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Urban Logistics and Supply Chain Peformance. Does Logistics Management Systems Moderate?

Naomie Kemei, Collins Kapkiyai, Diane Uyoga
Moi University, Eldoret, Kenya
Corresponding Author Email: naochelaa@gmail.com

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Abstract
Supply chain performance is a critical determinant of an organization's overall efficiency, competitiveness, and customer satisfaction. The study sought to determine the moderation effect of logistics management systems on relationship between urban logistics and supply chain performance for e-commerce firms. The study specifically sought to determine the effects of urban demand, urban freight distribution and accessibility on supply chain performance, and the moderating effect of logistics management systems on each of the relationships. Explanatory research design was used, where Primary data were collected using questionnaires from a sample size of 281 respondents. Correlation results indicate that urban demand, urban freight distribution and accessibility are positively and significantly correlated to supply chain performance. Regression results indicate that urban demand ($\beta=0.218$, $p<0.05$), urban freight distribution ($\beta=0.169$, $p<0.05$) and Accessibility ($\beta=0.123$, $p<0.05$) are significant and positively related to supply chain performance. The conditional effect regression results indicate that logistics management systems moderate the relationship between; urban demand ($\beta=0.03$, $\Delta R^2=0.001$, $p<0.05$), urban freight distribution ($\beta=0.10$, $\Delta R^2=0.009$, $p<0.05$), and accessibility ($\beta=0.04$, $\Delta R^2=0.002$, $p<0.05$) on supply chain performance. To optimize performance, e-commerce firms should invest in technology to capture data on customer backgrounds, demands, and preferences, enabling them to understand and satisfy customer expectations.
Keywords: Urban Logistics, Logistics Management Systems Urban Demand, Urban Freight Distribution, Supply Chain Performance.

Introduction
Supply chain performance, which includes the efficacy and efficiency of the processes involved in creating and delivering goods and services, is a crucial component of economic management and logistics. The efficiency of a company's supply chain affects its capacity to meet consumer needs, compete in the market, and stay profitable. Supply chain integrations has a crucial role in the firm's supply chain agility and organizational flexibility (Shukor, Newaz, Rahman, & Taha, 2021). Operational efficiency, or a supply chain's capacity to minimize waste, save costs, and optimize resources, is the foundation of its performance. According to

Saragih et al., (2020), Supply Chain management enable firms to be able to eradicate its waste, keep its optimum inventory level, and tap into synergies.. Therefore, Minimal disruptions, efficient inventory management, and streamlined procedures are the hallmarks of efficient supply networks.

As urbanization continues to rise, the challenges to operational efficiency become more pronounced due to increased population density and infrastructure constraints. The growing urbanization has transformed the capability of moving freight into, from, and around an urban area into a critical challenge (Cleophas et al., 2019). Efficient supply chains in urban areas are characterized by streamlined processes, effective inventory management, and minimal disruptions, despite the challenges posed by traffic congestion and limited space for warehouses and distribution centers. KPIs which include order fulfillment time, inventory turns, and transportation costs are commonly used to measure operational efficiency. In urban settings, companies with high-performing supply chains often employ advanced logistics strategies and urban consolidation centers to mitigate the effects of congestion and optimize last-mile delivery.

A city's role as a production hub involves a lot of freight movement because of its place in international supply chains. The urban environment is characterized by scarcity of access. For instance, the effectiveness and caliber of urban logistics operations are limited by clogged roads, spatial restrictions, and infrastructure limitations (Hesse & Rodrigue, 2004). Logistics, as defined by Frydlinger et al., (2021), is the planning, execution, and management of the efficient and successful transportation of goods, services, and related data between locations in order to satisfy customer needs. All of the material and information flows within an organization are included in logistics. It encompasses everything from moving a product or renders a service, managing the raw material that comes in, producing the finished product, storing it, delivering the same to the client, and post-sales support (Muogboh & Ojadi, 2018). Effective supply chain strategies involve a comprehensive understanding of market demands, supplier relationships, and logistical capabilities. Urban supply chains must navigate complex regulatory environments, diverse customer bases, and infrastructural challenges. Strategic sourcing, supplier collaboration, and risk management are essential practices that contribute to the resilience and adaptability of supply chains in urban areas. The performance of urban supply chains is enhanced by experiences about urban supply chain collaboration, where companies collaborate with suppliers and customers in axes that will provide mutual benefits and to keep the material and information flow continuous.

