International Journal of Management and Business Research

Volume 7, Issue 1, pg. 161-179, 2025 *ISSN 29769-91723*

https://grandmarkpublishers.com/index.php/IJMBR/index

IJMBR

SUPPLY CHAIN AGILITY AND PERFORMANCE OF DISTRIBUTION FIRMS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

In today's dynamic and highly competitive business environment, distribution firms face increasing pressure to enhance responsiveness, reduce operational inefficiencies, and meet ever-evolving customer demands. However, many such firms in emerging economies—such as Kenya—struggle to align their supply chain operations with strategic performance goals, often due to a lack of agility in sourcing, operations, demand planning, and collaboration. This study was conducted to address this gap by examining the influence of supply chain agility on firm performance in the distribution sector within Nairobi City County, Kenya. The study focused on key dimensions of supply chain agility—strategic sourcing, operational flexibility and how they impact four critical performance indicators: profitability, customer satisfaction, operational efficiency, and market position. The research was guided by dynamic capabilities theory, resource dependence theory, theory of constraints, and resource-based view theory. A descriptive and explanatory research design was employed. Data were collected using a structured, self-administered questionnaire distributed to supply chain professionals across procurement, logistics, operations, and finance functions within selected distribution firms. A stratified sampling technique was used to ensure representation across departments, while a sample size of 234 respondents was achieved. The data were analyzed using descriptive statistics to summarize the responses, Pearson correlation to assess the strength of relationships, and multiple linear regression (Ordinary Least Squares) to determine the combined and individual effects of the independent variables on firm performance. The analysis revealed that all four supply chain agility dimensions had positive and statistically significant effects on firm performance. Operational flexibility and strategic sourcing emerged as the most influential predictors. This study contributes to the existing literature by providing context-specific empirical evidence on supply chain agility within the under-researched distribution sector in Kenya. It also offers practical recommendations for managers seeking to build agile, resilient, and customer-focused supply chains. By demonstrating that supply chain agility is not only strategic but also measurable and actionable, the study underscores its role as a key driver of competitive advantage in the modern distribution landscape.

Key Words: Firm Performance, Distribution Sector, Supply Chain Agility, Strategic Sourcing, Operational Flexibility

Background of the Study

The global economy is shaped by distribution firms that guarantee the passage of goods and services from its point of production to the point of consumption without interruption. These firms act as intermediaries in efficient flow of products in regional and global supply chains. Distribution networks had been traditional and local to specific markets. But with the rise of globalization and the development of technology, these networks grew to be extremely complex and now connected networks. Containerization, real time tracking systems, warehouse management solutions and other key innovations have made distribution firms worldwide more efficient and scalable (Harrison, 2020; Christopher, 2016). These have not only sped up distribution of products and heightened the accuracy of the distribution, but also enhanced the supply chain's resilience to and recovery from unexpected disruptions (Christopher & Holweg, 2020).

Since the beginning of the 20th century, the evolution of distribution practice has been propelled by both technological inertia and the large scale growth of e-commerce. The increased consumer expectations of faster, more accurate and flexible delivery services, demand for distribution firms to quickly adapt to these new demands. Logistics giants such as Amazon have set a new standard of e-commerce by introducing same-day delivery in most markets (DHL, 2023). In response, the logistics industry, especially in the major market, such as the United States, Germany and China, has experienced transformations that have aimed at improving operational efficiency, meeting the strict deadline for delivery and responding to the increasingly sophisticated market environment (Statista, 2023). In reality, the logistics sector had contributed over $9 trillion to the world's GDP by 2022 and by 2022, the world's total GDP will rely on efficient logistical operations in order to support global trade (Statista, 2023). Change permeates the distribution system environment and this shift emphasizes the importance for distribution systems to be flexible and agile in an environment of constant change (Sheffi, 2020).

Ecommerce and the world wide digital revolution has increased the need for supply chain agility — the capacity of a corporation to quickly tune its operations in reaction to commercial interruption, demand interactions, and outside components. As disruptions like global pandemics, geopolitical tensions and natural disasters are growing more frequent, supply chain agility in firms is considered to be the most important strategy for business in order to stay competitive and operationally efficient (McKinsey & Company, 2021). Having an agile supply chain puts firms in better position to deal with the obstacles brought about by market volatility, with a strong continuity of operations, higher resilience ability in an irregular landscape (Christopher & Holweg, 2020).

Asia and some countries in Europe have led the way in advanced technologies for enhancing supply chain agility. South Korea, Japan, and Singapore have all purchased state of the art logistics and distribution technology and infrastructure to reduce time, money and other logistics costs (Kewell et al., 2021). These countries have successfully brought technology (automation, robotics, and AI), nowadays utilized by the supply chains in toto in order to ensure keeping cost effective and operational precision. For instance, in Japan, Kawasaki Heavy Industries and Fanuc were the pioneers of robotic solutions for warehouse automation and factory operations, and automation contributes to 20 % of operations in major logistics hubs such as $250 billion in the logistics sector (Statista, 2023). In the same vein, companies in South Korea use fully automated sorting and packing systems as South Korea integrates AI powered robots in its logistics systems. The integration of south Korean technological integration has allowed south korea to reduce operational cost by 15% over past five years, making it one of most advance logistics hub globally (Bose & Pal, 2020). Similarly, Singapore's Smart Logistics has fostered the use of IoT enabled sensors, AI based forecast and

so on, which have in turn propelled the growth of Singapore's logistics industry by over 12 percent in the past 5 years (Christopher, 2016).

On the logistics side, the UAE has made progress in bringing robotics, AI, and Blockchain together to form the core of how work is done in the watertight segment, which includes ports. In Dubai, one of the world's leading logistics hubs, operations at Jebel Ali Port, one of the busiest ports in the world, have been used more and more AI and robotics. These technological innovations are helping to grow the UAE's logistics sector at 10% per annum and Dubai underscores its ambition to automate 25% of its operations by 2025 (McKinsey & Company, 2021). So Israel is also incorporating AI and robotics into logistics, into warehouse function and last mile delivery. Pioneered by Israeli companies like Stuart, the use of AI powered drones for urban deliveries has become prevalent among Israeli companies and in Israel's logistics sector is forecast to grow at an annual rate of 8.5% (Sheffi, 2020).

They have also benefitted from technological advances that would help to improve their logistics capabilities, which include the African continent, particularly Egypt and Djibouti. No where has the Suez Canal Authority used AI and data analytics quite as well as at one of the world's busiest shipping routes, with Egypt. Between 2019 and 2021, Egypt's logistics technology investments grew by 22% due to the modernisation effort as well as the growth of the e-commerce market (Kewell et al., 2021). Being strategically positioned near to major worldwide trade routes, Djibouti has been significantly investing in port automation and AI based tracking systems which have been helping in efficient management of the Port of Djibouti and cutting cargo turnaround time by 25%.

