border. These qualitative findings support the quantitative findings of this study that OSBP is the strongest predictor of TF because the respondents emphasize waiting times, simplified procedures, and improved predictability, which are all elements associated with OSBP.

From the analysis, CBM is associated with security, monitoring, and multi-agency collaboration. Twelve respondents out of the thirty-two who added a comment spoke of the significance of CBM to encourage security and inter-agency collaboration. The Regional Electronic Cargo Tracking System (RECTS) is one of the monitoring tools that has drawn the trust of the respondents concerning the security of their cargo and reduced border controls. Multi-agency operations were observed to increase the detection of contraband, and traders were more cooperative in CBM. Better coordination and collaborative decision-making have been cited as a primary factor in increased information sharing and relations between the agencies. The other aspect in which the agencies worked well together to achieve similar objectives was in regions where the Joint Operation Centres (JOCs) were set up. These findings show how critical inter-agency collaboration and security tools are, but for the regression findings, although JOC had a positive influence on TF, it did not exert a statistically significant influence, implying that its influence is contingent on other mechanisms like OSBPs.

Despite the positive responses regarding CBM, Infrastructure and funding challenges were cited. Among the issues mentioned by nine respondents out of the thirty-two who added a comment were poor infrastructure and lack of funds, even though the enhancement of operations was noted. The problems cited in the comments included run-down buildings, space, congestion at the loading and offloading point, as well as bad facilities that are provided to travelers during bad weather. The respondents asserted that OSBPs should be devoted at any time to ensure that the infrastructure is updated to serve the increasing traffic. Some respondents cited old facilities and poor amenities and informed the need to invest in repair, expansion and modernization. This theme explains the limits of TF that go beyond OSBPs because all of them combined only explain 34% of TF variations.

From the findings, there are persistent operational gaps, such as operational inefficiencies that have not been taken care of under CBM reforms. The duplication similarly is still apparent in the clearance processes, and even the processes that are already automated are manually executed. Problems with the speed of internet connection, problems with the system (including KENTRADE) and information sharing were mentioned

frequently. The respondents suggested that there would be increased coordination as technologies like data visibility platforms, blockchain, and coordinated systems are further harnessed. These issues, like duplication, the persistent use of manual processes, and system failures, explain why SWS was not statistically significant in the regression analysis, which shows that some of these systems are implemented but inconsistently reported across various OSBPs.

From the findings, organizational and structural coordination issues were demonstrated. This includes the need to coordinate border agencies closely. Resource sharing remains a challenge and duplication of responsibilities results in congestion and inefficiency within OSBPs. Some of the factors that were found not to allow full effectiveness of CBM practices were silos mentality, absence of communication channels, and poor implementation of CBM practices. Respondents also reported that the fruits of CBM are not normally as plentiful as they could be when inter-agency coordination is weak or when agencies have independent command systems. Many called for harmonizing regulations, clearer lines of authority, and greater collaboration to fully realize CBM objectives. Therefore, these challenges are related to siloed operations, unclear authority, and limited resource sharing capacity, which are all elements of Border Management Committees and such comments explain why BMC had a weak and inconsistent, statistically insignificant influence on TF.

Correlation Analysis

The study conducted a Correlation analysis, which was intended to establish the relationship between variables, whether they were strong positive, weak positive, negative, or weak negative (Sreevidya & Sunitha, 2011).

Table 4.8. Findings of the Correlation Analysis

		OSBP	SWS	BMC	JOC	TF
OSBP	Pearson Correlation	1	.627**	.582**	.550**	.567**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	63	63	63	63	63
SWS	Pearson Correlation	.627**	1	.601**	.588**	.458**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	63	63	63	63	63
BMC	Pearson Correlation	.582**	.601**	1	.650**	.312*
	Sig. (2-tailed)	.000	.000		.000	.013
	N	63	63	63	63	63
JOC	Pearson Correlation	.550**	.588**	.650**	1	.467**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	63	63	63	63	63
TF	Pearson Correlation	.567**	.458**	.312*	.467**	1
	Sig. (2-tailed)	.000	.000	.013	.000	
	N	63	63	63	63	63
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Source: Researcher

A Pearson correlation analysis was conducted by the researcher to examine the relationship between the BMC components and trade facilitation. From the findings as shown in Table 4.9, OSBP, JOC, and SWS had a moderate positive correlation with TF, with OSBP ($r = .567$, $p < .01$), JOC ($r = .467$, $p < .01$), and SWS ($r = .458$, $p < .01$), respectively. BMC had a weak but significantly positive correlation with TF ($r = .312$, $p < .05$). Besides, the independent variables showed a positive correlation among them, showing that the components of Coordinated Border Management are interrelated in nature. For example, OSBP had a strong positive correlation with SWS ($r = .627$), moderate positive correlation with BMC ($r = .582$) and JOC ($r = .550$), while SWS had a strong positive correlation with BMC ($r = .601$) and a moderate positive correlation with JOC ($r = .588$) as summarized in Table 4.9. None of the correlations exceeded the commonly accepted multicollinearity threshold, indicating that the variables were suitable for inclusion in the regression model.