Urban logistics is crucial for the functioning of modern urban economies. It also acts as an important link in the supply chain, between businesses and suppliers, and also ensures that consumers can always find what they need (Mutuku, 2021). A logistics management system (LMS) is essential anatomy to underpin these logistics operations. LMS is a computer-based information system (IS) in support of the management of logistics activities, including coordination and management of all operations within planning and logistics such as inventory information, inventory movements and transportation modes)Yin, Zhang, Zhang, & Wu, 2022). Moreover LMS sustains several automated decision-making processes with a decrease in human errors, more accurate effect and hence, higher profitability and efficiency in operations of logistics management (Rouzafzoon & Helo, 2016). The impact of LMS is enhancing operations by fostering teamwork between departments and streamlining supply chain operations through collaboration between companies. With the help of LMS businesses can cut costs by using resources improve efficiency by eliminating redundant resources reorganize resources appropriately and enhance operational efficiency (Rouzafzoon & Helo, 2016).

According to the World Bank's 2019 Enterprise Survey, one of the largest issues facing Kenyan urban sector delivery companies, for example, is the high supply chain costs, which account for 40% of total costs. Supply chain bottlenecks, particularly in urban environments, are the primary cause of e-commerce companies' inefficiencies. It is therefore against this background that the research aimed to assess the logistics management systems' moderation effects on the relationship between urban logistics and supply chain performance.

Urban Demand and Supply Chain Performance

Urban demand and supply chain performance are critical components of contemporary urban logistics and economic management. The increasing urbanization worldwide has created complex challenges for supply chain management, driven by heightened consumer expectations, infrastructural constraints, and environmental concerns. Studies indicate that decentralization aspects are less critical than those focusing on centralization. Rural-urban migration has been in the rise due to imbalanced rural and urban development which has led to increased government services and economic growth in cities, drawing in migrants from rural areas (Paweenawat & Liao, 2023).

Urbanization therefore brings about challenges that business practitioners require to develop new strategies to address the already existing challenges and those that lie ahead. The High population density experienced in urban centers results in increased demand for goods and services, necessitating efficient supply chain operations. Urban populations that are, on the rise lead to a need, for goods and services that must be transported and distributed in crowded city areas (Allen et al., 2018). Urban consumers typically expect rapid delivery times, variety, and high service levels, which puts pressure on supply chains to perform efficiently. The utilization of services in specific areas could be the product of supply, which is superior than demand and other forces, such as population, industrial districts, and purchasing power. Some cities, countries, and urban areas are more attractive to the service industry due to decentralized forces making it easier for operations. Ali and Bisht (2018) assert that private and public sector banks are expanding their branches in urban areas to get more and more customers. Once a supplier is situated in a specific area, new connections may be made with prospective local customers. Depending on the kind of services provided, the location, and the business profile, the effect of supply and demand will vary. Services that gain from frequent and close "face-to-face" interactions, like some professional services, still depend on supply in a particular area. A lively city market for business services can boost the utilization and external sourcing of services without impacting the proximity of suppliers and the shift, towards decentralization or concentration.

The rise of e-commerce has significantly influenced urban demand. Online shopping offers convenience, leading to an increase in last-mile delivery challenges. According to Yin and Xu (2021), e-commerce offers customer loyalty programs and integral plans that enhance business competitive capabilities and build strong customer relationships. E-commerce requires robust logistics networks to ensure timely delivery, which directly impacts supply chain performance. Urban areas often face infrastructural challenges that range from traffic congestion to limited parking, and aging transportation networks. These factors impede the efficiency of supply chain operations by causing delays and increasing transportation costs.

The performance of supply chains in urban environments is influenced by several factors. Effective logistics management is crucial for maintaining supply chain performance. This includes optimizing route planning, leveraging urban consolidation centers, and using advanced transportation management systems to mitigate the challenges posed by urban infrastructure. Technological advancements play a significant role in enhancing supply chain performance. Fatorachian and Kazemi (2021), agree that the technologies lead to huge performance improvements in the supply chain, especially in the wake of increasing regulatory pressures and consumer awareness demand of eco-friendly practices.