Being in East Africa, Kenya has witnessed fast growth in e-commerce, thereby raising the necessity for adequate logistics solutions. This pressure to modernize the supply chain and increase supply chain agility for the logistics sector in Kenya was propelled by the rise of mobile money infrastructure and online shopping. The fuels for the growth of Kenya's e-commerce sector between 2020 and 2023 clocked at 15% annually, as Kenya has been demanding faster and flexible logistics solutions (Muturi, 2022). With logistical challenges arising such as traffic congestion and lack of sufficient infrastructure, distribution firms in Kenya are adopting, digital solutions including such as real time tracking and artificial intelligence powered warehouse management systems. Automation and AI implementation in logistics will achieve higher operational efficiency, reduce costs, and ultimately makes logistics more competitive in a changing market environment of Kenya. These technologies will not only be integrated to support growing e-commerce in Kenya but also to raise its standing on global supply chain.

Nairobi, Kenya's economic hub has its unique challenges at the local level: traffic congestion, infrastructure deficiencies and increasing operational cost. Kenya National Bureau of Statistics (2022) shows that Nairobi contributes approximately 45 percent of Kenya National GDP and with the city's population grows, the supply chain management has become more and more important. With the growth of e-commerce in Nairobi, growing at rates of 15% per year from 2020 to 2023 (Statista, 2023), local distribution firms have been pressured further by a rising demand of the consumers, with the constraint of maintaining the operational efficiency. In response to this, many firms in Nairobi are beginning to use supply chain agility strategies by utilising digital platforms, real time tracking and operational flexibility to address both internal and external shortcomings (Muturi, 2022; Kipchumba & Wanjohi, 2023).

In spite of its key consumer support role, Nairobi based distribution firms are besieged by high fuel costs, shortages of labor, and supply chain management inefficiencies. The issues of these companies have resulted in a 15 percent decline in profit margins over the past three years (Kenya Association of Manufacturers, 2023). In addition, the COVID 19 pandemic exacerbated these challenges, disrupted supply chains on a global level and caused a drop off in consumer

demand (Kenya National Bureau of Statistic, 2022). Thanks to these disruptions, which are about to affect supply chains, it is now indispensable to adopt agile supply chain strategies to address these challenges and ensure their firms' sustainability and competitiveness (McKinsey & Company, 2021; Sheffi, 2020).

To survive in this dynamic environment, Nairobi has to be supremely agile as some of these challenges cannot be overcome without supply chain agility. A firm with agile supply chain is able to handle disruptions, change in demand and customers' expectations better than an ordinary firm. However, distribution firms in Nairobi, where the infrastructure is a constraint and there is high regulatory hurdles, have had to adopt strategies such as strategic sourcing, operational flexibility, and collaborative partnerships to be able to be agile in their supply chain (Christopher & Holweg, 2020). The ability of businesses to stay agile, reduce lead times and also hone the decision making process through the adoption of digital platforms, real time tracking system and the use of AI solutions only improves their competitiveness and customers satisfaction (Kipchumba & Wanjohi, 2023).

This study seeks to understand the effect of supply chain agility on the distribution firm's performance in Nairobi City County, Kenya from 2018 to 2023. The study will look at key components, such as strategic sourcing, operational flexibility and help distribution firms in Nairobi to improve resilience and competitiveness in the fast growing market environment of Nairobi. This research's findings will add to growing literature on supply chain agility, and provide practical suggestions for policymakers, industry stakeholders, and managers of distribution firms within Nairobi and similar urban contexts.

Statement of the Problem

Within Nairobi City County, distribution firms are essential for the movement of goods within the local economy and across East Africa. Nevertheless, these firms are challenged by operations issues that hamper their efficiency and competitiveness. The reason for this is according to democracy Kenya Association of Manufacturers (2023) profit margins for distribution firms have fallen by 15 percent over the past three years – a worrying sign that their firm's overall operational return has reduced. It is particularly distressing because these firms are so important to continuing to provide a stable flow of goods to businesses and consumers. Moreover, the Kenya National Bureau of Statistics (KNBS, 2022) similarly reveals that 30% of distribution corporates in Nairobi have eased down their operations on grounds such as the increase in operational cost, the interruption of the supply chain and the sharpening rates of competition.

On top of that, the supply chain disruptions caused by a series of external factors — global owing to supply chain disruptions, rising fuel prices, and logistical bottlenecks. These disruptions have made a significant impact, with delays, high cost and inefficiencies being noted. For instance, with the added complication of the COVID-19 pandemic, these issues became even more intense resulting in a worldwide slowdown in the provision of raw materials, labour shortages and problems with shipping and transportation (World Bank, 2021).

Strain on distribution logistics firms is also being caused by climatic factors like flooding and droughts which make it very difficult for distribution firms to operate efficiently and in cost effective mode-However, emerging research points to the fact that taking supply chain agility could help reduce the consequences of attributing disruption on performance. Firms having supply chain agility are able to rapidly adjust to the fluctuations in markets, changing customers' demands, and unforeseen disruptions. As also mentioned by Christopher (2020), firms with agile supply chains are able to perform better in times of stress since they are more resilient to shocks than rigid supply chains. Strategic sourcing, operational flexibility, with suppliers facilitate a placement of the firm in volatile environments by means of agility,

resulting in increased performance. Nevertheless, supply chain agility comes with clear advantages, yet most distribution firms in Nairobi still lack all such practices, which could be the root of their suffering.

On the observation that supply chain agility strategies have been limited to adoption in the Nairobi's distribution sector, there exist a gap between academic study and practical implementation. Consequently, the concepts of agile sourcing, operational flexibility, have already been explored in the global logistics sector but not within Nairobi distribution firms. Hence this research closes this gap by researching the impact of supply chain agility in terms of flexibility of sourcing, to firms' distribution performance in Nairobi City County. Distribution firms played a crucial role in this period (2018 to 2023) when they faced unparallelled challenges like COVID 19 contagion, rise in costs and fast changing market during which our study will remain.

Within the supply chain, this study aimed at exploring whether supply chain agility can enhance operational performance of Nairobi's distribution sector in such a way that firms are able to respond better to cost of fuel, traffic congestion, shortage of infrastructure and supply chain disruptions. The study provided insights into how the factors that hindered or affected the adoption of the agile supply chain practices by Nairobi's distribution firms could be enhanced to ensure that these firms continue to operate efficiently and competed in an increasingly dynamic business environment. This study's findings were used in both academic literature and practical strategies for how the logistics firms should improve their performance

Objectives of the Study

General Objective

To examine the Contribution of Supply Chain Agility to the Performance of Distribution Firms in Nairobi City County, Kenya (2018–2023).