Diagnostic Tests
Normality of Residuals

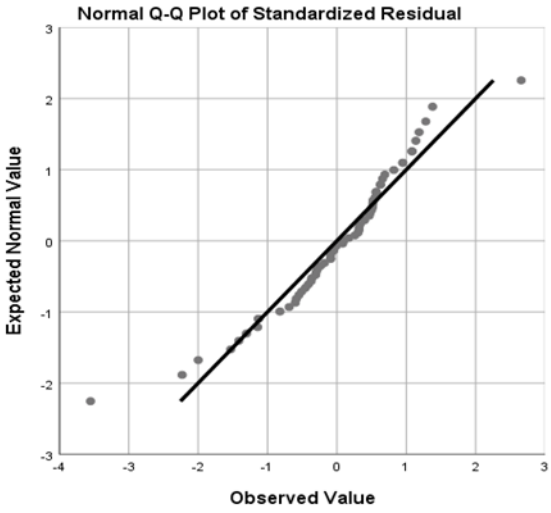


Figure 4.2. Q-Q Plot Testing Normality

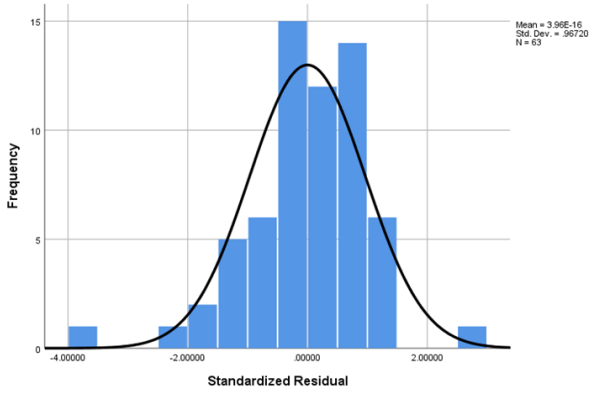


Figure 4.3: Histogram Testing Normality.

The normal Q–Q plot of standardized residuals and the histogram were used to assess normality. The points on the Q–Q plot, as shown in Figure 4.3, closely followed the diagonal line, and the histogram displayed an approximately normal distribution, as shown in Figure 4.3. These showed that the assumptions of normality were reasonably met.

Homoscedasticity and Linearity

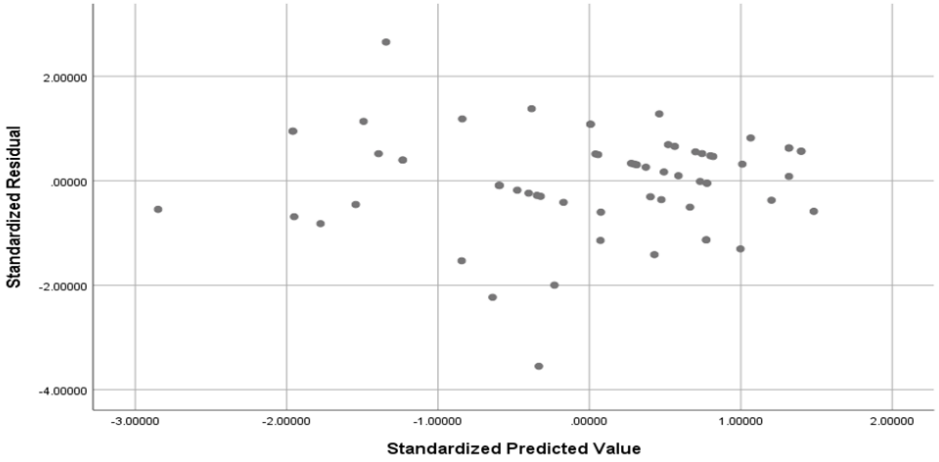


Figure 4.4. Scatter Plot Testing Homoscedasticity and Linearity

Figure 4.4 shows the scatter plot used to test both linearity and Homoscedasticity. There was no clear funneling, patterns, or systematic clustering in the scatterplot of standardized residuals versus standardized predicted values, as shown in Figure 4.4. The residuals appeared randomly and evenly dispersed around zero. This implies that the assumption of Homoscedasticity was satisfied. For the linearity test, there was no irregular clustering or major curvature as shown in Figure 4.4. This implies that the linear assumption holds for each predictor. Therefore, the assumption of linearity was met for each predictor

Multicollinearity Test

Table 4.9. Multicollinearity Findings

The research used tolerance and Variance Inflation Factor (VIF) values from the regression output to assess Multicollinearity. All predictors had acceptable tolerance values (>0.20) and VIF values below the conservative threshold of 5, indicating that Multicollinearity was not a concern, as shown in Table 4.10.

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.818	.502		3.622	.001		
	OSBP	.380	.119	.452	3.182	.002	.527	1.897
	SWS	.161	.165	.143	.977	.333	.493	2.028
	BMC	-.170	.118	-.215	-1.442	.155	.477	2.096
	JOC	.208	.110	.274	1.886	.064	.503	1.987
a. Dependent Variable: TF								

Source: Researcher

Regression Analysis

The study conducted a regression analysis to examine how much the independent variables influenced the dependent variable. The results are as in tables from Table 4.11, which shows the Model Summary, Table 4.12 shows the ANOVA results, and Table 4.13 shows the coefficients and predictor contributions**.**

Model Summary

From the model Summary findings in Table 4.11, the results show a R^2 of 0.383(38.3%) and an adjusted R^2 of 0.340 (34%) of border trade facilitation explained by the independent variables (OSBPs, SWS, BMCs and JOCs), all other factors remaining constant.

