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LOGISTICS ENABLERS AND PERFORMANCE OF CLEARING AND FORWARDING FIRMS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

This research project investigated the relationship between logistics enablers and the performance of clearing and forwarding firms in Nairobi City County, Kenya. The primary objectives of this study were to assess how technological integration shapes the specific of clearing and forwarding firms in Nairobi City County, Kenya and to analyze how human resource capabilities contribute to customer satisfaction and the overall firm performance. Clearing and forwarding firms in Nairobi City County face persistent challenges such as operational inefficiencies, high costs, and inconsistent customer satisfaction. These challenges persist despite the critical role these firms play in international trade. This study aimed to identify and analyze the factors contributing to these issues, providing a comprehensive understanding of the performance dynamics within the industry. The scope of the study covered licensed clearing and forwarding agents in Nairobi City County, providing a detailed analysis of their performance and its relationship to logistics enablers. An empirical review of existing literature highlights significant findings. However, gaps remain in the literature, particularly the need for more regional studies on digital transformation, challenges in technology adoption. Methodologically, this study employed a descriptive research design, targeting 200 senior customs managers from 501 licensed clearing agents in Nairobi, using purposive sampling. Data was collected through a structured questionnaire, ensuring content and construct validity, and reliability through a pilot study and Cronbach's alpha. Data analysis involved SPSS for descriptive and inferential statistics, including regression analysis. The justification for this study lies in its potential to provide actionable insights for policymakers and industry stakeholders. By identifying key performance drivers and addressing existing challenges, the research aimed to contribute to the sustainable growth and competitive advantage of Nairobi's logistics sector in a dynamic global market. The pilot study conducted for this research demonstrated strong validity and reliability of the measurement instruments. The findings affirmed that the research instruments are both valid and reliable, ensuring accurate and consistent data collection for the main study. The study revealed that human resource capabilities had the most significant impact on firm performance ($B = 0.288$, $p = 0.000$), followed by technological integration ($B = 0.265$, $p = 0.001$), These findings conclude that a skilled and motivated workforce, advanced technological adoption are critical drivers of firm performance. The study recommends enhancing technological integration through investments in advanced logistics software and prioritizing continuous staff training and motivation to improve operational efficiency, cost-effectiveness, and overall service quality.

Key Words: Logistics Enablers, Performance of Clearing and Forwarding Firms, Technological Integration, Human Resource Capabilities

Background of the study

The study aimed at establishing the relationship between logistics enablers and performance of clearing and forwarding firms in Nairobi City County, Kenya. This chapter provides information to the back the study problem and point out to drive towards the study. Specifically, the study provides information on global perspective of clearing and forwarding, regional perspective and then narrows down to the Kenyan issues on clearing and forwarding that the study addresses.

Logistics is the process of planning, implementing, and managing the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption to meet customer requirements, Hall, et al (2024). This comprehensive field includes activities such as transportation, warehousing, inventory management, order fulfillment, and distribution. It is a critical component of supply chain management, ensuring that goods are delivered in the right quantities, to the right locations, and at the right time (Winkelhaus & Grosse, 2020).

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In the context of international trade, logistics is essential for the seamless movement of goods across borders. It ensures that products reach global markets swiftly and efficiently, which is vital for maintaining competitiveness and customer satisfaction, Langley, et al. (2021). The primary role of logistics in international trade involves coordinating and optimizing the transportation of goods via various modes, such as sea, air, and land, Frazelle, E. (2020). It also includes warehousing, where goods are stored until they are needed, and customs clearance, which involves managing the regulatory requirements and documentation necessary for goods to cross borders (Kovács, Falagara & Sigala, 2021). Additionally, logistics encompasses freight forwarding, where logistics providers arrange the transportation of goods on behalf of shippers, finding the most efficient routes and modes of transport, and ensuring compliance with international shipping regulations. Effective logistics management is crucial for minimizing costs, reducing transit times, and mitigating risks associated with global trade, (Winkelhaus & Grosse, 2020).

Clearing and forwarding firms are specialized entities that manage the logistics involved in moving goods internationally. They handle customs brokerage, ensuring that goods comply with local regulations and are cleared through customs efficiently (Bottalico, 2021). These firms also organize the transportation of goods across multiple carriers and routes, a process known as freight forwarding. Furthermore, they manage all necessary documentation, including bills of lading, invoices, and certificates of origin, ensuring that shipments adhere to international trade laws and standards, (Haque, et al., 2020). Clearing and forwarding firms often provide logistics consulting services, offering expertise on the most efficient and cost-effective ways to transport goods.

In Kenya, logistics is a vital component of the economy, particularly in Nairobi City County, which serves as a central hub for trade and commerce, Okumu, S. A. (2022). Nairobi's strategic location and well-developed transport infrastructure, including Jomo Kenyatta International Airport and major road networks, make it a focal point for logistics activities, Ngesa, N., & Namusonge, E. (2023). The city is a gateway for imports and exports, connecting Kenya to global markets. Clearing and forwarding firms in Nairobi play a crucial role in facilitating trade by ensuring that goods are efficiently transported, stored, and cleared through customs. These firms support various industries, including manufacturing, agricultural, and retail, by managing

the complexities of international shipping and ensuring that supply chains operate smoothly, Hao, X., & Demir, E. (2024). Their importance is further highlighted by the growth of e-commerce and the need for efficient logistics solutions to meet the demands of a fast-paced global market.