Urban supply chains face several challenges, but there are also strategies to address these issues. Traffic congestion and delivery delays are significant challenges in urban areas. This requires supply chains to be more flexible and adaptive. Alexandro and Basrowi (2024), demonstrates the critical role that infrastructure development plays in boosting supply chain efficiency and promoting economic growth by confirming the substantial impact that macroeconomic infrastructure has on supply chain smoothness and a nation's economic growth. Aging infrastructure and limited urban space for warehouses and distribution centers pose significant challenges. Urban supply chains must comply with various regulations related to emissions, noise, and delivery timings, which can complicate logistics operations. Urban consolidation centers (UCCs) help in consolidating deliveries, thus reducing the number of trips and alleviating congestion. Qin, Liu, and Tian (2020) encourages the sharing logistics resources among different companies to optimize delivery routes and to reduce costs. Utilizing electric bikes, drones, and autonomous vehicles for last-mile delivery can enhance efficiency and sustainability. Effective management of logistics, technological integration, and sustainability practices are critical for addressing the challenges posed by urban environments.

HO_1: Urban demand has no significant effect on supply chain performance of e-commerce firms.

Urban Freight Distribution and Supply Chain Performance

The rapid urbanization seen globally has escalated the complexity of managing urban freight, driven by rising consumer expectations, infrastructure constraints, and the need for environmental stewardship. In today's fast-paced markets, the flow of goods is crucial and accounts for a sizable portion of operating expenses in social economic activity. On the other hand, freight vehicles inevitably worsen traffic congestion, collisions, and noise in urban areas. According to (Marcucci & Danielis, 2008), freight transportation accounts for 16% to 50% of air pollution emissions from transportation activities in cities. Dablanc (2007), asserts that the supply of effective logistics services is insufficient to meet the rapidly increasing demand. Many attempts have been made in recent decades to improve the efficiency of various industry-specific logistics systems. Several logistics planning techniques have been put forth to enhance the effectiveness of goods transport services in metropolitan settings. On the other hand, a lot of effort has been made to decrease the size of the freight fleet by making better use of the vehicles, loading them more fully and reducing the number of empty trips. Muñuzuri et al (2012) created a new trip generation model for urban freight transport that can project daily vehicle flows for freight deliveries. Some new initiatives have been explored to supplement the existing freight logistics network. The idea of an Urban Consolidation Center has gained traction in a few cities recently. According to a study by Allen et al. (2018), the right uses of these centers can enhance supply chain efficiency and lessen the negative social and environmental effects of freight transportation. Arnäs, Holmström, and Kalantari (2013) contributions involved the integration of intelligent goods into the logistics management process. From their research findings on this new strategy, it could be seen to possibly promote transport-buying simultaneously. Even more streamlined gains could be achieved from the joint flow of people and freight. According to Dinwoodie (2006), with well-designed projects, rail freight developments could lessen the number of lorry movements and encourage sustainable urban distribution. According to Motraghi and Marinov (2012), the climate change and the impact of change in environmental goals, when energy efficiency plays a greater role in logistics decisions, show that the rail freight system can compete in the urban freight service market, as it is a lower cost and less environmentally damaging mode of transport.

HO2: Urban Freight Distribution has no significant effect on supply chain performance of e-commerce firms.

Accessibility and Supply Chain Performance

In the logistics and economic management puzzle, accessibility and supply chain performance are inextricably linked. Many empirical studies have already focused on the impact of accessibility as an urban logistic on supply chain performance. Accessibility is the ease of reaching a destination which has been a significant factor in urban logistics since it has an implication on the delivery time, the cost, and reliability of goods and services. Taniguchi and Thompson (2018) found that accessibility increases the logistics efficiency of various companies in Japan. The research conducted by Lin and Cui (2021) in Hong Kong explored how accessibility and logistics performance within logistics companies. The findings indicated that the quality of transportation systems in regions significantly influences logistics performance. Urban areas with connected transport networks tend to experience improved supply chain efficiency leading to cost and time savings in the movement of goods.