Specific Objectives

i. To assess the effect of strategic sourcing on the performance of distribution firms in Nairobi City County.
ii. To evaluate the influence of operational flexibility on the performance of distribution firms in Nairobi City County.

LITERATURE REVIEW

Theoretical Review

Dynamic Capabilities Theory (DCT)

The Dynamic Capabilities Theory (DCT), put forward by Teece (2007), is the basic yardstick for developing the ability of the firms in achieving and sustaining competitive advantage in the volatile and the uncertain environments. According to the theory business organizations need to unite their internal assets with external resources to construct new combinations that can adapt to fast-evolving business environments. The ability to accomplish agile resource reconfiguration remains crucial for supply chain management because companies need to handle market disruptions together with changing customer demands and fluctuating external elements. The Nairobi City County distribution firms can use strategic sourcing from DCT to enhance their performance by understanding its use as a supply chain management essential according to Teece (2007) and Christopher & Holweg (2020).

DCT requires firms to perform sensing and seizing before implementing reconfiguring to modify their strategic and sourcing plans and stay competitive. The firm needs sensitive

abilities to recognize and decode both market opportunities and threats. For instance, in the strategic sourcing world, it refers to spotting changes in supplier dynamic, changes in customer demand, or disruptions such as fuel price increase or regulation shifts. Active monitoring of these external factors facilitates distribution firms to change their strategies of sourcing and minimize risk and efficient operations. Plus, seizing means they're able to scoop up or mobilize resources to capitalize on known opportunities. This may be a case of instantly switching to different suppliers or transforming the procurement processes to maintain the supply line intact in strategic sourcing. On the other hand, reconfiguring means that the firm transforms its resource base in accord with the 'environmental challenge' such as restructuring its procurement networks, adopting new technologies for better supplier relationships, enhanced procurement efficiency (Sheffi, 2020; Teece, 2018).

In relation to the first specific objective of this study that is to assess the effect of strategic sourcing on distribution firms' performance in Nairobi, DCT applies directly. It enables us to see how dynamic capabilities in sourcing of distribution firms can align to achieve higher performance levels through quick adaptation to changes. Taking the example of distribution firms, they can use their sensing capability to adapt their sourcing strategy, for example, by trying to diversify their supplier base or negotiating better contracts with suppliers. This allows firms to get rid of operational bottlenecks, effective cost management and meet customers' needs effectively (Teece, 2007; McKinsey & Company, 2021).

DCT notes the importance of reconfiguring resources, an example that of which might be implemented in the context of strategic sourcing by adopting flexible procurement models capable of quick changes based upon changing the market. For example, infrastructural bottlenecks, traffic congestion, and fuel price volatility that increase are all 'noise' that can inhibit the performance of supply chain of distribution firms in Nairobi. These firms are able to lessen the impact of such disruptions through their capacitated ability to effectively change sourcing strategies while minimising their overall performance (Sheffi, 2020; Christopher & Holweg, 2020).

There are several studies which provide an empirical support of using of DCT to help understand supply chain agility. For example, dynamic capabilities are associated with being better able to maintain or even improve one's market share in crises such as the COVID-19 pandemic (McKinsey & Company, 2021). First, there are documented cases of firms that developed dynamic capabilities, specifically in their sourcing practices, were shown to better as those effects were present in the East African context. At the same time, dynamic capabilities, such as real time data analytics and flexible supply systems enabled some Kenyan firms to adjust and stay ahead of the game, only to be hindered by other challenges like traffic congestion and in infrastructure which has led to poor performance (University of Nairobi, 2021, East African Community [EAC], 2022).

This study will apply DCT to test how the firms' capability to sense, seize and reconfigure their sourcing practices when confronted by external challenges influences distribution firms' operational performance in Nairobi City County. Put simply, the alignment of strategic sourcing with DCT's dynamic capabilities implies that it plays a vital role in increasing the distribution firms' resilience, efficiency, as well as the perfection in the way they operate (Teece, 2007; Kipchumba & Wanjohi, 2023).

In summent, the Dynamic Capabilities Theory provides a total framework to understand the association amongst strategic sourcing and company efficiency. A distribution firm's ability to quickly sense market changes to opportunistically endeavor, crush the benefits of a disruptive change to its sourcing strategies and still retain competitive advantage determines a firms performance. In this study, the application of DCT is valuable in understanding how firms in Nairobi can increase their performance through agile and dynamic sourcing strategies and thus

contribute to an overall supply chain agility and competitiveness of study firms (as Sheffi 2020, McKinsey & Company, 2021).

Resource Dependence Theory (RDT)

Resource Dependence Theory (RDT) is developed by Pfeffer and Salancik (1978) to study how the organizations survive and achieve success by dependent on the external resources. This theory says that organisations are not separate yet they need to interact with external entities like suppliers, customers and regulatory bodies to get the needed resources for performing their operation. The notion that a firm's ability to attain organizational goals and also stay competitive is dependent upon how RDT is managed is reflected in RDT. In effect, according to RDT organizations should be able to pursue their relationships with external actors properly and acquire to the resources they need so that resource scarcity or supply chain disruption is not risky.

The framework proposed by RDT is also useful for distribution firms operating in Nairobi City County, particularly those with limited flexibility and responsiveness in their operations. Often, distribution firms have to deal with varying demand, disruption in supply chain, and market volatility. Firms can also develop strong relationships its key stakeholders such as suppliers, transporters, to ensure a steady flow of critical resources and materials that help it respond quickly in changing market conditions (Burge, and Turok, 2019). In such a situation where a firm's supply chain can get disrupted due to external shocks such as fuel price volatility or political instability, the firms which are in a position to manage the resource dependencies are more likely to stay stable and, possibly, perform better too.

The central idea of RDT is what is called negotiation power, which is a firm's ability to determine a contract with suppliers and business partners. According to Gulati (1995), firms which can employ their negotiation power to negotiate for desirable terms and also prevent critical resources from becoming unavailable in times of scarcity or uncertainty are better placed. Strong relationships between suppliers (fuel providers, warehouse operators, transporters) and distribution firms in Nairobi enable firms to negotiate more flexible contracts to ensure that even as external challenges change, the firm still operates efficiently. For instance, if there are such problems as lack of fuel or fuel shortage, the distribution firm with a reliable supplier relationship can negotiate expedited delivery or see preferential prices depending on availability of product and/or supply delays. The firms can leverage this negotiating power into operational flexibility as they can adapt quickly to disruptions without breaking service delivery. As a result, handling of the supplier relations positively impacts on the overall performance of a firm as it contributes to increase its ability to adapt and respond to changes in the environmental setting.