Statement of the problem

The logistics sector, particularly the clearing and forwarding firms in Nairobi, faces a multitude of grave challenges that threaten not only the efficiency of their operations but also the broader economic stability of the region. These challenges are multifaceted, deeply entrenched, and significantly detrimental to the functioning of international trade mechanisms that are vital for Kenya's economic growth. The gravity of these issues cannot be overstated, as they pose existential threats to the firms involved and have far-reaching implications for the entire supply chain ecosystem.

The bureaucratic quagmire associated with customs clearance processes in Nairobi is a colossal barrier. According to a 2022 report by the World Bank, the average time for customs clearance in Kenya is approximately 7.4 days, compared to a global average of 4.5 days. Clearing and forwarding firms are entangled in a complex network of regulations, paperwork, and inspections, which are not only time-consuming but also subject to arbitrary changes and inconsistencies. The infrastructure deficit in Nairobi worsens these challenges. The city's transport networks, including roads, railways, and ports, are grossly inadequate and poorly maintained. Nairobi has been ranked 103rd out of 160 cities in the World Bank's Logistics Performance Index (LPI) for 2023, highlighting the severe infrastructural issues. Congestion is a perennial issue, with trucks and cargo often stuck in interminable traffic jams, leading to delays that can stretch from hours into days. The situation is further compounded by the lack of modern warehousing facilities, forcing firms to rely on substandard storage options that do not meet the requirements for handling sensitive or high-value goods. This infrastructural inadequacy not only hinders the efficient movement of goods but also significantly raises operational costs, as firms have to invest heavily in alternative arrangements and bear the brunt of wear and tear on their vehicles and equipment.

Corruption within the customs and regulatory bodies adds another layer of complexity and despair to the operations of clearing and forwarding firms in Nairobi. Transparency International's Corruption Perceptions Index (CPI) for 2022 placed Kenya at 123rd out of 180 countries, indicating high levels of corruption. The pervasive nature of corrupt practices means that firms are often coerced into paying bribes to expedite processes or avoid unwarranted penalties. This corruption not only inflates the cost of doing business but also creates an uneven playing field where firms that refuse to engage in such practices are unfairly disadvantaged. The moral and ethical dilemmas posed by corruption also have a corrosive effect on the industry, undermining trust and fostering a culture of cynicism and disillusionment.

Security concerns present yet another formidable challenge. The threat of theft, vandalism, and pilferage is ever-present, with criminals targeting goods in transit and storage facilities. According to the Kenya Transporters Association, cargo theft incidents have increased by 20% over the past five years. This security risk necessitates significant investment in protective measures, including surveillance systems, security personnel, and insurance, further straining the financial resources of clearing and forwarding firms. The loss or damage of goods not only results in direct financial losses but also leads to strained relationships with clients and insurers, and potentially costly legal disputes.

Technological lag is a critical issue that hampers the competitiveness of Nairobi's clearing and forwarding firms. While global logistics is increasingly driven by sophisticated technology solutions that enhance efficiency, visibility, and coordination, many firms in Nairobi are still grappling with outdated systems and manual processes. A 2021 survey by the Kenya National Bureau of Statistics (KNBS) found that only 30% of logistics firms in Kenya use advanced logistics software. This technological backwardness results in inefficiencies, errors, and a lack

of real-time tracking capabilities, putting Nairobi-based firms at a severe disadvantage in the global market. The reluctance or inability to adopt modern technology is often due to high costs, lack of expertise, and the absence of supportive infrastructure.

Lastly, the shortage of skilled personnel in the logistics sector is a dire problem. The complexity of clearing and forwarding operations demands a workforce that is not only knowledgeable about international trade regulations but also adept at navigating logistical challenges. However, there is a scarcity of adequately trained professionals in Nairobi, leading to operational inefficiencies and increased risk of errors. The World Bank,(2023) reports that 45% of firms in Kenya identify an inadequately educated workforce as a major constraint. This skills gap is a significant impediment to the growth and development of the sector, as firms struggle to maintain high standards of service and operational excellence.

In conclusion, the clearing and forwarding firms in Nairobi are besieged by an array of severe challenges that threaten their survival and efficiency. From the quagmire of bureaucratic inefficiencies and infrastructural inadequacies to the pervasive corruption, security risks, technological lag, and skill shortages, these issues collectively paint a bleak picture of an industry in crisis. Addressing these challenges is not merely a matter of improving business operations; it is a crucial imperative for safeguarding the economic future of Nairobi and ensuring that the city remains a vital hub in the global logistics network.

Objectives of the study

The general objective of the study was to establish the relationship between logistics enablers and performance of clearing and forwarding firms in Nairobi City County, Kenya.

Specific Objectives

i. To assess how technological integration shapes the performance of clearing and forwarding firms in Nairobi City County, Kenya.

ii. To analyze the relationship between human resource capabilities and the performance of clearing and forwarding firms in Nairobi City County, Kenya.