Table 4.10: The Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.619[a]	.383	.340	.45981
a. Predictors: (Constant), JOC, OSBP, SWS, BMC				
b. Dependent Variable: TF				

Source: Researcher

ANOVA

The ANOVA in Table 4.12 confirmed that the regression model was statistically significant, $F(4, 58) = 9.001$, $p < .001$, at the 0.05 level of significance. This implies that the set of predictors significantly influenced the levels of trade facilitation.

Table 4.11 is the ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.612	4	1.903	9.001	.000[b]
	Residual	12.263	58	.211		
	Total	19.875	62			
a. Dependent Variable: TF						
b. Predictors: (Constant), JOC, OSBP, SWS, BMC						

Source: Researcher

Coefficients and Predictor Contributions

The regression coefficients in Table 4.13 show that OSBP ($\beta = 0.452$, $t = 3.182$, $p = .002$) was statistically significant at the 0.05 level of significance, JOC ($\beta = 0.274$, $t = 1.886$, $p = .064$) had a positive but statistically not significant result at the 0.05 level of significance. SWS ($\beta = 0.143$, $t = 0.977$, $p = .333$) was statistically insignificant at 0.05level of significance. Finally, BMC ($\beta = –0.215$, $t = –1.442$, $p = .155$) had a weak, inconsistent, and statistically insignificant effect on TF at the 0.05 level of significance. The constant (intercept) was

statistically significant at the 0.05 level of significance (B = 1.818, t = 3.622, p = .001), indicating that TF retains a positive baseline level even when the predictors are not present.

Table 4.12: Coefficients and Predictor Contributions.

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.818	.502		3.622	.001
	OSBP	.380	.119	.452	3.182	.002
	SWS	.161	.165	.143	.977	.333
	BMC	-.170	.118	-.215	-1.442	.155
	JOC	.208	.110	.274	1.886	.064
a. Dependent Variable: TF						

Source: Researcher

Multiple Regression Interpretation

The results of this multiple regression analysis show that One-Stop Border Posts (OSBPs) influences trade facilitation (TF) at a substantial level. This implies that the improvements in border infrastructure and communication have influence on the efficiency and ease of cross-border trade. On the other hand, Joint Operation Centres, the National Single Window (SWS) and Border Management Committees did not predict TF to a substantial level when controlling for other variables, even though the three components showed positive bivariate correlations. This may suggest overlapping effects among governance structures or differing strengths of influence when modelled together.

Model 1

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

From model 1, the following equation was developed:

$$\mathbf{Y = 1.818 + 0.380 X_1 + 0.161 X_2 - 0.170 X_3 + 0.208 X_4 + .45981}$$

The findings show that one unit increases in OSBP results in an increase in Trade facilitation by .380. Evidence from TradeMark Africa and the World Trade Organization shows OSBPs improve border efficiency by reducing duplication, inspection time, and paperwork (TradeMark Africa, 2022; World Trade Organization, 2022). One unit increase in SWS results in an increase in Trade facilitation by .161. This suggests a positive relationship between SWS and trade facilitation (Field, 2018). One unit increase in BMC results in a decrease in Trade facilitation by .170. This suggests a negative relationship between BMC and trade facilitation. One unit increase in JOC results in an increase in Trade facilitation by .208. This suggests a positive relationship between JOC and trade facilitation

III. Summary, Recommendations, And Conclusion

Introduction

From the findings, TF has not reduced cost of doing business. Nonetheless, TF has witnessed increased volume of cargo clearance. In addition, TF have enhanced ease of clearance at the border. There has been reduced time to clear goods at the border. CBM has enhanced the performance of the border activities. Operational inefficiencies have not been seriously taken care of under CBM reforms. The duplication issue is still apparent in the clearance processes, and even the processes that are already automated are manually executed. Problems with the speed of internet connection, system and information sharing still exist. There are also concerns around coordination technologies like data visibility platforms, blockchain, and coordinated systems are not harnessed.

Summary of Findings

The study established persistent challenges such as limited working conditions, inadequate resource sharing, insufficient government responsiveness, and underfunded border security contribute to high operational costs. This underscores the need for comprehensive reforms beyond procedural efficiency to achieve meaningful reductions in the cost of doing business. Initiatives such as One-Stop Border Posts (OSBPs), digital permit systems, and coordinated operations among border agencies have reduced procedural bottlenecks, minimized duplication, and enhanced overall operational efficiency. This contributes to smoother cross-border trade and demonstrates the tangible benefits of TF reforms. Trade facilitation contributes to more efficient cross-border trade. Faster clearance benefits both traders and border authorities by reducing congestion, lowering operational costs, and improving predictability in trade flows. The improvements in trade facilitation reinforces the positive impact of One-Stop Border Posts (OSBPs), digitalization, procedural streamlining, and inter-agency collaboration on trade facilitation. Integration of agencies, clear delineation of responsibilities, improved inter-agency communication, and streamlined processes have resulted in faster clearance, reduced duplication, better coordination, and more effective enforcement of policies. The improvements demonstrate that CBM is a critical enabler of trade facilitation and overall border efficiency.