According to Aharoni (2024), strategies like reducing transportation expenses and accelerating time to market directly impact the cost efficiency and service levels of logistics operations. Implementing technologies such as real time tracking systems, automated warehouses and predictive analytics enhances visibility and control over supply chain processes. Furthermore, the strategic placement of warehouses, distribution centers, and production facilities can significantly reduce the distance goods need to travel, improving delivery times and reducing transportation costs.

Proximity to major transportation hubs and markets enhances accessibility and ensures that supply chains can operate more efficiently. Regions with supportive regulations, efficient customs procedures, and favorable trade policies tend to offer better accessibility, enhancing supply chain performance. Thus, it is anticipated that employment in logistics will be focused on easily accessible places. Since road network density directly impacts traffic flow, accessibility, and general mobility inside the city, is therefore an essential component of urban planning and transport management (Thottolil, Kumar, & Chakraborty, 2023). Therefore, policymakers and logistics companies should prioritize improving accessibility to enhance the efficiency of urban freight distribution.

HO_3: Accessibility has no significant effect on supply chain performance of e-commerce firms.

Moderating Role of Logistics Management System

A company's ability to effectively utilize information technology can greatly enhance its ability to reduce expenses, boost output, and provide better customer service. Since logistics planning and operations depend on information for effective operations, they have been early and widespread adopters of information technology advancement (Bardaki, Kourouthanassis, & Pramatari, 2011). Early examples of usage include enterprise applications include order entry and processing systems, electronic data interchange systems, vehicle routing and scheduling systems and inventory replenishment systems (Wang et al., 2020). Information Technology in organizational Logistics Management has helped managers focus on important matters and skill priorities that ensure automatic execution of many routine logistics tasks helps to free time.

Activities such as fleet scheduling, inventory replenishment, and flow planning are just a few of the many activities that can be coordinated and managed with the help of a logistics management system, which is a computer-based information system (Chang, Chiang, & Pai, 2012). The overall profitability and operational efficiency of logistics management are increased when automated decision-making processes, such as those supported by LMS, are used in place of human analysis and human experience. These mean less human error, lower expense, and more accurate results.

Gu, Goetschalckx, and McGinnis (2010), found Logistics management system to significantly improve firm performance and logistics management in Taiwan. Substantial information improved between and within different levels of the supply chain and its respective players, especially between the logistical operations and their respective stakeholders. Increase the efficiency of the supply chain in its broadest sense enables various supply chain participants to make timely decisions that enhance logistics management efficiency. The moderating role of LMS is in ensuring that most of the final buyers are satisfied within the supply chain due to prompt delivery of goods and maintenance of essential inventory levels. LMS is one of the essential tools in overcoming the inherent challenges brought by urban logistics, hence it could significantly boost the general supply chain performance.

HO5: There is no moderating effect of logistics management systems on the relationship between urban demand, urban freight distribution, accessibility, and supply chain performance of e-commerce firms.

Methods

The research was conducted in Kenya, focusing specifically on e-commerce firms operating within the country. The study aimed to understand various factors influencing supply chain performance among these firms. A total of 281 respondents, who were managerial staff from e-commerce firms across five sectors in Nairobi, Kenya, participated in the study. The sample size was determined using a stratified sampling technique to ensure representation from different sectors, and respondents were selected through simple random sampling to reduce bias.

Primary data were collected using structured questionnaires, which included items measured on a 5-point Likert scale. The data collection process was facilitated by research assistants who employed a drop-and-pick-later method, ensuring that respondents had adequate time to complete the questionnaires thoughtfully. To analyze the data, Pearson correlation was used to test the associations between variables. Additionally, Hierarchical Regression analysis was conducted to test the research hypotheses, allowing for an examination of the moderating effects of logistics management systems on the relationships between urban demand, urban freight distribution, accessibility, and supply chain performance.

Correlation Results

The Pearson correlation analysis was conducted to check for the association between the research variables and the results presented in Table 1. The findings indicate that Urban Demand has a positive and significant (r=0.160) association with Supply Chain Performance. This means that an increase in urban demand also increases supply chain performance. This shows the importance of urban demand patterns to achieve optimal supply chain efficiency and highlights the contributing role of urban demand as a factor towards desirable outcomes in the supply chain.