LITERATURE REVIEW

Theoretical Review

Resource-Based View (RBV) Theory (Anchor Theory)

The Resource-Based View (RBV) theory, initially proposed by Penrose (1959) and later refined by scholars like Barney (1991) and Wernerfelt (1984), provides a robust framework for understanding how firms achieve competitive advantage and superior performance. In the context of logistics, which forms the backbone of supply chain operations, RBV theory offers valuable insights into how firms can leverage their internal resources and capabilities to thrive in competitive markets.

For instance, in Nairobi's clearing and forwarding industry, RBV theory can be applied to analyze how firms utilize key resources and capabilities to gain a competitive edge. Consider a company that invests in state-of-the-art tracking technology and real-time shipment monitoring systems. By leveraging these internal resources, the company can provide customers with accurate tracking information, ensuring transparency and reliability in delivery, thereby enhancing customer satisfaction and loyalty.

Furthermore human resource capabilities play crucial roles in firm performance. A clearing and forwarding firm that excels in navigating complex customs regulations and employs skilled personnel trained in efficient documentation and cargo handling processes can achieve operational excellence and cost-effectiveness. These internal capabilities contribute to the firm's competitive advantage by reducing delays, minimizing errors, and optimizing resource utilization.

Miller (2019) suggests that firms represent a collection of resources, capabilities, or routines that generate value and are resistant to imitation or takeover by rivals. This highlights the importance of identifying and leveraging unique internal resources for competitive advantage. Lubis (2022) further emphasizes the significance of the RBV approach in scrutinizing a company's assets, expertise, capabilities, and intangible assets to ascertain its strategic advantage.

In the context of logistics enablers, RBV theory suggests that firms can achieve sustainable competitive advantage by strategically investing in and leveraging key resources (Utami & Alamanos, 2022). For instance, firms with superior transportation assets and advanced information technology systems can streamline processes, offering faster delivery times and lower costs compared to competitors.

Empirical evidence supports the relevance of RBV theory to the logistics industry, indicating that firms with superior logistics capabilities tend to outperform their peers in terms of customer satisfaction and financial performance. However, recent developments have expanded the scope of RBV theory, integrating it with other perspectives such as dynamic capabilities and institutional theory to account for the dynamic and institutional factors shaping competitive advantage (Utami & Alamanos, 2022).

The Resource-Based View (RBV) theory provides a valuable lens for understanding the performance of clearing and forwarding firms in Nairobi's logistics industry. By strategically leveraging internal resources and capabilities, firms can enhance their competitive position and achieve superior performance. However, ongoing research and innovation are essential to refine and expand the applicability of RBV theory to contemporary challenges facing logistics firms worldwide.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was introduced by Fred D. Davis in 1989. This model elucidates the process through which users come to accept and utilize technology. It suggests that two key factors—perceived usefulness and perceived ease of use—shape users' attitudes toward adopting a technology. These attitudes subsequently influence their intention to use and their actual usage of the technology. In the context of this study, TAM is useful for examining the extent and effectiveness of technological integration in the logistics operations of clearing and forwarding firms in Nairobi. By understanding the factors that influence technology adoption, this theory helps to evaluate how logistics software, real-time tracking systems, and automated customs clearance impact operational efficiency and customer satisfaction, Kioko, D. M. (2020).

In the context of clearing and forwarding firms operating in Nairobi's logistics industry, TAM offers valuable insights into the extent and effectiveness of technological integration in enhancing operational efficiency and customer satisfaction, Kioko, D. M. (2020). By examining the factors that influence technology adoption within these firms, TAM enables a nuanced assessment of the impact of logistics software, real-time tracking systems, and automated customs clearance on overall performance, Khisa, J. F. (2022).

Perceived usefulness, a central construct in TAM, refers to the extent to which users believe that a particular technology will enhance their job performance or facilitate task accomplishment, Shih, H. P. (2004). In the context of clearing and forwarding firms, the perceived usefulness of technology lies in its ability to streamline logistics processes, improve decision-making, and enhance service quality. For instance, logistics software that integrates multiple functions such as order processing, inventory management, and route optimization can significantly improve operational efficiency by automating repetitive tasks and providing real-time insights into supply chain dynamics, Winkelhaus, S., & Grosse, E. H. (2020).

Similarly, perceived ease of use, another key component of TAM, pertains to the degree to which users perceive a technology as effortless to use and learn, Al-Adwan, A. S. (2020). In

the context of clearing and forwarding firms, technologies that are intuitive, user-friendly, and require minimal training are more likely to be embraced by employees, Thoti, K. K. (2024). Real-time tracking systems, for example, should provide clear and intuitive interfaces that enable users to easily monitor shipment status, track delivery routes, and address potential issues in transit, Mohamed, A. W. (2023). By reducing the learning curve associated with technology adoption, perceived ease of use enhances user acceptance and promotes widespread utilization of technological tools within the organization, Chen, Y. L. et al (2019).

Furthermore, TAM emphasizes the role of attitudes towards technology adoption as intermediating factors that mediate the relationship between perceived usefulness, perceived ease of use, and actual usage behavior, Abdillah, Y. et al (2024). Positive attitudes towards technology adoption foster greater intention to use and increase the likelihood of sustained usage over time. Clearing and forwarding firms that foster a culture of innovation and provide adequate support and training for employees are more likely to cultivate positive attitudes towards technology adoption, driving higher levels of technology utilization and performance improvement.