Influence of One-Stop Border Posts (OSBPs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study established that, One-Stop Border Posts (OSBPs) influences trade facilitation (TF) at a substantial level. one unit increases in OSBP results in an increase in Trade facilitation by .380. The infrastructure at the border has been improved. The study established that quicker release of goods has been enabled. The finding also established duplication of processes and procedures has been reduced. The study also established that communication and collaboration among border agencies have been improved. However, the working conditions at the border have not yet improved.

Influence of Single window system (SWS) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study established that, perception towards SWS was mostly favorable, and the respondents stated that it assisted in reducing the paperwork and made the clearing process easier using electronic clearance. The high support of the system was proven by the average score (M = 4.2646). SWS was also positively correlated with trade facilitation at a high significance level. From the findings, one unit increase in SWS results in an increase in Trade facilitation by .161. The study also established reduced duplication of processes and procedures at the border. The study similarly established enabled online enquiries and downloading of trade permits. The study also found that there improved interconnectivity for information exchange. However, SWS did not prove to be a powerful predictor in the regression model ($t = 0.977$, $p = .333$**),** indicating that its unique effect is feeble when it is implemented together with other elements of CBMs. This means that the performance of complementary systems such as OSBP and JOC is most likely to be highly dependent on SWS or compromised by technological constraints.

The qualitative data revealed that there existed several issues, including slow system speed, unreliable internet connections, and processes being duplicated despite automation. These issues imply that SWS has not yet reached its optimal efficiency in operations. Its overall efficacy is also compromised by the absence of system integration, agency-specific practice, and unequal enforcement of SWS across different agencies. SWS contributes to efficiency, but infrastructure and institutional issues restrain its influences.

Influence of Border Management Committees (BMCs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study established that the average perception (M =4.0079) was quite moderate at BMCs, which suggests that every stakeholder is inclined to value their input in integration agencies. BMCs were also weak but correlated considerably with trade facilitation. However, like SWS, BMCs had a negligible influence in predicting trade facilitation ($t = –1.442$, $p = .155$). From the findings, there is enhanced communication and collaboration among border agencies. BMCs facilitate regular information exchange among them and ensuring alignment with national border policy directives. The finding also established that BMCs clearly define the responsibilities among border agencies. The study found that BMCs have not resulted in improving the sharing of resources among border agencies. The study has also established that BMCs have led to feasibility and accessibility to policies related to border management. The study found that BMCs have not resulted to enhanced responsiveness of the Kenyan government to border issues. Despite the existence of committee structures intended to improve responsiveness, real changes in day-to-day border operations have lagged because systemic and infrastructure challenges persist. Institutional arrangements alone (like committees) have not resolved deeper operational problems, which still limit how quickly and effectively the government can respond to border issues such as trade bottlenecks, smuggling, and procedural delays. Finally, the study established that BMCs have not provided opportunities for joint workshops and training forums on current customs and trade issues.

Influence of Joint Operation Centres (JOCs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study established that the JOC was found to be a strong but statistically insignificant predictor of trade facilitation at a 0.05 significance level ($t = 1.886$, $p = .064$). This confirms the reality that staged operational activities, and in this case, the joint patrols, mutual intelligence and multi-agency security operations, are also instrumental in enabling a smoother and safer running of the border, but JOC alone cannot predict TF. From the findings, Joint Operation Centres have not improved information sharing among border agencies. Further findings showed that JOC has not coordinated border management and risk assessment. JOC has not enhanced responses to security threats and illegal activities. Findings also established that JOC has enhanced compliance with trade documentation and legal regulations. JOC has not ensured joint patrol interventions that are closely integrated with broader policing arrangements amongst border agencies. Inadequate funding to the security body cripples implementation efforts to scale up proper surveillance across the border points. Joint Operation Centers (JOCs) play a major role in risk assessment, security coordination, and compliance management aspects, which indirectly, but effectively, improve the facilitation of trade.

Qualitative results showed that JOCs have enhanced security, contraband interception, enhanced real-time communications between the agencies and enhancements of joint decision making. In other territories where the JOCs are not fully functioning, the agencies have been known to have joint operational practices that enhance the level of coordination. The role of JOCs follows the best practices of integrated border management, where joint operations eliminate duplication, augment control and create trust among agencies. JOCs are also used to ease trade by improving security and easing the process of coordinating operations.

Conclusions of the Study

From the findings, the study proposed the following conclusions: there is persistent challenges such as limited working conditions, inadequate resource sharing, insufficient government responsiveness, and underfunded border security contribute to high operational costs. There is need for comprehensive reforms beyond procedural efficiency to achieve meaningful reductions in the cost of doing business.

From the findings, the study concluded that initiatives such as One-Stop Border Posts (OSBPs), digital permit systems, and coordinated operations among border agencies have reduced procedural bottlenecks, minimized duplication, and enhanced overall operational efficiency. This contributes to smoother cross-border trade and demonstrates the tangible benefits of TF reforms.

From the findings, the study concluded that trade facilitation is contributing to more efficient cross-border trade. Faster clearance benefits both traders and border authorities by reducing congestion, lowering operational costs, and improving predictability in trade flows. These improvements reinforce the positive impact of One-Stop Border Posts (OSBPs), digitalization, procedural streamlining, and inter-agency collaboration on trade facilitation.

