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Effect of Information Technology Processes on Customs Performance of Logistics Companies in Mombasa County in the Last Five Years

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Abstract

The transportation and logistics industry is vital to global trade, facilitating the movement of goods across borders. However, customs performance among logistics companies in Mombasa County has been unsatisfactory, with inefficiencies and high transaction costs caused by nontariff barriers and complex customs procedures. This study investigated the effect of information technology processes on customs performance of logistics companies in Mombasa County over the past five years. Specifically, it examined the influence of the Export Booking Module and the Electronic Cargo Tracking System (ECTS). The study was anchored on the Diffusion of Innovation Theory and the Unified Theory of Acceptance and Use of Technology, adopting an explanatory research design. The target population comprised 732 registered logistics companies, from which 258 were selected through simple random sampling. Customs supervisors served as respondents, and data were collected using structured Likert-scale questionnaires. A pilot study among logistics companies in Kilifi County tested validity and reliability through factor analysis and Cronbach's alpha. Data were analyzed using descriptive, correlation, and regression techniques and presented in tables and graphs. Results indicated that both the Export Booking Module (β=0.482, p=0.000) and ECTS (β=0.265, p=0.000) had positive and significant effects on customs performance. The study concluded that these technologies enhance data accuracy, transparency, and compliance while reducing delays and costs. It recommends wider adoption of automated export booking and tracking systems, improved staff training, and stronger collaboration with customs authorities to streamline documentation and improve logistics efficiency.

Keywords : *Information technology processes, export booking module and electronic cargo trucking system, and customs performance*

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1. Introduction

Logistics is a key contributor to a country's economy as it is important to different stakeholders. These include manufacturers, importers, exporters, consumers, and the government, among others (Tang & Abosedra, 2019). Efficient logistics ensure the timely, safe, and cost-effective delivery of goods to the final destination of consumption. Additionally, logistics cost accounts for a major component of the input cost in all sectors (Sebata, 2024). Logistics is also a key factor in facilitating international trade and an important player in economic development (Şahan, 2021). To increase business performance, good logistics results necessitate a compromise between the requirement to lower total inventory levels in the supply chain and lead times while leveraging economies of scale and increasing customer service (Adeniran, Efunniyi, Osundare, & Abhulimen, 2024).

According to Kibiy (2020), one of the measures implemented by Customs administrations to improve their performance includes reforms of customs procedures by the application of technology. Information technology processes are critical components influencing human life, economic relations, and societal well-being. Technological advancements have led to significant transformations across many industries, making processes faster and more efficient (Ganguly, 2023). Automation is promoted as one of the factors that have been shown to improve logistics competence and, at the same time, reduce operational costs (Gudehus & Kotzab, 2009). As such, new technologies adopted in the customs departments have helped in making the logistics work easier and better in the process of improving service delivery. The use of information technologies results in largely discontinuing the direct contact between the different bodies, saving time and resources and limiting the opportunities for errors and omissions (Antov, 2017).

According to the World Bank, Kenya's logistics performance is termed as the best in East Africa due to the continued removal of administrative controls as well as the continued improvement of infrastructure. Mwangangi (2016) asserts that Kenya's logistics performance is second in the African continent after South Africa, which is in the 20th position on the global survey with a score of 3.78. This Logistic Performance Indicator (LPI) indicates that Kenya has greatly reduced the costs of doing business, and it has improved its trade flow for exporters and importers. According to the World Bank report (2019), efficient logistics connect forms to international and domestic trade through reliable supply chain networks, which is a major characteristic of the Kenyan trade. Also, the adoption of new technology is credited as a key aspect of the good performance of the customs departments in Kenya, making it a viable topic for research.

1.1 Problem Statement

The transportation and logistics industry is critical to the global economy, moving goods and products across borders and around the world (Coe, 2017). As trade has become more globalized, customs have become increasingly important in ensuring the safe and efficient movement of goods. Customs play a critical role in logistics and supply chain management by regulating the flow of goods across borders and ensuring compliance with trade regulations (Shubailat, Al-Zaqeba, Madi & Ababneh, 2024). Effective management can reduce delays, enhance trade compliance, and lower costs. Moreover, the Customs Services Department (CSD) accounts for over 45% of all tax revenue collection in Kenya. As such, customs

performance remains crucial for the micro and macro-economic development of the country (Muathe, 2021).