Davis's seminal work on TAM has been widely validated and extended across various contexts and industries, underscoring its relevance and applicability in understanding technology adoption behavior, Craig, K. (2018). In the context of logistics operations in Nairobi, TAM serves as a valuable theoretical framework for evaluating the drivers and barriers to technology adoption and assessing the impact of technological interventions on operational efficiency, cost-effectiveness, and customer satisfaction.

The Technology Acceptance Model (TAM) provides a robust theoretical foundation for understanding how users' perceptions influence their acceptance and usage of technology within clearing and forwarding firms in Nairobi's logistics industry. By examining the factors that shape technology adoption behavior, TAM enables firms to identify opportunities for enhancing technology integration, optimizing operational processes, and delivering superior service experiences to customers.

Conceptual Framework

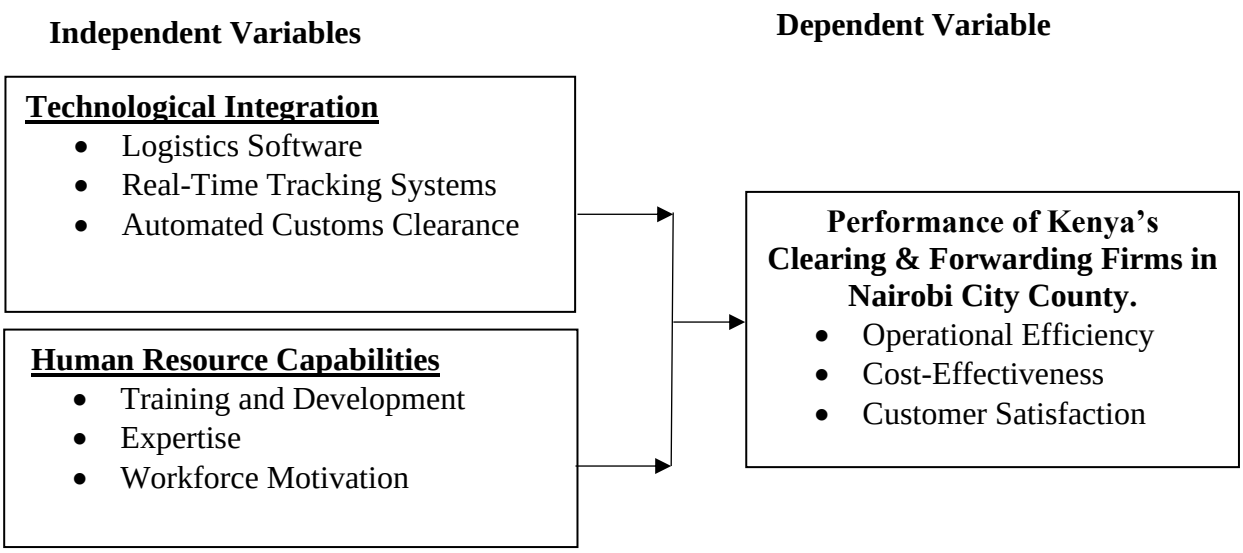

Figure 2. 1: Conceptual Framework

Technological Integration

In the realm of logistics and supply chain management, technological integration stands as a pivotal determinant of efficiency and competitiveness, Pinto, R. et al (2022). Within the context of Kenyan clearing and forwarding firms operating in Nairobi City County, the adoption and utilization of advanced technological tools play a crucial role in enhancing operational performance and facilitating seamless trade facilitation processes.

Logistics software constitutes a fundamental component of technological integration within clearing and forwarding firms, Sirkis J. et al (2017). These software solutions encompass a diverse range of functionalities, including inventory management, order processing, and transportation optimization, Shiwakoti, N. (2019). By leveraging logistics software, firms can streamline their operations, minimize errors, and enhance overall process efficiency Gazi, M. S. (2024). In the Kenyan context, the integration of logistics software enables firms to overcome logistical challenges, such as fragmented infrastructure and complex regulatory requirements, thereby improving service delivery and customer satisfaction levels.

Real-time tracking systems represent another critical aspect of technological integration within the logistics landscape. These systems utilize advanced technologies, such as GPS and RFID, to provide real-time visibility into the movement of goods throughout the supply chain network Ganapathy, L. (2019). In the context of Kenyan clearing and forwarding firms, the implementation of real-time tracking systems offers several benefits, including enhanced shipment visibility, improved route optimization, and proactive risk management Amogola, J. (2017). By enabling stakeholders to monitor cargo movements in real-time, these systems facilitate timely decision-making, mitigate disruptions, and ensure the integrity and security of cargo during transit, Ishaq, S. et al (2020).

Automated customs clearance solutions play a transformative role in modernizing trade facilitation processes and expediting the clearance of goods across international borders, Jepkosgei Mutai, R. (2022). Through the integration of electronic data interchange (EDI) systems and customs automation platforms, clearing and forwarding firms can streamline customs clearance procedures, reduce clearance times, and minimize administrative burdens Omosa, A. M. (2021). In the Kenyan context, the adoption of automated customs clearance solutions holds significant promise for improving trade efficiency, reducing corruption, and enhancing regulatory compliance, Dere, A. (2021). By automating routine customs procedures, firms can accelerate the flow of goods across borders, thereby reducing transit times and operational costs, Atkinson, C. et al (2018).