From the findings, the study concluded that integration of agencies, clear delineation of responsibilities, improved inter-agency communication, and streamlined processes have resulted in faster clearance, reduced duplication, better coordination, and more effective enforcement of policies. These improvements demonstrate that CBM is a critical enabler of trade facilitation and overall border efficiency.

Influence of One-Stop Border Posts (OSBPs) on Land Border Trade Facilitation by Kenya Revenue Authority.

From the findings, the study concluded that the integration of border control procedures, joint inspections, and coordinated customs operations at OSBPs reduces clearance time, lowers transaction costs, and improves the efficiency of cross-border trade. The substantial effect observed suggests that OSBPs are an effective trade facilitation reform instrument. Consequently, strengthening OSBP implementation can enhance regional trade competitiveness and support smoother movement of goods across borders.

From the findings, the study concluded that enhanced physical facilities, modern equipment, and upgraded ICT systems at border points have streamlined cargo clearance, reduced delays, and improved the overall movement of goods. This suggests that infrastructure development is a critical enabler of efficient cross-border trade and supports the effectiveness of One-Stop Border Posts (OSBPs).

From the findings, the study concluded that OSBP ensures faster clearance times reduce transaction costs, minimize delays, and increase the predictability of cross-border trade. This demonstrates that process optimization at border posts is a key driver of trade facilitation and complements other reforms such as One-Stop Border Posts (OSBPs) and infrastructure development.

The study concluded that consolidating inspections, harmonizing documentation, and coordinating activities among border agencies, clearance times have been shortened, operational costs reduced, and trade efficiency enhanced. This underscores the importance of integrated border management and One-Stop Border Posts (OSBPs) in eliminating procedural redundancies.

The study concluded that coordinated operations, information sharing, and joint decision-making reduce procedural delays, prevent duplication of efforts, and ensure smoother cargo clearance. This demonstrates that effective inter-agency collaboration is a critical enabler of One-Stop Border Posts (OSBPs) and overall trade efficiency.

The study concluded that there are possibility of limited office space, inadequate inspection facilities, high workloads, and lack of welfare amenities can reduce staff motivation and efficiency. Consequently, while other interventions such as OSBPs, improved infrastructure, and enhanced inter-agency collaboration have positively influenced trade facilitation, the persistence of poor working conditions may hinder full realization of these benefits.

Influence of Single window system (SWS) on Land Border Trade Facilitation by Kenya Revenue Authority.

The findings concluded that there is integrated border management reforms, infrastructural upgrades, and efficient procedures are critical for enhancing trade facilitation, but human resource conditions also need attention to maximize effectiveness. Streamlined procedures eliminate unnecessary steps, improve cargo

clearance times, and enhance overall efficiency. This demonstrates that procedural simplification is a critical component of successful One-Stop Border Post (OSBP) operations and integrated border management strategies. By providing online access to permits and information, traders experience faster processing, fewer delays, and greater transparency. This demonstrates that ICT adoption is a critical enabler of efficient border operations, complementing infrastructure improvements, procedural simplification, and inter-agency coordination. Real-time data sharing among customs, immigration, standards, and other agencies reduces delays, prevents errors, and enhances coordination. This demonstrates that robust ICT systems and inter-agency connectivity are critical enablers of efficient border operations, complementing One-Stop Border Posts (OSBPs), procedural streamlining, and digital permit systems.

The findings justify the need to achieve deeper collaboration, harmonized working procedures, and reporting procedures to Other Government Agencies (OGAs) operating at the border posts, including immigration, port health, KEBS, and plant health. The increased multi-agency coordination is particularly important since the research found that BMCs and SWS are not maximized to their absolute capacity due to the lack of unified process and unreliable usage. The implications of the results for traders, importers and exporters are that the CBM reforms are still reducing the clearance delays and enhancing predictability that can be translated to lower costs and competitiveness. This encourages the formal usage of border channels by businesses, especially SMEs that are more assured of it. This study can also be a reference used by the international bodies and the development allies in the sense that the technical and financial support in reforms of CBM yields real benefits in terms of facilitating trade. The findings support the need to sustain the capacity building, technology advancement, and the facilitation of infrastructure development. Finally, the study as a scholar and researcher will provide new evidence to a little-studied area within the context of Kenyan society and expose gaps that require scholarly research.

Influence of Border Management Committees (BMCs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study concluded that regular meetings and information exchange among border agencies reduce duplication, ensure procedural alignment, and foster consistent implementation of national border policies. This coordinated approach improves operational efficiency, minimizes delays, and strengthens the effectiveness of One-Stop Border Posts (OSBPs) and other trade facilitation measures.

The study concluded that clearly defined roles reduce duplication of efforts, prevent procedural conflicts, and ensure alignment with national and regional trade policies. This role of BMCs complements other reforms such as OSBPs, digitalization, and improved inter-agency communication, ultimately supporting faster and more reliable trade facilitation.

This limitation can reduce operational efficiency, as agencies may duplicate equipment, staff, or infrastructure investments. Addressing this gap is essential to fully realize the benefits of integrated border management and One-Stop Border Post (OSBP) operations.