Kenya was ranked position 68 with a Logistics Performance Index (LPI) of 2.65, last released in 2023 (World Bank, 2023), indicating that customs procedures need to be improved to ensure seamless clearance of imports and exports. Studies have shown that customs cargo clearance procedures have a strong influence on cargo clearance efficiency and turnaround time (Matunda, 2019; Mwamutsi, 2022; Ricardianto et al., 2023; Chinnapareddy & Zemede, 2019). Customs performance of logistic companies in Mombasa has not been satisfactory. Various instances of inefficiency have been reported. The cost of business transactions among the logistics companies in Mombasa has more than doubled due to the imposition of nontariff barriers and other complex procedures of customs administration (Nganda, 2021). Ineffective KRA officers have led to the incurring of extra storage costs. Importers incur an unprecedented extra Sh10 million each day due to payment for cargo storage charges and extra taxes owing to the imposed nontariff barrier. The delay in container cargo clearance at the port of Mombasa is hindering trade. The clearance period is usually long, and containers overstay at the port for more than 10 to 12 days (Owino & Mumia, 2019). Customs performance revolves around collecting customs revenue, which directly depends on the level of efficiency in the customs processes and procedures. Information technology processes play a significant role in simplifying and harmonizing border and administrative procedures. It leads to enhanced efficiency and effectiveness in the customs system (Mrabu & Mutua, 2024).

Various studies conducted on information technology processes and customs performance have left gaps that need to be addressed. For instance, Njigigua and MINCU (2018) examined the effect of technological integration on the customs performance at the port of Mombasa. The study focused on three specific areas, namely, integrated systems, smart gates, non-intrusive technology, and their impact on customs performance, hence presenting a conceptual gap. Mumia (2021) sought to establish Effect of automation of the customs release process on customs performance at the port of Mombasa in Kenya, but the study was conducted among clearing agents, hence presenting a contextual gap. Mutunga (2019) examined the influence of technology adoption on customs performance in the customs and Border management at Busia and Malaba OSBPs in Kenya, hence presenting a contextual gap. The current study, hence, sought to investigate the effect of information technology processes on customs performance of logistics companies in Mombasa County in the last five years to fill this gap

1.2 Research Objective

i. To determine the effect of the export booking module on the customs performance of logistics companies in Mombasa County in the last five years
ii. To assess the effect of Electronic Cargo Trucking System (ECTs) on the customs performance of logistics companies in Mombasa County in the last five years

1.3 Research Hypothesis

H_{01}: Export booking module has no significant effect on customs performance of logistics companies in Mombasa County in the last five years

H_{02}: Electronic Cargo Trucking System (ECTs) has no significant effect on customs performance of logistics companies in Mombasa County in the last five years

2. Literature Review

2.1 Theoretical Review

2.1.1 Diffusion of Innovation Theory

The theory was developed by Rogers and Williams (1983) and is concerned with how, why, and the rate at which new ideas and technological developments spread across cultures, and how they operate at both the individual level and the firm level. The core premise of the theory is that innovations are transmitted through specific channels, over specific timelines, and within specific social systems. The degree to which individuals adopt innovations is determined by a host of characteristics, and the proportion of a population that adopts an innovation is normally distributed over time.

The theory holds that the rate at how it diffuses and the nature of the diffusion are determined by certain behavioural characteristics (Dearing & Cox, 2018). The adoption of technology implies that an individual or a firm has acquired an idea or technology that allows them to do something differently when compared to how they had previously been doing it. At the centre of the theory are concepts of the mechanisms of diffusion (Aluoch, Odondo, & Ndede, 2018). The mechanisms that buttress faster adoption of technology include trialability, complexity, and observability.

Trial ability relates to the degree to which the innovation is tested and experimented with because of its inclusion (Thomke, 2003). Complexity refers to the degree to which the ease of use of a technology influences its adoption. This implies that if a complex technology requires considerable learning, users persevere in its adoption (FakhrHosseini et al., 2024). On the other hand, observability is concerned with how visible the use and effects of use of the technology are to others. These factors determine the extent to which an individual or a firm will examine compatibility with the technology and move towards adopting it to satisfy its needs (Rogers, 1983).