Technological integration, encompassing logistics software, real-time tracking systems, and automated customs clearance solutions, constitutes a cornerstone of operational excellence within Kenyan clearing and forwarding firms. By embracing these advanced technologies, firms can enhance their competitive positioning, optimize supply chain performance, and drive sustainable growth in the dynamic landscape of international trade.

Human Resource Capabilities

Human resource capabilities refer to the skills, competencies, knowledge, and attributes that employees possess, which enable them to effectively perform their job roles and contribute to the overall success of an organization, Mahapatro, B. (2021). Human resource capabilities play a fundamental role in shaping the performance and competitiveness of Kenyan clearing and forwarding firms in Nairobi City County. The effectiveness of human resource management practices, encompassing training and development initiatives, expertise and experience levels, and workforce motivation strategies, is critical for enhancing operational efficiency, fostering innovation, and driving sustainable growth within the logistics sector, Elia, G., & Passiante, G. (2018).

Training and development programs are essential for equipping employees with the knowledge, skills, and competencies necessary to perform their roles effectively and adapt to evolving industry trends and technologies, Gana, J. et al (2022). In the context of Kenyan clearing and forwarding firms, investing in employee training and development initiatives can yield significant benefits, including enhanced productivity, improved service quality, and reduced turnover rates (Okoth & Wanyama, 2018). By providing employees with access to ongoing training opportunities, firms can empower them to excel in their roles, contribute to organizational success, and remain competitive in the dynamic and demanding logistics landscape (Achoki & Munene, 2020).

The expertise and experience levels of employees within clearing and forwarding firms are critical determinants of operational performance and customer satisfaction, Pang, K., & Lu, C. S. (2018). Experienced professionals bring valuable insights, industry knowledge, and problem-solving capabilities to the table, enabling firms to navigate complex logistical challenges and deliver superior service outcomes (Macharia & Mwaura, 2019). Moreover, expertise in areas such as customs procedures, regulatory compliance, and international trade regulations is indispensable for ensuring the efficient clearance and movement of goods across borders (Njeru & Kiragu, 2017). By nurturing a talent pool of skilled and experienced professionals, clearing and forwarding firms can differentiate themselves in the marketplace, build long-term customer relationships, and sustain a competitive advantage.

Workforce motivation plays a central role in driving employee engagement, commitment, and performance within clearing and forwarding firms. Motivated employees are more likely to demonstrate initiative, creativity, and resilience in their roles, leading to higher levels of productivity and job satisfaction (Owino & Iravo, 2021). In Kenya, where the logistics sector faces challenges such as tight deadlines, regulatory complexities, and intense competition, effective workforce motivation strategies are essential for retaining top talent and fostering a positive organizational culture (Nyambura & Mburugu, 2020). By implementing incentives, recognition programs, and career development opportunities, firms can cultivate a motivated workforce that is aligned with organizational goals and committed to delivering exceptional service to customers.

Human resource capabilities, encompassing training and development, expertise and experience, and workforce motivation, constitute a critical driver of success for Kenyan clearing and forwarding firms. By investing in their employees' growth, skills, and well-being, firms can build a resilient and high-performing workforce capable of navigating challenges, seizing opportunities, and achieving sustainable business success in the dynamic logistics environment of Nairobi City County.

Impact on Performance of Firms

Kenya's clearing and forwarding firms in Nairobi City represent vital conduits in the international trade network, facilitating the seamless movement of goods across borders, Omingo, J. (2019). Their performance is contingent upon several independent variables, which in turn, influence the dependable variables of operational efficiency, cost-effectiveness, and customer satisfaction. One significant independent variable shaping the performance of these firms is technological integration. Adopting advanced technologies such as logistics software and real-time tracking systems can significantly enhance operational efficiency, Pinto, R. (2022). These tools automate processes, minimize errors, and provide real-time visibility into cargo movements. As a result, firms can streamline their operations, reduce delays, and optimize resource utilization, Kumari, S. (2021). Moreover, technological integration contributes to cost-effectiveness by reducing manual labor and streamlining documentation processes, ultimately improving the bottom line. Furthermore, the enhanced visibility and transparency provided by technology can lead to higher customer satisfaction by ensuring timely delivery, accurate information, and proactive communication, Choudhary, S. P. (2023).

Empirical Review

Technological Integration and Firm Performance

Technological integration is a critical factor in enhancing the performance of clearing and forwarding firms. Advanced technologies, such as real-time tracking systems, automated customs clearance, and integrated logistics software, streamline operations and improve efficiency. For instance, firms utilizing real-time tracking systems can monitor shipments continuously, reducing delays and enhancing customer satisfaction. A study by Banister and Berechman (2001) showed that such systems reduced shipment delays by 26%, significantly boosting operational efficiency (Banister & Berechman, 2001). Similarly, automated customs clearance systems, like those adopted in Singapore, have dramatically reduced clearance times

from days to hours, increasing throughput by 30% (Mikuriya, 2019). Integrated logistics software, which combines various logistics functions into a single platform, has also been shown to improve efficiency and reduce costs. Auramo, Kauremaa, and Tanskanen (2005) reported a 20% improvement in logistics efficiency among firms using such software (Auramo, Kauremaa, & Tanskanen, 2005). These technological advancements enable firms to operate more efficiently, reduce costs, and improve customer service, thereby enhancing overall firm performance.