Additionally, the findings indicate that there is also a positive and significant correlation between Urban Freight Distribution and Supply Chain Performance (r= 0.131). This suggests that there is a positive and significant association, where an increase in urban freight distribution leads to increased supply chain performance. This implies that good coordination and management of freight distribution in the urban areas results in the effectiveness of supply chain performance.

The correlation results also indicate a positive association between Accessibility and Supply Chain Performance (r= 0.078). This indicates a positive and statistically significant relationship between accessibility and supply chain performance, suggesting that even slight improvements in accessibility can have a measurable impact on supply chain performance. Therefore, enhanced accessibility can facilitate the more efficient movement of goods and services, thereby contributing to better performance outcomes in the supply chain.

Furthermore, Logistics Management System and Supply Chain Performance correlation coefficient is 0.216, which is significant at $p<0.05$. This positive correlation highlights the critical role that advanced logistics management systems play in enhancing supply chain performance. Efficient logistics management systems contribute to better coordination, tracking, and overall management of the supply chain, thus leading to improved performance metrics.

Table 1
Correlation Results

	Supply Chain Performance	Urban Demand	Urban Freight Distribution	Accessibility	Logistics Management System
Urban Demand	**0.160****	**1**			
Urban Freight Distribution	**0.131****	**0.055**	**1**		
Accessibility	**0.078****	**0.032**	**0.216****	**1**	
Logistics Management System	**0.216****	**0.210****	**0.161***	**0.164****	**1**
Supply Chain performance	**1**	**0.160****	**0.131****	**0.078****	**0.216****

Direct Effect Results

A regression analysis was conducted to determine the magnitude of the effect of the predictor variables on the dependent as presented in Table 2. The regression model explains 11.2% of the variance in supply chain performance, as indicated by the R-square value of 0.112. The F-value of 10.458, with a p-value of 0.000, suggests that the overall model is statistically significant at the 0.05 significance level. This means that, collectively, the independent variables (Urban Demand, Urban Freight Distribution, and Accessibility) significantly predict the supply chain performance, providing evidence that the model is a good fit for the data.

The results in table 2 indicate that Urban Demand has a p-value of 0.000, meaning it is a highly significant predictor of supply chain performance at 0.05 significance level. The null hypothesis stating that urban demand has no significant effect on supply chain performance is therefore rejected, and concluded that it has a significant effect. The Beta coefficient for Urban Demand is 0.218, meaning that a unit increase in Urban Demand, increases supply chain performance by 0.218, holding other variables constant. The t-statistic of 3.566 further supports the significance of Urban Demand, as it is well above the critical value for significance, indicating a strong and reliable effect on the dependent variable.

The p-value for Urban Freight Distribution is 0.006, showing that it is a significant predictor at 0.05 significance level. The null hypothesis stating that urban freight distribution has no significant effect on supply chain performance is therefore rejected, and concluded that it has a significant effect. The Beta coefficient is 0.169, which suggests that a unit increase in Urban Freight Distribution increases the supply chain performance by 0.169 while holding the other factors constant. The t-statistic of 2.783 supports this significance, indicating that Urban Freight Distribution has a significant impact on the dependent variable.

Accessibility with a p-value of 0.042 is also a significant predictor at 0.05 significance level. The null hypothesis stating that accessibility has no significant effect on supply chain performance is therefore rejected, and concluded that it has a significant effect. The Beta coefficient for Accessibility is 0.123, implying that a unit increase in Accessibility leads to a

0.123 increase in supply chain performance, when all other variables are held constant. The t-statistic of 2.045 confirms the significant effect of Accessibility on supply chain performance.

Table 2
Direct Effect Regression Results

	Unstandardized Coefficients		Standardized Coefficients		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig**
1(Constant)	**1.600**	**0.272**		**5.892**	**0.000**
Urban Demand	**0.212**	**0.059**	**0.218**	**3.566**	**0.000**
Urban Freight Distribution	**0.132**	**0.047**	**0.169**	**2.783**	**0.006**
Accessibility	**0.115**	**0.056**	**0.123**	**2.045**	**0.042**
R-Square = 0.112 **F-Value = 10.458** **P-value = 0.000**					

Moderating Effect Results

A hierarchical regression analysis was conducted to test the moderation effect of the Logistics Management system on the Relationships between Urban Demand, Urban Freight Distribution, accessibility, and supply chain performance of selected e-commerce firms. To test the Moderation effect, four conditions were checked in the results; Non-zero beta coefficients, significant model (F-value), Change in R-squared, and significant interaction. The conditional effect regression results are presented in table 3.