This theory will be used to support all the study variables of the study as it helps in explaining the development of information technology processes, the rationale of adoption, how and where the technology has been adopted, and the potential benefits of adoption to the customs department of logistic companies. The interaction between the adoption by logistic companies and their customers is an indicator of the degree of success of adoption and, by extension, the influence on the performance of the customers. In this regard, the theory theorizes that when information technology processes are well implemented will result in efficiency in customs operations and subsequently improved customs performance.

2.1.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology was developed by Venkatesh et al. (2003). The theoretical model of UTAUT suggests that the actual use of technology is determined by behavioural intention. The perceived likelihood of adopting the technology is dependent on the direct effect of four key constructs, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. The effect of predictors is moderated by age, gender, experience, and voluntariness of use. According to Venkatesh Thong and Xu (2016), performance expectancy, effort expectancy, and social influence are determinants of usage intention and behaviour, while facilitating conditions are a direct determinant of user

behaviour. Factors such as age, gender, experience, and voluntariness weaken the influence of four key constructs on usage intention and behaviour.

Performance expectancy is defined as the degree to which an individual or an organization believes that using the system will help him or her to attain gains in job performance (Venkatesh et al., 2003). It is the strongest predictor of use intention and is significant in both voluntary and mandatory settings (Zhou, Lu & Wang, 2010; Venkatesh, Thong & Xu, 2016). Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003). The effect of the construct becomes non-significant after extended usage of technology (Gupta, Dasgupta & Gupta, 2008; Chauhan & Jaiswal, 2016). Social Influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh et al., 2003). The effect of social influence is significant when the use of technology is mandated (Venkatesh et al., 2003). In the mandatory context, individuals might use technology due to compliance requirements, but not personal preferences (Venkatesh & Davis, 2000). Facilitating conditions are defined as the degree to which an individual believes that an organization's technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). Facilitating conditions have a direct positive effect on intention to use, but after initial use, the effect becomes non-significant.

The assumption relies on the designs of eight models that describe information systems usage behaviour. These models include the theory of reasoned action, the technology acceptance model, the motivational model, the theory of planned behaviour, and social cognitive theory (Yousafzai, Foxall, & Pallister, 2010). Also, the models entail diffusion of innovations theory, the model of personal computer use, and a combined theory of planned behaviour or technology acceptance model. UTUAT involves variables such as trust and confidentiality, convenience and cost, and user satisfaction and culture (Taherdoost, 2018).

The actual use of any information system implicitly relies on the existence of an intention to use it. But, the continuation of using the information system depends on two beliefs: In the first stage, the information system has to be accepted by the users. Then, continuing usage, which comes after acceptance, depends on users' satisfaction with the system. In the organizational environment, it means continuing to increase the investment in information technology processes (Hong, Thong, and Tam, 2006). Ajzen (1985) explained that the users' successful control of the factors means successful actual usage behavior. These factors could be previous experiences and skills, willpower, abilities, or any workable plans that may control the factors. Accordingly, the successful behavior does not only depend on a favorable intention, but it also depends on the behavioral control.

This theory will also be used to anchor all independent variables, as it explains the factors that may affect the adoption and continued use of any information technology processes. Logistic firms and individual employees of the firms will adopt any of the information technologies, such as the export booking module, electronic cargo trucking system, single window system, and one-stop border activities, and continue to use them based on the performance expectancy, effort expectancy, social influence, and facilitating conditions.

2.2 Empirical Review

2.2.1 Export Booking Module and Customs Performance

Zwaan (2024) investigated the impact of the e-commerce goods flow on the efficiency and effectiveness of customs clearance at airports, with a focus on order processing activities in both an integrated and traditional supply chain. Eight semi-structured expert interviews in the field of air cargo, e-commerce, logistics integrators, and/or customs clearance were conducted to gain insight into the different perspectives of this supply chain. The study indicated that e-commerce order processing significantly influences the efficiency and effectiveness of customs clearance, due to high volumes and a lack of sufficient data sharing.

Mumia (2021) sought to establish the effect of automation of cargo documentation on customs performance at the Port of Mombasa, Kenya. This study was founded on the unified theory of technical acceptance and use of technology. The study's target population consisted of 1500 Clearing Agents. The sample size of 306 was determined using the Yamane formula. Simple random sampling was adopted to select respondents from the population. The main data collection instrument adopted for this study was the questionnaire, which was self-administered to the respondents. The study found that improving automation of cargo documentation leads to improved customs performance. It was also concluded that improving system automation will lead to improved customs performance at the port of Mombasa in Kenya.