Human Resource Capabilities and Firm Performance

Human resource capabilities, including the skills, expertise, and motivation of the workforce, are vital for the effective operation of clearing and forwarding firms. A skilled and knowledgeable workforce can navigate the complexities of logistics operations more efficiently, reducing errors and improving service quality. The World Bank (2023) reported that 45% of firms in Kenya identified an inadequately educated workforce as a major constraint to their operations. Training and development programs are essential for enhancing the skills and expertise of employees, thereby improving operational efficiency and firm performance. For example, a study by Batt (2022) found that firms investing in employee training and development saw significant improvements in productivity and service quality (Batt, 2022). Additionally, motivated and engaged employees are more likely to perform at higher levels, contributing to better overall firm performance. Addressing the skills gap and investing in human resource development are critical for enhancing the operational capabilities and competitiveness of clearing and forwarding firms.

RESEARCH METHODOLOGY

A descriptive research design was used for this study. The study focused on clearing and forwarding firms in Nairobi City County, Kenya. The Kenya Revenue Authority (2024) lists 1086 clearing agents in Kenya with valid practicing permits The firms formed the unit of analysis while senior customs managers were the unit of observation. They are significant players in this field and it's for this reason that this study majorly focused on them. They also formed the main focus of the study because they are the main players based in Nairobi. Senior Customs Managers of these companies were the unit of observation because they are knowledgeable about the clearing and forwarding procedures and the performance of these companies in relation to the logistics enablers. The sample size of staff was determined using Yamane 1967 formula. Therefore, the sample size for the study will be 292 respondents. The study adopted simple random sampling to select the study sample. Data for the study was gathered via a closed and open-ended questionnaire. Data entry and coding was done using SPSS version 28. To produce descriptive and inferential statistics, data were analyzed. Descriptive statistics includes frequency, percentage, and mean. Inferential statistics included correlation and regression.

RESEARCH FINDINGS AND DISCUSSION

The study targeted 292 respondents, comprising senior customs managers from various clearing and forwarding firms in Nairobi City County. A total of 249 questionnaires were returned, yielding a response rate of 85.6%. According to Sekaran and Bougie (2016), a response rate above 70% is considered excellent, enhancing the reliability of the study findings. The high response rate indicates strong engagement from the participants, enhancing the reliability and representativeness of the data collected.

Descriptive Analysis

Descriptive statistics were used to assess the respondents' perceptions of the influence of logistics enablers on the performance of clearing and forwarding firms. The analysis used a 5-point Likert scale where 1 indicated "strongly disagree" and 5 indicated "strongly agree." The means and standard deviations were used to interpret the findings where a mean value of 1-1.4 was strongly disagree, 1.5-2.4 disagree, 2.5-3.4 neutral, 3.5-4.4 agree, and 4.5-5 strongly agree.

Technological Integration

The first objective was to assess how technological integration shapes the performance of clearing and forwarding firms in Nairobi City County, Kenya. The descriptive statistics are presented in Table 1.

Table 1: Descriptive Statistics on Technological Integration

Statements	Mean	Std. Dev.
Our firm uses logistics management software to enhance operations.	4.012	0.701
The logistics management software used in our firm improves operational efficiency.	3.987	0.699
Our firm uses real-time tracking systems for monitoring shipments.	3.956	0.726
Real-time tracking systems are frequently used in our logistics operations.	3.965	0.741
Real-time tracking has significantly improved customer satisfaction levels in our firm.	3.978	0.679
Our firm has adopted automated customs clearance systems.	4.045	0.679
Automated customs clearance systems save considerable time on average per shipment.	4.056	0.664
Aggregate Score	**4.000**	**0.701**

The findings indicate strong agreement among respondents on the positive impact of technological integration on their firms' operations, with all related statements receiving mean scores above 3.9. The adoption of automated customs clearance systems was rated highly, with respondents highlighting that these systems significantly reduce shipment processing times (M = 4.056, SD = 0.664) and are widely adopted across firms (M = 4.045, SD = 0.679), underscoring their effectiveness in streamlining logistics operations. Additionally, real-time tracking systems were frequently used in logistics operations (M = 3.965, SD = 0.741), and their use was associated with improved customer satisfaction (M = 3.978, SD = 0.679), reflecting the value of continuous monitoring in enhancing service quality. The use of logistics management software was also seen as beneficial, with respondents acknowledging its role in enhancing overall operations (M = 4.012, SD = 0.701) and improving operational efficiency (M = 3.987, SD = 0.699). These findings collectively suggest that technological tools, such as logistics management software, real-time tracking, and automated customs clearance, are critical in optimizing logistics processes, boosting operational efficiency, and enhancing customer satisfaction in clearing and forwarding firms.

The findings indicate that respondents generally agreed that technological integration positively influences the performance of firms. The aggregate score of 4.000 suggests that technological advancements, such as logistics software and real-time tracking systems, are crucial in enhancing operational efficiency. This is consistent with the findings of Kumar and Hoffman (2021), who highlighted the role of digital tools like AI, IoT, and big data analytics in enhancing logistics performance. Additionally, Rodriguez and Johnson (2019) emphasized the transformative impact of technologies such as blockchain and autonomous vehicles on logistics operations, reducing human error and enhancing supply chain reliability.