The first conditional effect hypothesis stating that logistics management systems does not moderate the relationship between urban demand and supply chain performance for selected e-commerce firms is rejected, given that the p-value for the moderating effect of logistics management systems is less than 0.05. The additional 0.1% of the variance in supply chain performance indicated by the change in R-square ($\Delta R^2 = 0.001$) suggests that the inclusion of the interaction improves the model's explanatory power. The beta coefficient of the interaction is 0.03. This is significantly non-zero. The overall model retains a statistically significant F-value of $p<0.05$, also supporting the finding that the moderating variable meaningfully adds to the model. This is further supported by the change in R-square and the overall significance of the model, thus proving that logistics management systems moderate the relationship between urban demand and supply chain performance for the chosen e-commerce firms. In other words, logistics management systems are relevant to enhancing efficiency and effectiveness in supply chain operations concerning urban demand.

In contrast, the second conditional result hypothesis, which states that logistics management systems do not moderate the relationship between Urban Freight Distribution and supply chain performance for chosen e-commerce firms, cannot be supported considering that the p-value of the moderating effect for logistics management systems is less than 0.05. The change in R-square ($\Delta R^2 = 0.011$) suggests that including the interaction adds another 1.1% to the variance accounted for in supply chain performance, thereby improving the model's explanatory power. The beta coefficient of this interaction is 0.10, a non-zero effect. With an F-value at $p < 0.05$, the overall model remains statistically significant, thus further supporting this conclusion that the moderating variable is making a meaningful contribution to the model. This is further substantiated by the changes observed in R-square and overall model significance, which concludes that logistics management systems moderate the relationship between Urban Freight Distribution and supply chain performance of the selected e-commerce firms. The findings reveal the role of logistics management systems in fine-tuning efficiency and effectiveness in supply chain operations in the context of demand within cities. The third conditional effect hypothesis, which postulates that the logistics management system does not moderate the relationship between accessibility to supply chain performance for selected e-commerce firms, is thus rejected because of the p-value for the moderating effect of logistics management systems. The change in R-square ($\Delta R^2 = 0.002$) indicated an additional 0.2% of the variance in supply chain performance, thus suggesting that adding the interaction improves the model's explanatory power. The beta coefficient for the interaction is 0.04; therefore, its effect is not zero. At $p < 0.05$, with an F-value, the overall model remains statistically significant; hence, it was concluded that the moderating variable meaningfully contributes to the model. This conclusion is further informed by changes in the R-square values concerning each model and overall model significance taken together, conclusively indicating logistics management systems as a potential moderator of the relationship between Accessibility and supply chain performance for the selected e-commerce firms. This finding shows that logistics management significantly leads to increased efficiency and effectiveness of supply chain operations against urban demand.

Table 3
Conditional Effect Results

Variables	**Model 1** β	**Model 2** β	**Model 3** β	**Model 4** β	**Model 5** β
Constant	1.60**	1.36**	1.37**	1.402**	1.40**
UD	0.22**	0.21**	0.21**	0.21**	0.21**
UFD	0.17*	0.17*	0.17*	0.18*	0.18*
AS	0.12*	0.10	0.10	0.08	0.08
LMS		0.12*	0.12*	0.12	0.12*
UD*LMS			0.04**	0.02**	0.03**
UF*LMS				0.10**	0.10**
AS*LMS					0.04**
R^2	0.112	l26	l27	l36	l38
ΔR^2	-	)14	)01	)11	)02
Sig	p<0.05	0.05	0.05	0.05	0.05
F	10.45	)0	l9	ł2	;7

***UD**: Urban Demand, **UFD**: Urban Freight Distribution, **AS**: Accessibility, **LMS**: Logistics anagement System*

Discussion

The research was aimed at establishing how logistics management systems moderate the relationship between urban logistics and the supply chain performance of e-commerce firms. The results indicated that urban demand, urban freight distribution, and accessibility are enough to explain the variation in supply chain performance. The coefficient of determination $R^2=0.112$ shows that urban demand, urban freight distribution, and accessibility explain a variation of 11.2% in the supply chain performance of e-commerce firms.