Additionally, RDT does not forget to extoll the virtue of interorganizational cooperation as a key determinant of the management of resource dependency. Cooperation in distribution between firms and their partners allows them to share information, resources, and their capabilities in order to better manage uncertainties and increase flexibility (Anderson & Narus, 1990). Firms establish cooperative relationships so that they carry out operations smoothly, decreasing lead times and respond more quickly to external disruptions. Consider distribution firms in Nairobi who work with local transport providers to share logistics information, time delivery schedules, reducing the effect of traffic congestion, or lag in receiving permits. Finally, when supply chain problem occur, those with cooperative ties can cooperate to tackle the problems relating to inventory shortages, transportation bottlenecks as well as delays in delivery of the products. This means the firm has an increased operational flexibility and can make very quick adjustments that keep it from disrupting its supply chain processes.

RDT's resource exchange model also confirms that companies should be able to get hold of important resources continuously as it helps them to change their functions after the changes in conditions (Pfeffer & Salancik, 2003). Distribution firms in Nairobi, to name but a few examples are better able to adjust operations in the event of disruptions because they also have guaranteed access to alternative resources such as transportation services, warehousing, raw materials. Real time tracking systems are evolving by the digital technologies as firms now can track the activities of their supply chain in real time thereby making it possible for firms can make faster and informed decisions. This has the benefit that they can best manage their resource base and consequently be more responsive and overall more performant. Through the strategic management of resource exchange and smart use of digitalizations, firms gain a stronger strength for their operational flexibility, and will gain performance in the unpredictable future.

The importance to distribution firms operating in Nairobi of RDT's emphasis on the management of resource dependencies and external relationships is especially high due to logistical challenges associated with traffic congestion, unpredictable infrastructure quality, and frequent regulatory change. Firms can mitigate the risks associated with these challenges by building good relationships with local suppliers, logistics companies and regulatory bodies, by allowing these bodies to consider firms' concerns when making decisions regarding the introduction of new transportation infrastructure or projects for regulatory changes. In addition, those firms that are able to effectively control their dependencies with local service providers can respond quickly to the changing of market conditions, enhancing product delivery capability, as well as product on time shipment and in turn diminishing customer dissatisfaction. These capabilities increase operational flexibility such that firms can respond better to demand, supply chain and market shocks.

However, operation flexibility is an outcome of successfully managing resource dependencies since firms are able to flexibly adjust the operations to deal with external perils. As Burrell and Turok (2019) highlight, RDT would suggest that firms that have strong supplier networks are more prepared to quickly adapt their resources by reconfiguring themselves to respond to changes in the market or disruption within the supply chain. For instance, as a means to prevent major disruptions, distribution firms with sound relations with multiple suppliers are able to swiftly move from one supplier to another when shortages or delays occur to maintain product availability without much disruption. In the same vein, firms who have flexible agreements with logistics provider can alter the delivery schedule or route to be compensated for events that have not been anticipated, for example traffic congestion and regulatory delays. This flexibility enables the firms to continue facing customers with a very high level of service delivery despite external shocks.

Strategic management of the external relationships helps companies enhancing their operational flexibility and their ability to respond to market changes. For example, firms with good relationships with their suppliers can obtain higher and expedited delivery of resources as a means to meet customer expectation without impacting on service quality during times of higher demand. Thus, RDT offers useful insights into how good managing resource dependencies and building strong interorganizational relationships can contribute to improved operational flexibility, and in turn improve the overall performance outcomes.

RDT implies that organizations which well manage their interdependencies with key external players will have a better performance outcome (Gulati, 1995). Therefore, the ability to effectively manage relationships with suppliers, logistics companies and other external stakeholders becomes very vital to distribution firms in Nairobi for operational efficiency and continuity. Firms maintain access to indispensable resources like transportation capacity and raw materials thus avoiding disruptions that eventually mean being able to maintain meeting customer needs. Furthermore, by using the other's resource dependence, firms are able to

achieve the desired better pricing, preferential terms, and timely deliveries that lead to better performance (Pfeffer and Salancik, 2003). Consequently, through these strategic interdependencies firms can also be more resilient facing market changes or external shocks in order to remain competitive and to remain in the successful track in the long run.

This concludes that the Resource Dependence Theory presents valuable information about how distribution firms can skillfully control external relationships and resource dependency. Firm's foster strong, cooperative relationships with key suppliers and logistics providers that will ensure continued ability to receive inputs that are necessary to operate efficiently and make the needed adjustments to changing market conditions. Management of external dependence is theoretically discussed to point out its influence on operational flexibility and performance outcomes by way of flexibility and the possession of negotiation power. Managing these resource interdependencies is important for distribution firms in Nairobi City County to have competitive advantage, reduce operational risks and to generally improve overall performance. RDT is therefore a useful framework for conceptualizing exploitation of external relationships and resource management in influencing the operational flexibility and success of distribution firms in Nairobi.

Conceptual Framework

The independent elements of this study consist of strategic sourcing, operational flexibility, that impact performance levels of distribution firms within Nairobi City County Kenya.

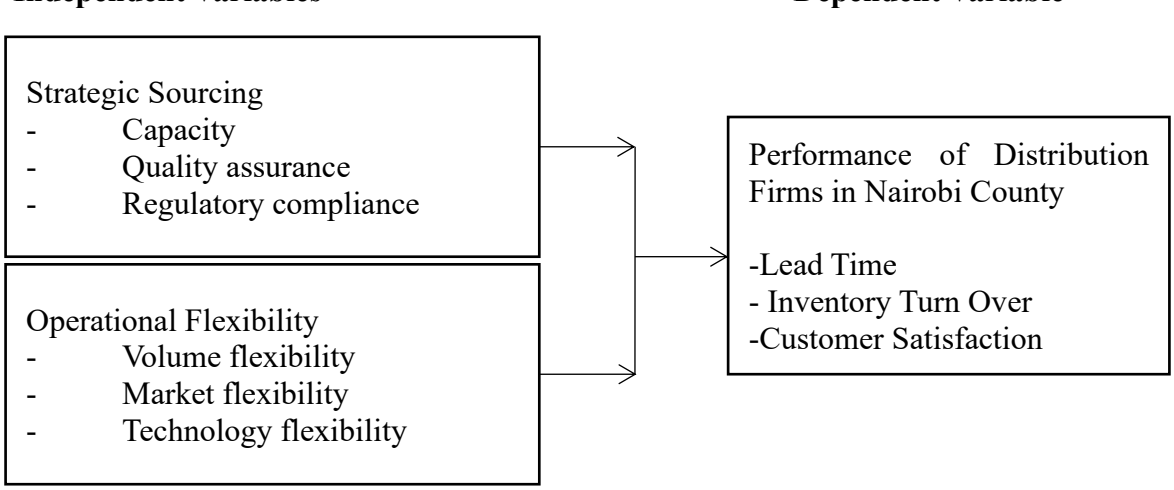

Figure 2. 1: Conceptual Framework

Source: Author (2025)

Empirical Review

Strategic Sourcing

Supply chain management holds strategic sourcing as its principal supply process optimization framework to achieve the best lasting organizational value through procurement activities. Strategic sourcing layers a structured method of supplier partner oversight and capacity oversight and quality control and regulatory standards to enhance supply chain operational efficacy (Carter & Rogers, 2008). Analyzing Monczka et al. (2015) along with other research learning shows that strategic sourcing evaluates expenditure reduction alongside operational goal-supplier capability fitting to advance corporate performance. Strategic sourcing within distribution firms is vital for maintaining product market deliveries while addressing both specifications of quality and regulatory requirements.