Antwi and Owusu-Agyeman (2020) aimed to find out the impact of e-commerce on logistics and find out the common general problems and countermeasures of Jumia Ghana Logistics Company.110 questionnaires were given to both employees and customers of the company using simple random techniques. The data were analyzed quantitatively. The study revealed positive correlations between e-commerce and logistics.

2.2.2 Electronic Cargo Trucking System (ECTs) and Customs Performance

Wakuka (2024) assessed the impact of the regional electronic Cargo Trucking System (RECTS) on cargo security with a focus on KRA customs operations. The study addressed the impact of RECTS cargo tracking, monitoring, and real time response on cargo security. The research adopted a descriptive research design. The target population for this study was the 140 rapid response units (RRUs) and the cargo monitoring unit (CMU) staff working at the five designated RRU stations along the Northern Corridor. Stratified simple random sampling was used to select 104 KRA staff to participate in the study. The primary data was collected by means of a self-administered questionnaire. Secondary data was collected from the records of the Cargo Monitoring Unit on incidents of theft, tampering, and damage of cargo. The data was analyzed using descriptive and inferential statistics. The study established that the independent variables of cargo tracking, cargo monitoring, and real-time response, positively and significantly influence cargo security. The findings of the study revealed that cargo tracking enhances the security of the cargo by deterring cases of cargo diversion and by providing the exact location of the stolen, damaged, or tampered cargo, enabling the rapid response unit to locate the cargo and resolve the situation immediately. Cargo monitoring enhances cargo security by providing real-time alerts in respect of cargo seal tampering, which minimises the tampering that previously occurred during the changeover of seals at border points. Additionally, real-time response enhances the security of cargo by reducing the time taken by the rapid response unit to respond to and resolve cases of theft, tampering, and cargo accidents during transit.

Foya (2022) investigated the impact of the Electronic Cargo Tracking system initiative on transit fraud: A case of Zimbabwe Revenue Authority. The main objectives were to examine the impact of the ECTS initiative on transit fraud and examine the impact of the ECTS initiative on revenue collection. The research questions were to find out what challenges are being faced by transporters due to the implementation of the ECTS. As well as what has been the impact of the ECTS initiative on revenue collection? A descriptive research design was adopted for this study. The sampling technique that was adopted was purposive as it was deemed ideal by the researcher to effectively collect all the necessary data for the study. Data was collected through interviews that were carried out with key informants, questionnaires, as well as focus group discussions with other stakeholders. The study established that the system implemented so far has reduced corruption by thirty-eight percent. Furthermore, it noted that the system is greatly assisting in revenue collection and brought better control of cargo, and thereby reduced contraband and reduced smuggling on a large scale by the drivers of various companies.

Mutinda, Baimwera, and Limo (2021) sought to determine the effects of ECTs implementation on the performance of the C&BC department in Kenya. The specific objectives were to: find out the effect of ECT system infrastructure, ECT's users, and ECT compatibility on the performance of the C&BC department in Kenya. An explanatory research approach guided the study. The population for this research comprised 440 respondents, encompassing the Top KRA management, employees working at the Customs and Border Control Department, and the Transit Monitoring Unit (TMU). Slovin's formula (1960) was used in getting a sample size of 80 respondents who were selected using stratified random sampling. Data for the study were collected using primary means using structured questionnaires. The collected data were analyzed using descriptive and inferential statistics and presented in tables and figures. The study found that the three aspects of ECT investigated, including System Infrastructure, User Ability, and System Compatibility, had a positive effect on C&BC department performance. The study thus concluded that the sustainability, viability, and profitability of the C&BC department will be based on the efficiency in the coordination of these aspects.

3. Methodology

The study utilized an explanatory research design. The target population was 732 registered logistics companies in Mombasa County, who were sampled using simple random sampling to select 258 logistics companies. The study respondents were customs supervisors from the logistics companies. Data collection was done using structured Likert scale questionnaires. A pilot study was conducted among logistic companies in Kilifi County, and the data was used to test the validity of the questionnaire through factor analysis and reliability through Cronbach's alpha. Data analysis was through descriptive, correlation, and regression analysis.