Human Resource Capabilities

The second objective was to analyze the relationship between human resource capabilities and the performance of clearing and forwarding firms in Nairobi City County, Kenya. The descriptive statistics are shown in Table 2.

Table 2: Descriptive Statistics on Human Resource Capabilities

Statements	Mean	Std. Dev.

Our firm frequently conducts training and development programs for staff.	4.000	0.687
Training and development programs effectively enhance staff performance.	3.968	0.709
The overall expertise and experience of our staff are high.	3.889	0.716
Staff expertise and experience positively affect our operational efficiency.	3.912	0.718
Our workforce is highly motivated.	4.065	0.669
Workforce motivation significantly impacts our customer satisfaction levels.	3.978	0.679
Aggregate Score	**4.004**	**0.695**

The findings reveal that respondents strongly agreed on the importance of human resource capabilities in enhancing firm performance. Firms frequently conduct training and development programs for their staff (M = 4.000, SD = 0.687), which are perceived to effectively enhance staff performance (M = 3.968, SD = 0.709). This commitment to continuous learning is reflected in the high level of expertise and experience among staff (M = 3.889, SD = 0.716), which positively influences operational efficiency (M = 3.912, SD = 0.718). Furthermore, the workforce was noted to be highly motivated (M = 4.065, SD = 0.669), underscoring the firms' efforts to foster a positive work environment. Respondents also agreed that workforce motivation significantly impacts customer satisfaction levels (M = 3.978, SD = 0.679), highlighting the direct link between a motivated workforce and improved service quality. These results suggest that investments in staff training, development, and motivation are crucial in driving operational efficiency and enhancing customer satisfaction in the logistics sector.

The findings suggest that respondents agreed on the positive impact of human resource capabilities. The aggregate score of 4.004 emphasizes the importance of investing in employee development to enhance operational efficiency and customer satisfaction. These findings align with Bowersox et al. (2021), who argued that a skilled workforce is essential for managing the complexities of modern logistics operations. Murphy and Poist (2019) also highlighted the critical need for enhancing workforce competencies in developing countries to improve logistics performance.

Firm Performance

This section evaluates the perceptions of respondents on the overall performance of their firms, focusing on operational efficiency, cost-effectiveness, and customer satisfaction.

Table 3: Descriptive Statistics on Firm Performance

Statements	Mean	Std. Dev.
Our firm's operational efficiency has been high over the past year.	3.912	0.718
Key factors have positively influenced our operational efficiency.	4.015	0.704
Our firm's cost-effectiveness has improved over the past year.	4.001	0.689
Specific factors have significantly impacted our cost-effectiveness.	4.078	0.682
Customer satisfaction with our services has been high.	3.981	0.721
Various factors have influenced our customer satisfaction levels.	3.940	0.689
Aggregate Score	**3.971**	**0.701**

The findings indicate that respondents generally perceived their firms' performance positively across key dimensions such as operational efficiency, cost-effectiveness, and customer satisfaction. Respondents agreed that their firm's operational efficiency has been high over the past year (M = 3.912, SD = 0.718), with key factors contributing positively to this efficiency (M = 4.015, SD = 0.704). Similarly, there was agreement that cost-effectiveness has improved (M = 4.001, SD = 0.689), with specific factors significantly impacting this improvement (M = 4.078, SD = 0.682). Customer satisfaction was also reported to be high (M = 3.981, SD = 0.721), reflecting a positive client response to the firms' services, influenced by various

contributing factors (M = 3.940, SD = 0.689). Overall, these findings suggest that firms are effectively managing critical performance drivers, leading to enhanced efficiency, better cost management, and higher levels of customer satisfaction in their logistics operations.

The positive findings on firm performance align with literature that emphasizes the critical role of key performance drivers such as operational efficiency, cost-effectiveness, and customer satisfaction in the logistics sector. Bowersox, Closs, and Cooper (2021) highlighted that firms with high levels of operational efficiency often achieve superior market performance due to streamlined processes that minimize delays and reduce costs, which is consistent with the respondents' perceptions of improved efficiency and cost-effectiveness in their firms. Similarly, Murphy and Poist (2019) argued that targeted investments in operational practices and workforce capabilities significantly enhance a firm's ability to manage costs effectively, leading to better overall financial performance, as reflected in the study's findings. Moreover, the high levels of customer satisfaction observed align with the work of Banister and Berechman (2001), who noted that firms that focus on enhancing service quality through continuous process improvements and technological integration tend to achieve higher customer loyalty and satisfaction. These correlations underscore the importance of strategic management of logistics enablers to drive superior firm performance in the highly competitive clearing and forwarding industry.

Correlation Analysis

Correlation analysis was conducted to determine the relationship between the independent variables (technological integration, and human resource capabilities) and the dependent variable (firm performance). If the correlation values are $r = \pm 0.1$ to ± 0.29 then the relationship between the two variables is small, if it is $r = \pm 0.3$ to ± 0.49 the relationship is medium, and when $r = \pm 0.5$ and above there is a strong relationship between the two variables under consideration. Significance was tested at 0.05 level of significance. Table 4 presents the findings obtained.