Strategic sourcing depends heavily on capacity management because this capability allows organizations to link supplier resources with changing market needs. The research performed by Smith (2019) demonstrated that distribution companies partnering strategically with suppliers using scalable capacities ended up better handling unexpected market shifts. Working with suppliers who can shift manufacturing levels to accommodate evolving market requirements enables firms to prevent both inventory shortages that harm customer satisfaction and operational performance. The tactical sourcing models which integrate capacity adaptability enable businesses to simplify their workflows and speed up delivery times thus improving supply chain immediacy (Dapiran et al., 2017). Ultimately, this capacity management, and therefore the better service delivery it enables, the better market competitiveness it supports, and the greater operational resilience resulting from disruption it guarantees, translates into some good outcomes for the economy.

Quality assurance functions as a key element in strategic sourcing procedures because it verifies that acquired products fulfill their designated standards and specifications. Organizations which depend on product quality for their customer retention need excellent quality assurance methods in their strategic sourcing stage. The strategic sourcing approach of applying emphasis on quality assurance leadscompanies to secure enhanced customer satisfaction rates while reducing their product return frequency. Strategic sourcing performance benefits through long-term advantages from quality assurance standards demonstrated within Venkatesh and Shankar (2015) research. When organizations build strong bonds with suppliers through quality assurance programs they obtain mutual problem-solving abilities which prevents possible supply chain disturbances.

To develop as a strategic sourcing process, the third prong would be regulatory compliance in addition to capacity and quality. With ever increasing globalisation of supply chains, compliance with international, national and regional regulations becomes a key instrument with a view to avoid legal and reputational risks. Provisions for the diversion firm include fines, legal action, and badly damaged brand reputation that can cause significant damage to a firm's operational performance. As Hong et al. (2020) researched, firms that choose a strategic sourcing policy based on regulatory compliance will have fewer disruptions caused by regulatory compliance issues and have better relationships with regulatory bodies. Additionally, they are able to recognize that when they source meeting the health, safety, and environmental standards it may be a means to gain the competitive advantage in their products and services while allowing a firm to be conforming with the regulatory compliance of its sourcing. According to Lee et al. (2018), firms with effective compliance management strategies have the advantage in facilitating the performance of complex global supply chains and the risk management of noncompliance, effectively improving the robustness of the supply chain.

Supplier performance evaluation is one activity that is often overlooked when it comes to doing strategic sourcing. The firm that is successful does not simply have relationships with suppliers, but it checks how its suppliers perform to match up with the set standards and adapt to the changes in the environment. As per a study by Ogden et al. (2019) it is found that distribution firms that continually integrated supplier assessment were prepared to detect underperforming suppliers and favourably act in due time. The proactive approach enables the firms to achieve high operational efficiency levels, lower risks resulting from weak supplier performance, and generally improve in the overall supply chain responsiveness. Firms can also keep track of their suppliers and make improvements in the process by consistently monitoring the suppliers and adapting the sourcing strategies accordingly for those industries where the technological advancements changes swiftly or customer taste varied.

Finally, the empirical literature repeatedly emphasizes the strategic sourcing is critical in improving the performance of the distribution firms. Capacity, QA, and regulatory compliance

are the main, critical elements a firm can rely on to build a stable and agile supply chain that can adapt to change in the market dynamics. Furthermore, a distribution firm can keep operational flexibility and improve competitiveness by evaluating supplier relationship continuously and refining the same. According to Allen, as firms are continuously expanding in an increasingly complex and interwoven global supply chain we should expect strategic sourcing will remain a vital component to organizational performance improvement and that firms will be forced to change and devise new ways of reducing costs in light of new opportunities and threats.

Operational Flexibility

It has been discovered that supply chain agility is one of the critical determinants in a firm performance, with different importance under volatile and uncertain business environments. For the past seven years (2020 to 2024), empirical studies across the board show firms with agile supply chains are more optimally prepared to handle disruption events, to respond to market changes, and as well to produce superior operational outcomes. For example, McKinsey & Company (2021) conducted a global study which showed that Supply Chain agile firms have 30% likelihoods of maintaining or even improving the market share during the Covid 19 pandemic than the less agile firms. Also, as Christopher and Holweg (2020) found via survey of European firms, agile supply chains facilitated 20 per cent reduction of lead time and 15 per cent improvement of customer satisfaction. This supports the fact that agility is critical in creating resilience and competitiveness, most especially in industries that are characterized by quick technological progressions and ever changing consumer demands.

In the East African region, there has been a link between adoption of supply chain agility and firm performance, specifically in the manufacturing and retail sectors. A study by the East African Community (EAC, 2022) revealed that firms in Kenya, Tanzania and Uganda which invested on agile practices (having flexible sourcing and real time data analytics) has 25 percent increase in operational efficiency. There is an acute need for supply chain agility in Kenya; the growth of e-commerce and digital technology has further heightened this in Kenya through increased use of digital platforms to improve visibility and responsiveness (GlobalData, 2023). In the case of university of Nairobi (2021), a leading Kenyan retail firm's case study showed that following the Agile Supply Chain Practices, such as the demand forecasting and the inventory optimization, led to a 30% reduction in the number of Stockouts and 20% in additional sales. This provides important insight on how supply chain agility can help transform performance in the region.

Distribution firms in Nairobi City County have very well come to realize the value of the supply chain agility in addressing the specific challenges of the urban environment at the local level. A KNBS (2022) survey of distribution firms in Nairobi found that 40% of distribution firms in Nairobi had adopted such practices as real time tracking system and collaborative relationships with suppliers to mitigate the impact of traffic congestion and infrastructure limitations. Also a study by Kipchumba and Wanjohi (2023) revealed that the firms that invested in digital technologies such as blockchain and IoT devices experience 10 percent reduction of the cost of operation and 10 percent reduction of the time delivery. These findings suggest that supply chain agility is practically applicable to enhance the performance of distribution firms in Nairobi under the context of continued issues like fuel price volatility and labor shortages.