4. Results and Discussion

4.1 Descriptive Analysis

Descriptive analysis results for the study variables are given in this section.

4.1.1 Export Booking Module

Descriptions for export booking module have been presented in Table 1.

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Table 1: Export Booking Module

statement	Strongly disagree	Disagree	Neutral	Disagree	Strongly agree	Mean	std. dev
Export booking requests are done via online platforms	5.70%	10.00%	15.60%	38.90%	29.90%	3.77	1.15
The bill of lading is generated electronically	12.80%	22.30%	4.70%	12.80%	47.40%	3.60	1.55
We usually make tariff charges queries online	6.60%	9.50%	7.10%	58.30%	18.50%	3.73	1.08
The booking confirmation copies are available online	11.80%	10.40%	6.20%	35.50%	36.00%	3.73	1.36
Booking confirmation copies are also sent via email	10.90%	1.90%	10.40%	48.30%	28.40%	3.82	1.19
Using electronic platforms to report discrepancies between booking confirmation and original booking details eliminates extra cancellation charges	13.30%	34.10%	12.80%	22.70%	17.10%	2.96	1.34
All charges on export bookings are done via online channels	22.30%	20.40%	8.10%	23.70%	25.60%	3.10	1.54
Making booking payments through electronic platforms reduces the overall cost of exporting	9.00%	11.40%	7.10%	38.40%	34.10%	3.77	1.28
The use of the export booking module reduces the time between the booking request and the booking confirmation	4.30%	12.30%	22.70%	39.80%	20.90%	3.61	1.08
The use of the export booking module has helped address the initial challenges encountered in the traditional booking methods	6.60%	16.10%	7.10%	40.30%	29.90%	3.71	1.24
Average						**3.58**	**1.28**

Results showed that the majority of the respondents who were 68.8% agreed with the statement that export booking requests are done via online platforms (mean=3.77, std.dev=1.15). Further results showed that the majority of the respondents who were 60.2% agreed with the statement

that the bill of lading is generated electronically (mean=3.60, std.dev=1.55). In addition, results showed that the majority of the respondents who were 76.8% agreed with the statement that they usually make tariff charges queries online (mean=3.73, std.dev=1.08). In addition, results showed that the majority of the respondents who were 71.5% agreed with the statement that the booking confirmation copies are available online (mean=3.73, std.dev=1.36). Further results showed that the majority of the respondents who were 76.7% agreed with the statement that booking confirmation copies are also sent via email (mean=3.82, std.dev=1.19). In addition, results showed that the majority of the respondents who were 71.5% agreed with the statement that the booking confirmation copies are available online (mean=3.73, std.dev=1.36). Further results showed that the majority of the respondents who were 47.4% agreed with the statement that using electronic platforms to report discrepancies between booking confirmation and original booking details eliminates extra cancellation charges (mean=2.96, std.dev=1.34).

Further results showed that the majority of the respondents who were 49.3% agreed with the statement that all charges on export booking are done via online channels (mean=3.10, std.dev=1.54). In addition, results showed that the majority of the respondents who were 72.5% agreed with the statement that Making booking payments through electronic platforms reduces the overall cost of exporting (mean=3.77, std.dev=1.28). In addition, results showed that the majority of the respondents who were 60.7% agreed with the statement that the use of the export booking module reduces the time between booking request and booking confirmation (mean=3.61, std.dev=1.08). Further results showed that the majority of the respondents who were 70.2% agreed with the statement that the use of the export booking module has helped address the initial challenges encountered in the traditional booking (mean=3.71, std.dev=1.24).

The average mean was 3.58, which implies that the majority of the respondents agreed with the statements on export booking module. The standard deviation was 1.28, which implied that the respondents' responses were varied from the mean.

4.1.2 Electronic Cargo Tracking System

Descriptions for the Electronic Cargo Tracking System have been presented in Table 2.