From the findings, by providing a structured platform for information sharing, guidance, and clarification, BMCs help border agencies implement policies consistently and align operations with national objectives. This contributes to smoother operations, reduces policy misinterpretation, and supports more effective trade facilitation at border points.

The study concluded that delays in decision-making or inadequate follow-up on border challenges can constrain operational efficiency, reduce the effectiveness of trade facilitation reforms, and limit the influence of initiatives like OSBPs and digital systems. This highlights a gap between coordination mechanisms and actual government responsiveness.

This limits border staff's exposure to the latest customs procedures, trade facilitation best practices, and technological advancements. As a result, the potential for skill enhancement, improved operational efficiency, and consistent application of trade policies is constrained. Strengthening training programs is essential to maximize the effectiveness of BMCs and other border reforms.

Influence of Joint Operation Centres (JOCs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study concluded lack of broad institutional integration means that even where JOCs exist, information sharing remains siloed and does not extend to all border agencies, undermining the real-world effectiveness of multi-agency coordination structures. There is no specific report showing that all border agencies are integrated into a shared information exchange network.

This limitation in JOCs hinders coordinated decision-making, delays response to border challenges, and reduces the overall effectiveness of trade facilitation initiatives such as OSBPs and integrated border management reforms. The gap in information flow highlights the need for improved ICT systems, clear protocols, and enhanced inter-agency collaboration mechanisms.

The deficiency in JOC reduces the ability of border agencies to detect and mitigate risks, respond promptly to trade and security challenges, and optimize the operations of One-Stop Border Posts (OSBPs) and other trade facilitation initiatives. Strengthening the operational effectiveness of JOCs is critical to improving cross-border trade efficiency.

The challenge in JOC undermines both security and operational efficiency at the borders. The lack of integrated patrols may lead to gaps in monitoring, delayed responses to security threats, and inefficient enforcement of trade regulations. Strengthening coordination between JOCs and national policing agencies is essential for achieving the intended benefits of integrated border management.

From the findings, poorly funded operations result in inadequate monitoring, delayed responses to border risks, and under-resourced interventions, undermining the effectiveness of initiatives such as Joint Operation Centres (JOCs) and integrated border management frameworks. Adequate and sustained funding is essential to ensure that border security and trade facilitation goals are fully realized.

Recommendations of the Study

From the conclusions, the study recommended reducing redundant documentation, optimized inspections, and enhanced procedural harmonization across border agencies. Also expanding online permits, single-window systems, and e-payment platforms to reduce delays and transaction costs. Addressing human resource constraints to ensure faster and more consistent service delivery. Rapidly addressing operational bottlenecks and implement reforms that directly reduce trade costs. Ensuring adequate facilities, inspection equipment, and surveillance tools to minimize delays and associated costs. Aligning border procedures and policies with neighbouring countries in the East African Community to facilitate smoother cross-border trade and reduce costs.

The study further recommended tracking key performance indicators such as clearance times and cargo dwell times to identify areas for further improvement. Harmonizing clearance procedures with neighbouring countries in the East African Community to improve predictability and ease of cross-border trade. Strengthen collaboration through Border Management Committees (BMCs) and Joint Operation Centres (JOCs) to ensure seamless clearance processes. Expanding e-permits, single-window systems, and online enquiry services to facilitate faster clearance. Continuing harmonizing clearance procedures and reducing unnecessary steps to maintain smooth operations.

The study recommended simplifying documentation and inspection processes to sustain faster cargo movement. Enhancing e-permit, online enquiry, and single-window platforms to further reduce clearance times. Using Border Management Committees (BMCs) and Joint Operation Centres (JOCs) to ensure smooth collaboration and minimize procedural delays. Tracking metrics such as average clearance time and dwell time to identify bottlenecks and optimize operations. Ensuring inspection facilities, cargo handling equipment, and ICT systems are adequate to handle trade volumes efficiently. Aligning clearance procedures with neighbouring countries within the East African Community to further reduce delays and promote seamless cross-border trade.

The study further recommended promoting coordination among border agencies and ensure adherence to integrated procedures. Using digital platforms, BMCs, and JOCs to maintain real-time information exchange and operational alignment. Regularly training staff on CBM principles, risk management, and joint operational procedures. Tracking key metrics such as clearance times, cargo dwell time, and procedural compliance to assess CBM effectiveness. Allocating sufficient funding, infrastructure, and technology to support CBM initiatives and maintain operational efficiency. Aligning CBM practices with neighbouring countries within the East African Community to strengthen cross-border trade facilitation and security coordination.

Influence of One-Stop Border Posts (OSBPs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study recommended that the Governments should invest in modern border infrastructure, ICT systems, and adequate staffing at OSBPs to sustain and enhance their positive influence on trade facilitation. Border agencies (customs, immigration, standards, and security) should deepen coordination through joint operating procedures and information sharing to minimize duplication and delays. Policy makers should scale up the OSBP model to additional strategic border points where congestion and delays persist. Regular training of border officials on integrated border management and customer service should be prioritized to improve operational efficiency. Establish robust monitoring frameworks with key performance indicators (e.g., clearance time, cost of crossing) to track OSBP effectiveness and guide continuous improvement. Partner states within regional blocs such as the East African Community should harmonize procedures, legal frameworks, and digital systems to maximize OSBP benefits.