In the last few years, the role of strategic sourcing as a supply chain agility component has been studied extensively also. Sheffi (2020) conducted a global survey which revealed that in case of supply chain disruptions, firms with the strong supplier network and strategic sourcing practices were 25 % more likely to recover quickly. A study by the Kenya Association of Manufacturers (2023) shows in the East African context that firms that adopted strategic sourcing practices i.e. multi sourcing and supplier collaboration reduce procurement cost by 20

percent and improved supply chain resilience by 10 percent. In addition, bringing out these findings emphasizes the need to develop strong supplier networks and then align procurement practices with the organization's objective.

Another important aspect of supply chain agility that has shown its impact on firm performance is operational flexibility. The results of the World Economic Forum (2021) study showed that about 30 more such firms are able to adapt to fluctuations of demand and perform better by the level of customer satisfaction. A case study in Kenya of one of the country's leading logistics firm revealed reducing delivery times by 25% and rising customer retention by 20% as the main benefits of adopting dynamic routing and modular warehousing were realized (University of Nairobi, 2021). The findings emphasized that companies can make decision once rapidly enough to adapt to changes in demand and market conditions with the capacity to operate flexibly.

According to a study by Christopher and Holweg (2020), firms interconnected with partners both as suppliers and distributors are 30 per cent more likely to meet faster response time and a higher degree of customer satisfaction. In Kenya, KNBS (2022), conducted a survey on the firms that underwent collaborative practices, such as joint planning and information sharing, not only reduced lead times by 20 percent but also managed to improve supply chain efficiency by 15 percent. These results show the importance to develop collaboration and coordination in the supply chain in order to create agility and improve performance.

RESEARCH METHODOLOGY

Pragmatic research recommendations, grounded in real application of business in Nairobi distribution industry, were conceived to increase business resilience, efficiency and competitiveness. As a result, this philosophy ensured that the study's learnings were relevant to academic theory, but continue to inspire distribution firms in addressing persistent operational challenges. The descriptive research design was used. Sutton & Austin (2020) chosen method have paved the way for the unbiased results that has helped pass important information in regards to practices, challenges and outcomes.

This study drew its sample unit from distribution firms in Nairobi City County as its main sample. This distribution firms (KEBS, 2023) is spread across 55 geographical distribution firms. These 55 firms were the units of observation with managers from key departments as their units of observation in the research. The study was conducted on a broad sample of five department managers in Procurement, Operations, Distribution/Logistics, Warehouse and Finance departments. Overall the study got respondents from 275 respondents with one from each department of the 55 targeted companies.

The appropriate sample size was determined in this study based on the Yamane formula (1967). Therefore, the required sample size for this study is approximately 163 respondents. The participants were selected from the 55 studied firms by simple random sampling from each department. Procurement, Operations, Distribution/Logistics, Warehouse and Finance Departments had a random selection of three managers. Sampling should be done in a way that can improve its generalization (Mugenda & Mugenda, 2018).

Table 1: Sample size

Category	Total Sample Size	Percentage
Procurement Department	33	20.25%
Operations Department	33	20.25%
Distribution/Logistics	33	20.25%
Warehouse Department	32	19.63%
Finance Department	32	19.63%
Total	**163**	**100%**

The questionnaire structured as the main instrument for data collection. The data was analyzed using the Statistical Package for Social Sciences version 28. The study used descriptive statistics such as, percentages, means and standard deviations etc. to describe the data. The strength and direction of these relationships were tested by Pearson's correlation coefficient (Wagana, 2018). Besides, multiple regression analysis was also run to know the importance of the independent variables on the dependent variable.

RESEARCH FINDINGS AND DISCUSSIONS

A total of 163 respondents were targeted across five departments: Out of the 163 questionnaires distributed, 150 were returned with complete responses, resulting in an impressive response rate of approximately 92%.

Descriptive Analysis of Study Variables

The study examines four key variables: Strategic Sourcing, Operational Flexibility. Descriptive statistics were calculated for each of these variables using responses from a Likert-scale survey (1 = Strongly Disagree, 5 = Strongly Agree). The results are discussed below.

Strategic Sourcing

Strategic sourcing involves selecting suppliers based on their long-term alignment with the firm's goals. Table 2 presents the descriptive statistics for responses related to strategic sourcing.

Table 2: Descriptive Statistics on Strategic Sourcing

Statement	Mean	Standard Deviation
We evaluate suppliers based on their ability to contribute to long-term goals.	4.2	0.85
Sourcing decisions align with the firm's overall business strategy.	4.1	0.88
We prioritize flexibility and responsiveness from suppliers.	4.3	0.80
We have long-term partnerships with suppliers to improve performance.	4.4	0.77
Supplier performance is regularly assessed and aligned with operational goals.	4.0	0.90

The findings from the strategic sourcing part show that secure strategic sourcing is very important supply routing procedure for business. The mean score for the statements lie anywhere from 4.0 and 4.4 indicating strong agreement with respect to having a long term strategy of selecting suppliers. This is supported by Zhao et al. (2020) who emphasize that strategic sourcing is important for long term supply chain success, in which companies give preference to long term, stable relationships of their suppliers on the basis of increasing total performance. Mean score of 4.4 suggests that firms think of long term relationship with supplier as the important aspect which improves of supply chain performance. Similarly, Hosseini et al. (2021) state that long lasting strong relationship with suppliers brings about

strong operational efficiency, better communication, and more reliable performance resulting to firm's supply chain being agile.

Additionally, the mean score for the respondents' perceptions regarding the strategic nature of sourcing, (4.1) supports that sourcing is not just another task, but a component of the business strategy. This is further confirmed by Sharma and Gupta (2021) who say that strategic sourcing decision such as choosing suppliers based on the longer time objective is important in ensuring lasting competitive edge in the supply chain. Firms also indicate that supplier performance is routinely evaluated and aligned with operational goals and thus, that supplier relationships are actively managed. Kumar et al. (2020) argue that firms tend to invest in optimizing the supplier relationships through the continuous performance assessments to ensure the fulfillment of firm's strategic needs of reliability and flexibility in a supply chain that is critical to keep the supply chain agile.

It is suggested that strategic sourcing can contribute substantially to the firm's supply chain agility and performance in a complementary manner. As confirmed further by Papadopoulos et al. (2022) effective strategic sourcing boosts supplier collaboration, which, in turn, supports the agility and responsiveness needed for optimal supply chain performance.

Operational Flexibility

Operational flexibility is a firm's ability to adjust to changes in customer demand or market conditions. Table 2 provides the descriptive statistics for operational flexibility.