Table 2: Electronic Cargo Tracking System

statement	Strongly disagree	Disagree	Neutral	Disagree	Strongly agree	Mean	std. dev
Electronic cargo tracking system data communication networks have been providing real-time information on the goods in transit, enhancing faster clearance of cargo.	18.50%	22.70%	7.60%	31.80%	19.40%	3.11	1.44
The system's central monitoring unit has been efficient in information storage	10.00%	9.00%	16.60 %	51.70%	12.80%	3.48	1.14
The use of Electronic seals and geo-fencing has helped	10.40%	19.00%	7.10%	38.90%	24.60%	3.48	1.33

reduce theft of goods in transit							
The ECTs Centralized Monitoring Centre (CMC) can provide information even when the system is offline	7.10%	24.60%	4.70%	33.20%	30.30%	3.55	1.33
The system hardware, i.e., the geo fence, is properly located along the routes and captures correct data avoiding delays	21.30%	21.80%	8.50%	22.30%	26.10%	3.10	1.53
The users requires minimum training to understand and use of the Electronic Tracking Systems controls and hardware	11.40%	10.90%	5.70%	46.90%	25.10%	3.64	1.28
The Electronic Cargo Tracking system captured information is easily accessible to the end user	9.50%	16.10%	8.50%	35.50%	30.30%	3.61	1.32
The users educational background makes it easier to understand and use the Electronic Cargo Tracking systems	10.00%	6.20%	9.50%	46.40%	28.00%	3.76	1.21
The Electronic Cargo Tracking systems is efficient and useful to the users	8.50%	18.00%	4.30%	31.30%	37.90%	3.72	1.36
The information captured by the Electronic Cargo Tracking system is easily interpreted by the end user	10.00%	9.00%	15.20 %	49.30%	16.60%	3.54	1.17
The ECT system can pair and work well with the latest versions of systems	16.10%	17.50%	8.10%	35.50%	22.70%	3.31	1.41
The system allows multiple users to be online and work at the same time.	8.50%	23.70%	6.20%	33.20%	28.40%	3.49	1.35
The system can pair and work easily with old versions of other systems	9.00%	16.60%	7.60%	33.20%	33.60%	3.66	1.33
The system is compatible with the other set-up organizational systems	12.80%	10.40%	5.20%	45.50%	26.10%	3.62	1.32
The system is compatible with other systems in neighboring counties	12.80%	15.20%	7.60%	33.20%	31.30%	3.55	1.40
Average						**3.51**	**1.33**

The results showed that the majority of the respondents who were 51.2% agreed with the statement that electronic cargo tracking system data communication networks have been providing real-time information on the goods (mean=3.11, std.dev=1.44). Further results showed that the majority of the respondents who were 64.5% agreed with the statement that the systems' central monitoring unit has been efficient in information storage (mean=3.48, std.dev=1.14). In addition, results showed that the majority of the respondents who were 63.5% agreed with the statement that the use of electronic seals and geo fence has helped reduce theft of goods in transit (mean=3.48, std dev=1.33). Further results showed that the majority of the respondents who were 63.5% agreed with the statement that the ECTs Centralized Monitoring Centre (CMC) can provide information even when the system is offline (mean=3.55, std.dev=1.33).

In addition, results showed that the majority of the respondents who were 48.4% agreed with the statement that the system hardware, i.e., the geo fence, is properly located along the routes and captures correct data avoiding delays (mean=3.10, std.dev=1.53). In addition, results showed that majority of the respondents who were 72.0% agreed with the statement that the users requires minimum training to understand and use of the Electronic Tracking Systems controls and hardware (mean=3.64, std.dev=1.28). Further results showed that majority of the respondents who were 65.8% agreed with the statement that the Electronic Cargo Tracking system captured information is easily accessible to the end user (mean=3.61, std.dev=1.32). In addition, results showed that majority of the respondents who were 74.4% agreed with the statement that the users educational background makes it easier to understand and use the Electronic Cargo Tracking systems (mean=3.76, std.dev=1.21).

In addition, results showed that the majority of the respondents who were 69.2% agreed with the statement that the electronic cargo tracking systems are efficient and useful to the users (mean=3.72, std.dev=1.36). Further results showed that the majority of the respondents who were 65.9% agreed with the statement that the information captured by the Electronic Cargo Tracking system is easily interpreted by the end user (mean=3.54, std.dev=1.17). In addition, results showed that the majority of the respondents who were 58.2% agreed with the statement that the ECT system can pair and works well with the latest versions of systems (mean=3.31, std.dev=1.41).