Governments should continue prioritizing funding for modernization and maintenance of border infrastructure to preserve efficiency gains. Border agencies should expand automation, electronic single window systems, and real-time cargo tracking to complement physical infrastructure improvements. Periodic

infrastructure audits should be conducted to identify congestion points such as parking yards, inspection bays, and access roads. Authorities should leverage PPPs to mobilize resources for continuous upgrading of border facilities. Partner states within the East African Community should standardize infrastructure and operating procedures across borders to maximize trade facilitation benefits.

The study also recommended simplifying documentation requirements and expand the use of electronic single window systems to maintain rapid goods release. Training border officials in integrated border management and risk-based inspections to reduce procedural delays. Implement automated customs systems, cargo tracking, and digital declarations to sustain quicker release times. Establish key performance indicators (e.g., average clearance time) to track progress and identify bottlenecks. Coordinating with neighbouring countries within the East African Community to standardize procedures and reduce cross-border delays.

Continue harmonizing inspection and clearance steps across all border agencies to prevent the re-emergence of redundant processes. Using electronic documentation, risk-based inspections, and single-window systems to further reduce duplication and paperwork. Conducting periodic audits of border procedures to identify and remove unnecessary steps. Training officials on integrated border management and reinforce inter-agency communication to sustain efficiency gains. Coordinating with neighbouring countries through the East African Community to standardize procedures and eliminate duplications across borders.

The study further recommends partnering with neighbouring countries in the East African Community to align collaborative frameworks and improve cross-border communication. Tracking inter-agency coordination effectiveness using key performance indicators (e.g., clearance time, error rates, number of disputes resolved jointly). Conducting joint capacity-building initiatives for staff from all relevant agencies to reinforce collaboration and shared objectives. Implementing integrated digital systems for real-time data sharing on cargo, inspections, and risk assessments. Establishing formal communication protocols, joint task forces, and regular coordination meetings among border agencies.

Ensuring that government and border authorities prioritize working condition improvements as part of broader trade facilitation reforms. Offering professional development opportunities and team-building programs to enhance motivation and operational effectiveness. Introducing performance-based incentives and recognition programs to improve morale and productivity. Implement staff rotation and optimize shift schedules to reduce excessive workload and burnout. Ensuring proper lighting, ventilation, and ergonomically designed workstations to reduce fatigue and health risks. Providing adequate office space, inspection facilities, rest areas, and basic amenities to support staff well-being.

Influence of the Single window system (SWS) on Land Border Trade Facilitation by Kenya Revenue Authority.

Continue investing in border infrastructure, ICT systems, and modern facilities to further reduce congestion and delays. Maintain harmonized and standardized clearance procedures across all border agencies to ensure efficiency. Institutionalize joint operations, communication protocols, and shared information systems to sustain coordination. Improve welfare, office facilities, rest areas, and ergonomics to boost staff morale and productivity. Expand the use of electronic single windows, real-time cargo tracking, and risk-based inspections to maintain faster goods release. Implement KPIs for clearance time, duplication reduction, staff efficiency, and overall trade facilitation to guide improvements. Align procedures, infrastructure, and collaborative frameworks with neighbouring countries within the East African Community to maximize cross-border trade benefits.

Collaborating with neighbouring countries in the East African Community to harmonize procedures across borders. Training border staff on streamlined processes and the importance of eliminating duplication. Conducting periodic evaluations to identify bottlenecks and remove unnecessary steps. Expanding electronic documentation, single-window systems, and risk-based inspections to further reduce repetitive procedures. Continuously review and standardize processes across all border agencies to prevent re-emergence of redundancies.

Aligning online permit systems with neighbouring countries through the East African Community for seamless cross-border operations. Tracking system usage, response times, and user satisfaction to guide continuous improvements. Providing guidance and training to both traders and border staff on using online platforms effectively. Maintaining robust ICT infrastructure, cybersecurity, and technical support to minimize downtime and disruptions. Developing additional online services, including permit applications, status tracking, and notifications, to further reduce in-person visits.

Ensure all border agencies are connected via secure networks for real-time data exchange and joint decision-making. Harmonizing data formats and sharing protocols to avoid miscommunication or delays. Regularly update software, servers, and communication networks to maintain high-speed connectivity and prevent downtime. Building capacity for border staff to effectively use interconnectivity tools for operations, monitoring, and reporting. Aligning information exchange systems with neighbouring countries within the East African Community to enhance cross-border trade coordination.

Influence of Border Management Committees (BMCs) on Land Border Trade Facilitation by Kenya Revenue Authority.

The study recommended tracking the effectiveness of BMCs in reducing delays, duplication, and misalignment with national policy to inform improvements. Ensuring BMC practices are harmonized with neighboring countries within the East African Community to support cross-border trade facilitation. Using digital platforms to support BMC communication, track joint decisions, and ensure timely information flow. Developing standard procedures for reporting, data sharing, and decision-making across border agencies. Ensuring BMCs have clear mandates, representation from all relevant agencies, and regular meeting schedules to maintain coordination.