Table 2: Descriptive Statistics on Operational Flexibility

Statement	Mean	Standard Deviation
Our firm can quickly adapt to changes in customer demand or market conditions.	4.1	0.87
We have sufficient internal resources to handle operational changes.	4.2	0.82
Our production and distribution schedules can accommodate disruptions.	4.0	0.89
Our processes handle product variations/customizations as requested.	4.3	0.80
Our ability to respond to disruptions improves overall performance.	4.4	0.75

Firms' responses to the operational flexibility question suggest a strong importance placed on the ability to adapt to disturbances and the changing market conditions. Mean scores from 4.0 to 4.4 as strongly suggests the respondents agreed in need of operational flexibility for the sustainability and responsiveness of the supply chain. Kumar et al. (2020) support this point of view in the fact that operational flexibility allows firms to quickly respond to market disruptions and stay competitive in a volatile market. In terms of the average mean score (highest being 4.4), firms rank highly with respect to their flexibility when they encounter disruptions, pointing to a potential comfort in having firms that adjust rapidly to new buyer need or uncontrollable market conditions. Furthermore, in a market uncertain environment, companies with high operational flexibility are more resilient as they can adjust their production schedules, distribution plan and resource allocation should demand change, and it is proven by Sharma and Gupta (2021).

Finally, respondents recognized that their firms have enough internal resources (mean score of 4.2) to adapt operations, thus resource preparedness is vital for the firm to stay flexible. This aligns with Hosseini et al. (2021) who emphasize that to effectively cope with disruptions and maintain operational continuity, resource flexibility in terms of having at scale laboratory

forces and production capacity is essential. These findings taken together indicate that operational flexibility is perceived of as a dynamic strategy, a tool to respond to product variation, schedule changes with respect to production and distribution, and react to changes in market conditions. Along these lines, according to Zhao et al. (2020), another major benefit of supply chain response flexibility is that it improves the performance of the supply chain and at the same time increases organizational resilience by contributing to adaptability to disruptions without large losses in efficiency and performance. The results are concluded with the question of the importance of operational flexibility for the provision of supply chain resilience and overall firm performance. Papadopoulos et al. (2022) also affirm that the ability to quickly adjust to market and environmental changes is critical for organizations aiming to sustain competitiveness in a rapidly changing business landscape.

Firm Performance

This subsection presents descriptive statistics on the dependent variable—Firm Performance—as reported by respondents across various distribution firms in Nairobi City County. The construct was measured using several indicators, including lead time, inventory turnover, customer satisfaction, cost efficiency, and service reliability, all rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The analysis sought to understand how respondents perceived their firms' overall operational outcomes in relation to the implementation of supply chain agility practices. Table 4.8 presents the summary of findings obtained.

Table 3: Descriptive Statistics on Firm Performance

`Statement	**Mean**	**Standard Deviation**
We have seen increased profitability due to improved supply chain practices.	4.0	0.86
Operational efficiency has improved due to agile supply chain strategies.	4.3	0.79
Customer satisfaction has increased due to responsive supply chain practices.	4.2	0.81
Strategic sourcing decisions have positively affected market position.	4.3	0.77
Collaborative relationships have improved delivery times.	4.4	0.72

The results of the analysis of firm performance show that respondents who think that the effects of supply chain agility can be positive report better performance across a number of critical firm performance indicators. Thus, the different variables have had a mean score between 4.00 and 4.40, meanwhile, it is clear a connection between supply chain agility and profitability, operational efficiency, customer satisfaction and market positioning. Our finding are in line with recent researches that reveal the ways in which agile supply chains help a firm to be successful. For example, Papadopoulos et al. (2022) assert that firm profitability and market adaptability are increased, as is operational outcomes, when agility is added to the firms.

Moreover, relationships between the customers and suppliers influence organizational performance except for those related to the finances and the market. Choi et al. (2022) like other authors, recognize strong supplier and customer relationships can bring positive operation results and are a good basis for improving supply chain performance via collaboration. The source of the highest mean score of 4.4 is the reduction in delivery times through collaborative relationship, thus the stronger supplier and customer relationship directly yields operational results. According to Sharma and Gupta (2021), besides decreasing lead times, supply chain collaboration improves the overall efficiency of operations, which matches what has been observed in improvements of the overall operational performance.

According to respondents, the degree of agility in a supply chain is operational efficiency with a score of 4.3, indicating that these strategies are highly valuable to a company in improving efficiency. In more recent research by Kumar et al. (2020), it is shown that operational efficiency is an important benefit of implementing agile practices that assist firms in becoming better at responding to fluctuating demand and including operational challenges. The overall mean of 4.3 concerning the importance of strategic sourcing towards market positioning underscores the strategic importance of the sourcing decisions' role for winning competitive advantages. Yang et al. (2023) corroborate this finding as they indicate that effective strategic sourcing allows firms to get critical resources and thereby strengthens their market positioning and delivers a competitive advantage.

In addition, respondents indicated that responsive supply chain practices (mean score 4.2) has helped the customers to get the required services more efficiently, pointing out the responsiveness in providing the required service by fulfilling customer's needs. Zhao et al. (2020) also believe that the capability of responsive supply chain can increase customer satisfaction and customer loyalty by delivering customer demands in a prompt and cost effective manner. This review of supply chain agility helps summarize that it is a vital aspect for a firm's performance across the dimensions such as operational efficiency, profitability, customer satisfaction, and the firm's market positioning. This is in line with Sundarakani et al. (2021) who emphasized that the supply chain agility is one of the key factors determining the advantage of the organization by taking into account strategic sourcing, operational flexibility.

Correlation Analysis

This section presents the results of a Pearson correlation analysis conducted to determine the strength and direction of the relationships between the four independent variables—Strategic Sourcing, Operational Flexibility—and the dependent variable, Firm Performance. Pearson's correlation coefficient (r) ranges from -1 to +1, where: 0.00–0.30 = Weak correlation; 0.31–0.60 = Moderate correlation; 0.61–0.80 = Strong correlation; and 0.81–1.00 = Very strong correlation. At a 5% confidence level, a p-value less than 0.05 indicates that the observed correlation is statistically significant (Kothari, 2016). Table 4 shows the correlation matrix including Pearson coefficients and significance levels (2-tailed).

Table 4: Correlation Analysis (Pearson r)

Variable		Firm Performance	Strategic Sourcing	Operational Flexibility
Firm Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	150		
Strategic Sourcing	Pearson Correlation	0.654**	1	
	Sig. (2-tailed)	0.000		
	N	150	150	
Operational Flexibility	Pearson Correlation	0.712**	0.048	1
	Sig. (2-tailed)	0.000	0.56	
	N	150	150	150

Operational Flexibility ($r = 0.712$, $p = 0.000$) demonstrated a strong and statistically significant positive relationship with firm performance. This suggests that firms capable of adapting operations in response to market fluctuations are more likely to achieve superior results in service delivery, cost control, and responsiveness. The significance of the relationship ($p < 0.05$) confirms that this is unlikely due to random chance. This supports findings by Sheffi (2021), who emphasized flexibility as a key enabler of competitive advantage.

Strategic Sourcing ($r = 0.654$, $p = 0.000$) had a strong and statistically significant relationship with firm performance. This means that sourcing practices involving reliable suppliers, cost-efficiency, and flexibility in procurement channels are strongly associated with enhanced firm

results. This finding is consistent with Monczka et al. (2015), who observed that strategic sourcing directly influences agility and resilience.