Further results showed that the majority of the respondents, 61.6% agreed with the statement that the system allows multiple users to be online and work at the same time. (mean=3.49, std.dev=1.35). In addition, results showed that the majority of the respondents who were 66.8% agreed with the statement that the system to pair and work easily with old versions of other systems (mean=3.66, std.dev=1.33). Further results showed that the majority of the respondents who were 71.6% agreed with the statement that the system allows multiple users to be online and work at the same time (mean=3.62, std.dev=1.32). In addition, results showed that the majority of the respondents who were 64.5% agreed with the statement that the system is compatible with other systems in neighboring counties (mean=3.55, std.dev=1.40).

The average mean was 3.51, which implies that the majority of the respondents agreed with the statements on the electronic cargo tracking system. The standard deviation was 1.33, which implied that the respondents' responses were varied from the mean.

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4.1.3 Customs Performance

Descriptive statistics for customs performance have been presented in Table 3.

Table 3: Customs Performance

statement	Strongly disagree	Disagree	Neutral	Disagree	Strongly agree	Mean	std. dev
The revenue from the customs brokerage services has been on the increase in the last five years	10.90%	6.60%	10.00%	25.10%	47.40%	3.91	1.35
Our company's revenue from customs clearance management services has been increasing in the last five years	11.40%	1.90%	18.00%	39.30%	29.40%	3.73	1.23
We have been able to increase the income generated from assisting customers in customs-related documentations	11.40%	4.30%	8.50%	51.70%	24.20%	3.73	1.21
We have managed to significantly cut costs related to trade operations of our customers in the last five years	4.70%	14.20%	18.00%	37.90%	25.10%	3.64	1.14
In the last five years, we have managed to improve our delivery time	10.00%	11.40%	14.20%	33.60%	30.80%	3.64	1.3
We have managed to enhance the reliability of our services in the last five years	8.50%	4.30%	6.60%	28.90%	51.70%	4.11	1.23
In the last five years, we have greatly contributed towards reducing cases of theft of cargo of our customers	7.60%	4.70%	2.40%	24.20%	61.10%	4.27	1.2
Our company has been very instrumental in fighting illegal trade in the last five years	11.40%	3.30%	15.20%	46.90%	23.20%	3.67	1.2
The company has been successful in detecting counterfeit products in the last five years	6.60%	5.70%	16.10%	45.50%	26.10%	3.79	1.10
Average						**3.83**	**1.23**

The results showed that the majority of the respondents who were 72.5% agreed with the statement that the revenue from the customs brokerage services has been on the increase in the last five years (mean=3.91, std.dev=1.35). In addition, results showed that the majority of the respondents who were 68.7% agreed with the statement that the company's revenue from customs clearance management services has been increasing in the last five years (mean=3.73, std.dev=1.23). Further results showed that the majority of the respondents who were 75.9% agreed with the statement that they have been able to increase the income generated from assisting customers in customs-related documentations (mean=3.73, std.dev=1.21). In addition, results showed that the majority of the respondents who were 63.0% agreed with the statement that they have managed to significantlycut costs related to trade operations of our customers in the last five years (mean=3.64, std dev=1.14).

Further results showed that the majority of the respondents who were 64.4% agreed with the statement that in the last five years we have managed to improve our delivery time (mean=3.64, std.dev=1.94). In addition, results showed that the majority of the respondents who were 80.6% agreed with the statement that they have managed to enhance the reliability of our services in the last five years (mean=4.11, std.dev=1.23). In addition, results showed that the majority of the respondents who were 85.3% agreed with the statement that in the last five years we have greatly contributed towards reducing cases of theft of cargo of our customers (mean=4.27, std.dev=1.20). Further results showed that the majority of the respondents who were 70.1% agreed with the statement that their company has been very instrumental in fighting illegal trade in the last five years (mean=3.67, std.dev=1.20). In addition, results showed that the majority of the respondents who were 71.6% agreed with the statement that the company has been successful in detecting counterfeit products in the last five years (mean=3.79, std.dev=1.10).

The average mean was 3.83, which implies that the majority of the respondents agreed with the statements on customs performance. The standard deviation was 1.23, which implied that the respondents' responses were varied from the mean.

4.2 Correlation Analysis

The study undertook correlation matrix analysis to examine the correlation between the independent variables, which included the Export booking module and the Electronic cargo tracking system, and the dependent variable (customs performance).