Table 4: Correlation Results

Variables		Firm Performance	Technological Integration	Human Resource Capabilities
Firm Performance	Pearson Correlation	1.000		
	Sig. (2-tailed)			
	N	190		
Technological Integration	Pearson Correlation	0.704**	1.000	
	Sig. (2-tailed)	0.000		
	N	190	190	
Human Resource Capabilities	Pearson Correlation	0.721**	0.615	1.000
	Sig. (2-tailed)	0.000	0.084	
	N	190	190	190

Correlation is significant at the 0.05 level (2-tailed).

The analysis revealed a strong positive correlation between technological integration and firm performance ($r = 0.704$, $p < 0.05$). This indicates that the adoption of advanced technologies such as logistics management software, real-time tracking, and automated customs clearance significantly enhances the performance of clearing and forwarding firms. The findings align with Mikuriya (2019), who noted that automated customs systems reduce clearance times and improve throughput, thereby boosting operational efficiency. Similarly, Banister and Berechman (2001) demonstrated that real-time tracking systems reduce shipment delays, enhancing overall logistics performance.

Human resource capabilities had the strongest correlation with firm performance ($r = 0.721$, $p < 0.05$), suggesting that skilled, motivated, and well-trained employees are essential for

operational efficiency. Batt (2002) found that firms investing in employee training see significant improvements in productivity and service quality, reinforcing the importance of human capital. This finding is further supported by the World Bank (2023), which identified an inadequately educated workforce as a major constraint to logistics operations in Kenya.

Regression Analysis

Regression analysis was conducted to establish the relationship between logistics enablers and the performance of clearing and forwarding firms in Nairobi City County.

Regression Coefficients

The regression coefficients provide insights into the contribution of each independent variable to firm performance. Table 5 presents summary of findings obtained.

Table 5: Regression Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients		t	Sig.
	B	Std. Error	Beta		
(Constant)	1.295	0.389		3.330	0.001
Technological Integration	0.265	0.074	0.272	3.581	0.001
Human Resource Capabilities	0.288	0.072	0.293	4.000	0.000

The coefficient for technological integration is B = 0.265 (p = 0.001), indicating that a one-unit increase in technological integration results in a 0.265-unit improvement in firm performance. This positive relationship emphasizes the critical role of technology in enhancing logistics operations. The findings align with Auramo et al. (2005), who reported a 20% improvement in logistics efficiency among firms using integrated logistics software, highlighting the importance of technology in streamlining operations and reducing costs.

The coefficient for human resource capabilities is B = 0.288 (p = 0.000), showing that human capital has the most substantial impact on firm performance among the studied variables. This suggests that skilled, motivated, and well-trained employees are pivotal in driving operational success. The findings align with Batt (2002), who demonstrated that firms investing in employee training experience significant gains in productivity and service quality.

Based on the regression coefficients provided, the fitted regression equation for firm performance can be expressed as follows:

Firm Performance = 1.295 + 0.265 (Technological Integration) + 0.288 (Human Resource Capabilities)

Conclusions

The study concludes that technological integration is a crucial enabler of logistics performance in clearing and forwarding firms. The use of advanced technologies such as real-time tracking, logistics management software, and automated customs clearance systems significantly enhances operational efficiency, reduces delays, and improves customer satisfaction.

Human resource capabilities are the most critical factor influencing firm performance. A skilled, trained, and motivated workforce is essential for enhancing operational efficiency and customer satisfaction. Investments in employee development are crucial for maintaining high service standards and achieving operational success.

Recommendations

Technological Integration

For clearing and forwarding firms in Nairobi City County, it is recommended that firms invest more in advanced technological solutions tailored to the unique challenges of the local logistics environment. The use of logistics management software, real-time tracking systems, and

automated customs clearance should be prioritized to enhance operational efficiency and reduce clearance times. Firms should also consider integrating emerging technologies such as artificial intelligence (AI) for predictive analytics, Internet of Things (IoT) for real-time asset tracking, and blockchain for secure and transparent documentation processes. These technologies can improve the accuracy of logistics operations, reduce human error, and streamline supply chain management, ultimately leading to enhanced performance and customer satisfaction. Additionally, continuous training on these technologies should be provided to employees to maximize the benefits of technological integration.

Human Resource Capabilities

To fully leverage human resource capabilities, clearing and forwarding firms should establish robust training and development programs that focus on enhancing skills specific to logistics and supply chain management. Continuous professional development, such as workshops on the latest industry practices, certification programs, and on-the-job training, should be integral components of human resource strategies. Firms should also implement motivational strategies, including performance-based incentives, career advancement opportunities, and a supportive work environment that fosters employee engagement and retention. Recognizing and rewarding employee contributions will not only boost morale but also enhance service quality and operational efficiency. Furthermore, firms should prioritize the recruitment of skilled personnel and consider partnerships with academic institutions to source talent that is well-prepared for the logistics industry's demands.

Suggestions for Further Studies

Given that the model explained 63.7% of the variance in firm performance, future studies should explore additional factors that may influence performance, such as customer relationship management, environmental sustainability practices, and supply chain collaboration. Examining these factors could provide a more comprehensive understanding of the key drivers of logistics performance in the clearing and forwarding sector.

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