Multiple Regression Analysis

Table 5 presents the unstandardized regression coefficients that show the individual contribution of each predictor variable to firm performance.

Table 5: Coefficients of Study Variables

Variable	Unstandardized Coefficient (B)	Std. Error	t-value	Sig.
Constant	0.172	0.034	5.059	0.004
Strategic Sourcing	0.294	0.041	7.17	0.000
Operational Flexibility	0.328	0.043	7.63	0.000

Strategic Sourcing ($B = 0.294$, $p < 0.05$) was a strong and statistically significant predictor of firm performance. This finding suggests that organizations that focus on long-term supplier relationships, quality sourcing, and risk-aware procurement frameworks tend to achieve better cost efficiency and supply continuity. These results align with Monczka et al. (2015) and Lee (2022), who emphasized the value of sourcing flexibility in enhancing operational resilience.

Operational Flexibility ($B = 0.328$, $p < 0.05$) emerged as the strongest individual predictor. This indicates that firms that possess the ability to adapt quickly to changes in volume, schedules, and external conditions—such as fluctuating demand or supply disruptions—experience significantly better performance. This confirms the findings of Sheffi (2021), who argued that operational agility is a cornerstone of supply chain resilience.

Based on the coefficients, the final fitted multiple linear regression model predicting firm performance is expressed as:

Firm Performance = 0.172 + 0.294(Strategic Sourcing) + 0.328(Operational Flexibility)

Conclusions

Strategic Sourcing

With respect to the first objective—to evaluate the influence of strategic sourcing on firm performance—the study concludes that strategic sourcing is a critical determinant of competitive and operational success. The findings reveal that firms which prioritize long-term supplier relationships, supplier capability assessments, and aligned sourcing strategies are more likely to realize consistent supply flows, improved quality, and cost efficiencies. The strong positive correlation and statistically significant regression coefficient confirm that strategic sourcing not only ensures continuity in operations but also contributes meaningfully to firm profitability and delivery performance. Thus, strategic sourcing supports firms in building resilient and responsive supply chains.

Operational Flexibility

In addressing the second research objective—which aimed to determine the impact of operational flexibility on firm performance—the study concludes that flexibility is the strongest individual predictor of performance among the four dimensions assessed. Firms that demonstrated the ability to adapt production plans, reconfigure logistics, and respond quickly to demand or supply shocks reported superior performance outcomes. This capability allowed them to reduce operational disruptions, shorten lead times, and meet fluctuating customer requirements. The strong statistical significance of this variable affirms its importance in enabling firms to thrive in volatile markets, where agility and adaptability are essential for survival and sustained growth.

Recommendations of the Study

Strategic Sourcing

Distribution firms are encouraged to move beyond transactional procurement models and adopt a strategic sourcing philosophy that prioritizes long-term supplier partnerships. Firms should develop formal supplier evaluation frameworks that assess quality, reliability, lead time, risk exposure, and innovation capacity. These assessments should be conducted regularly, and the results should inform contract renewals, volume allocations, and supplier development initiatives. The study showed that strong sourcing relationships directly contribute to improved delivery efficiency and customer satisfaction. Therefore, firms should also consider engaging suppliers in strategic planning activities, such as joint capacity development, product design, and risk mitigation strategies. This will enable a more integrated and performance-focused supply base.

Operational Flexibility

To improve operational flexibility, firms should invest in both workforce adaptability and technology-driven responsiveness. Employee training programs should be introduced to enhance skills in cross-functional roles, real-time decision-making, and emergency response protocols. Cross-training employees across logistics, warehousing, and customer service functions allows firms to quickly reallocate human resources during disruptions or demand surges. Additionally, distribution firms should implement digital tools and real-time analytics systems that enable dynamic scheduling and agile resource management. Technologies such as advanced planning systems (APS), transportation management systems (TMS), and IoT-enabled visibility platforms should be prioritized to ensure that firms can modify production and distribution schedules in response to real-time conditions. These interventions will significantly reduce lead times, enhance inventory positioning, and support market responsiveness—critical success factors identified in this study.

Contribution to the Existing Knowledge

This study makes a significant contribution to the existing body of knowledge in supply chain management, particularly by providing empirical evidence on the role of supply chain agility in enhancing firm performance within the distribution sector—a segment often underrepresented in agility-focused research. By contextualizing the research within Nairobi City County, Kenya, the study adds a valuable perspective from a developing economy, thereby expanding the global relevance and applicability of supply chain agility frameworks. A key contribution lies in the integration of four core agility dimensions—strategic sourcing, operational flexibility,—with four critical performance indicators: profitability, operational efficiency, customer satisfaction, and market positioning. This linkage offers a comprehensive model that advances both theoretical understanding and practical implementation of supply chain agility in performance-driven settings. The study validates that these agility levers are not merely abstract concepts but measurable and actionable drivers of competitive advantage in the distribution landscape.

The research also extends theoretical frameworks by empirically examining how these agility dimensions function collectively rather than in isolation, thereby strengthening the conceptual basis for agility-performance relationships. Unlike previous studies that often focus on manufacturing or retail sectors, this research underscores the strategic importance of agility in distribution firms, which serve as critical nodes in end-to-end supply chain performance. For academic researchers, the study offers a robust foundation for future investigation, including the potential for comparative studies across regions, sectors, and firm sizes. It also provides a basis for refining or developing new conceptual models that incorporate emerging trends such as digital supply networks, real-time data integration, and sustainability.

From a practical standpoint, the study contributes actionable recommendations for managers and supply chain practitioners seeking to embed agility in their operational strategies. These insights are particularly relevant in an era marked by uncertainty, technological disruption, and rapidly shifting customer expectations. By identifying specific areas where agility investments—such as technology adoption, supplier collaboration, or forecast integration—can drive measurable improvements, the study equips firms with strategic guidance to enhance responsiveness, efficiency, and resilience.

Suggestions for Further Studies

Though the findings it provides for the impact of supply chain agility on firm performance make for nice insights, many things about the state are left unexplored. Future research can explore far more from what new technologies, such as artificial intelligence, blockchain and machine learning, can give to take a flight in the development of delivering goods and services. These technologies potential is to change the practice of supply chain allowing to analyze real time data, automate processes and be more agile reacting to the changes in the market. Furthermore, the investigation of the correlation between supply chain agility and performance for different industries or regions would extend the picture of the relationship of supply chain agility to performance in different industries or regions. Longitudinal studies in which firm performance and agile supply chain practices are studied over time could be studied for how long they last and with what results. This can continue the research to determine the relation between supply chain agility and environmental sustainability because the emphasis on environmental sustainability may change the reliance on supply chain agile strategies.

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