The first objective was to determine the effect of urban demand on supply chain performance for selected e-commerce firms. The regression results showed that urban demand has a positive and significant influence on supply chain performance ($\beta=0.218$, $p=0.000$). The null hypothesis was rejected since urban demand has a significant influence on the supply chain performance of e-commerce firms. This agrees with the sentiments of Deng, Wang, Cai, Liu, and Zhang (2020), and Alexandro and Basrowi (2024), that urban household consumption is significant in determining supply chains.

The second objective was to assess the effect of urban freight distribution on the supply chain performance of selected e-commerce firms. The regression results found that urban freight distribution has a positive and significant influence on supply chain performance ($\beta=0.169$, $p=0.006$). The study concurs with the findings of Allen et al (2018), which indicated that appropriate urban freight consolidation increases supply chain performance.

The third objective was to evaluate the effect of accessibility on the supply chain performance of selected e-commerce firms. Regression coefficients of Accessibility indicated that it is both statistically significant and positively influences Supply chain performance ($\beta=0.123$, $p=0.042$) implying that there is a positive and significant effect of urban logistics construct on supply chain performance. This study agrees with Taniguchi and Thompson (2018), which showed that better accessibility leads to improved logistics efficiency.

The fourth objective of the study was to establish the moderating effects of logistics management systems on the relationships between urban logistics constructs and supply chain performance for selected e-commerce firms. The interaction models were fit, the change in R^2 was evident, the beta coefficients were non-zero and the interaction p-values were significant. These interactions between logistics management systems and; urban demand, urban freight distribution, and accessibility were evident in enhancing moderating effects. The study concurs with Gu et al. (2010) who determined that the link between logistics management and business performance was moderated by the logistics management system and Winkelhaus and Grosse (2020) also underscores the relevance of Logistics Management System in achieving efficient business operations.

Conclusion

Based on the findings it was concluded that urban demand has a positive and significant effect on supply chain performance. This includes putting into consideration product stock levels to avoid stockouts due to high demand, understanding the business environment and cultural practices, establishing product promotion techniques that will increase sales, frequent forecasting to meet demand levels and proper timings as well as establishing close relationships with customers.

The study further concludes that urban freight distribution has a significant effect on the supply chain performance. Better urban freight distribution can be determined by establishing route maps to avoid traffic, establishing distances to be covered during delivery, avoiding restricted zones when loading or offloading, determining the best time to do the delivery, and using suitable vehicles for the type of freight.

Accessibility was also found to have a positive and significant implication on supply chain performance, meaning an improvement in accessibility leads to increased supply chain performance. Such include making the information on the website easy to read and understand, using suitable trucks for various terrains, establishing good internet connection to ease communication, reducing transportation costs, and improving the state of roads to ease access.

The findings further determined that logistics management system moderates the relationship between urban logistics and the performance of e-commerce firms. Adoption of logistics management systems therefore leads to accuracy in order processing, delivery of products will be monitored in real-time by both the customer and the firm, it provides a transparent platform for all the stakeholders leading to accountability, establishment of a proper working returns system allows customers to return faulty products and strong collaborations are established with suppliers.

This study is in support of empirical evidence of studies done by other researchers and its main contribution is the analysis on how the logistics management systems interact with the constructs of urban logistics with an aim of providing solutions to supply chain challenges. Although previous studies investigated logistics management system's direct effects, this study focused on its moderating effects given other variables (Urban demand, Urban Freight and Accessibility).

The findings suggest that the adoption of the Logistics Management System allows for efficiency and effectiveness within the supply chain. These results should be considered when businesses face challenges from the external environment, during crucial decision-making phases whether to make, buy or outsource certain activities as well as making choices of who, when and how to handle an activity. The study therefore suggests that organizations should be adaptable to environmental pressures, have a norm of doing cost -benefit analysis before making any decisions and should leverage on their unique resources and capabilities in being responsive to the needs of their customers.

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Conflicts of Interest
The authors declare no conflict of interest.

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