Documenting the specific responsibilities of each border agency and regularly update them to reflect policy or operational changes. Linking agency performance to their defined responsibilities and monitor adherence through KPIs or performance audits. Training staff on inter-agency roles and responsibilities to prevent overlap and ensure smooth operations. Aligning digital platforms and information-sharing tools with defined agency roles to facilitate efficient workflow. Coordinating with neighbouring countries in the East African Community to standardize agency roles and responsibilities at cross-border points.

Working with neighbouring countries within the East African Community to encourage resource-sharing mechanisms at cross-border points. Training agency staff on resource optimization and the benefits of sharing to improve compliance and efficiency. Tracking how shared resources are utilized and assess whether resource-sharing arrangements are effective. Encouraging border agencies to pool resources or coordinate budgets to reduce duplication and improve efficiency. Establishing clear guidelines and agreements for sharing equipment, inspection facilities, and staff among agencies at the borders.

Aligning national policies with regional frameworks within the East African Community to ensure consistency and accessibility across borders. Using online systems to provide easy access to policies, guidelines, and updates for border staff and traders. Tracking adherence to policies and collect feedback from agencies to refine and improve policy accessibility. Conducting targeted training sessions for staff to ensure clear understanding of border management policies. Regularly updating and circulate policy documents to all border agencies via meetings, workshops, and digital platforms.

Creating dedicated units or hotlines for urgent operational issues at border points. Establish clear timelines and protocols for government response to border issues raised by BMCs. Implementing performance indicators to track how quickly government directives or interventions are executed. Using digital platforms to log, track, and escalate border issues to relevant authorities for timely action. Aligning national response mechanisms with regional frameworks within the East African Community to support coordinated cross-border problem-solving. Create dedicated units or hotlines for urgent operational issues at border points.

Organizing regular forums and workshops for staff from all border agencies to discuss current customs, trade issues, and best practices. Creating an annual training calendar aligned with national and regional trade facilitation priorities. Using e-learning modules, webinars, and virtual workshops to reach border staff at multiple locations. Promoting knowledge exchange between agencies to build collaborative problem-solving skills. Tracking participation, learning outcomes, and application of skills to assess influence on trade facilitation. Collaborating with neighbouring countries in the East African Community to conduct joint training initiatives, promoting harmonized procedures across borders.

Influence of Joint Operation Centres (JOCs) on Land Border Trade Facilitation by Kenya Revenue Authority.

From the conclusions of the study, the study recommends developing standard operating procedures for real-time data exchange and reporting between agencies operating within JOCs. Implementing secure, integrated digital platforms that allow seamless sharing of cargo, inspection, and risk information. Training personnel in using JOC systems effectively and in best practices for collaborative decision-making. Assessing the effectiveness of JOCs in promoting information exchange and identify bottlenecks for improvement. Harmonizing JOC operations with neighbouring countries within the East African Community to enhance cross-border collaboration.

Implementing structured procedures for collaborative risk identification, analysis, and mitigation among agencies. Clearly define roles and responsibilities for coordinating border management and risk assessment. Provide secure platforms for sharing real-time risk information, cargo data, and alerts among JOC participants. Training personnel on integrated border management, risk assessment methodologies, and joint decision-making processes. Establishing KPIs to track the effectiveness of JOCs in coordinating management and responding to border risks. Align JOC risk assessment and coordination practices with neighbouring countries within the East African Community to improve cross-border risk management.

Establishing formal mechanisms for joint patrol planning and execution in alignment with broader law enforcement strategies. Standardizing procedures for patrol interventions, risk response, and cross-agency

communication. Conducting joint training exercises for border agencies and police to build coordination, operational readiness, and familiarity with protocols. Use digital tools to coordinate patrol schedules, share real-time intelligence, and monitor interventions across agencies. Tracking patrol coverage, incident response times, and coordination efficiency to improve planning and accountability. Aligning joint patrol strategies with neighbouring countries within the East African Community to strengthen cross-border security and trade facilitation.

Ensuring sufficient funding for surveillance equipment, personnel deployment, and operational logistics. Targeting limited funds to the most critical areas for surveillance and enforcement. Collaborating with private sector stakeholders and regional partners to supplement funding for surveillance infrastructure and technology. Using digital monitoring, remote sensors, and automated surveillance systems to maximize coverage with limited budgets. Tracking expenditure and outcomes to ensure that funding translates into improved operational performance. Aligning funding and resource mobilization strategies with neighbouring countries within the East African Community to strengthen joint surveillance and cross-border security initiatives.

Recommendations for Future Studies

Future studies should consider the issue of including other border agencies to provide an expanded view of the implementation of CBM, coordination and operational efficiencies. Inclusion of additional agencies such as immigration, KEBS, port health, security services and plant health would provide a more multidimensional representation of the activities on the borders. Future studies can also be followed with longitudinal research to examine how the influence of CBM strategies evolves over time and whether the benefit in facilitation of trade is lasting. Additionally, researchers should also explore the performance and integration of the respective technological systems, such as SWS, KENTRADE, scanners, and automated gates, to learn more about the low performance of some of the components despite their promising theoretical performance. Future research can also seek objective data on performance, such as actual clearance times, cargo volumes, system downtime reports or compliance rates to substitute subjective data based on self-perceptions like the one used in this study. Finally, research may also be implemented to explore organizational behavior and leadership structure within CBM systems to value the influence of the reporting lines, decision processes, and inter-agency relationships on the effectiveness of CBM strategies.

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