Table 4: Correlation Results

		Customs Performance
Customs Performance	Pearson Correlation	1.000
	Sig. (2-tailed)	
EBM	Pearson Correlation	.778**
	Sig. (2-tailed)	0.000
ECT	Pearson Correlation	.684**
	Sig. (2-tailed)	0.000

The results showed that the export booking module had a positive and significant correlation with customs performance of logistics companies (r =.778, p = .000). Further results showed

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that the electronic cargo tracking system had a positive and significant correlation with customs performance of logistics companies (r =.684, p = .000).

4.3 Regression Analysis

A multiple regression analysis was conducted to determine the effect of information technology processes on customs performance of logistics companies in Mombasa County in the last five years. Tables 5, 6, and 7 show the outcomes.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.842a	0.709	0.704	0.336854

Results in Table 5 show that R-squared was 70.9 percent (R2= .709). This implies that the export booking module and the electronic cargo tracking system explain 70.9% of the customs performance of logistics companies.

Table 6: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	57.082	4	14.271	125.764	.000b
Residual	23.375	206	0.113		
Total	80.457	210			

In Table 6, the ANOVA regression model shows an F value of 125.764 and a P value of 0.000. The model is therefore significant in predicting the dependent variable, which was customs performance of logistics companies, given that the P value <0.05.

Table 7: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.268	0.196		-1.365	0.174
Export booking module	0.496	0.053	0.482	9.282	0.000
Electronic cargo tracking system	0.323	0.064	0.265	5.048	0.000

The first hypothesis, H_{01}, stated that the Export booking module has no significant effect on customs performance of logistics companies in Mombasa County in the last five years. Results showed that the Export booking module had a positive and significant effect on customs performance of logistics companies in Mombasa County in the last five years (β=0.482, p=0.000). This led to rejection of the null hypothesis, implying that the export booking module has a significant effect on customs performance of logistics companies in Mombasa County in the last five years.

The second hypothesis, **H_{02}**, stated that the electronic cargo tracking system has no significant effect on customs performance of logistics companies in Mombasa County in the last five years. Results showed that the electronic cargo tracking system had a positive and significant effect on customs performance of logistics companies in Mombasa County in the last five years (β=0.265, p=0.000). This led to rejection of the null hypothesis, implying that the electronic cargo tracking system has a significant effect on customs performance of logistics companies in Mombasa County in the last five years.

5. Conclusion

The study concluded that the export booking module had a positive and significant effect on customs performance of logistics companies in Mombasa County in the last five years. This suggests that the module, likely a software or system for managing export bookings, played a role in enhancing efficiency and effectiveness in customs-related processes for these companies. This positive impact is seen through reduced clearance times, increased efficiency in handling goods, and potentially lower costs associated with trade. Furthermore, the module's contribution to data accuracy and transparency can lead to better compliance and reduced risks of delays or penalties.

The study concluded that Electronic Cargo Trucking System (ECTs) had a positive and significant effect on customs performance of logistics companies in Mombasa County in the last five years. By automating customs processes and reducing the need for physical inspections, ECTS can significantly reduce cargo clearance times, leading to faster movement of goods and lower transaction costs for logistics companies. ECTS facilitates real-time tracking and monitoring of goods, enabling faster customs clearance and reducing opportunities for fraud and diversion. In addition, ECTS provides greater transparency in the customs clearance process, allowing stakeholders to track the progress of their shipments and enhancing the efficiency of customs operations.

6. Recommendations

Implementing an Export Booking Module can significantly enhance customs performance for logistics companies. Policymakers should prioritize the adoption of such modules, focusing on streamlining documentation, enhancing information sharing, and promoting interoperability between systems. This, in turn, can lead to faster clearance times, reduced costs, and improved overall efficiency in logistics operations. In addition, the logistics companies should implement an online platform where clients can easily book export shipments, select relevant services, and upload necessary documentation. This automation reduces manual data entry, minimizes errors, and speeds up the initial booking stage.

To maximize the benefits of the Electronic Cargo Trucking System, logistics companies should focus on staff training, infrastructure upgrades, and strong collaboration with customs authorities and other stakeholders. Additionally, optimizing business processes and leveraging data analytics can further enhance the effectiveness of ECT. In addition, policy policymakers should implement policies that encourage the adoption of ECTS and promote its integration into customs and trade processes.

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