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**Influence of Supply Chain Visibility on Performance of
Manufacturing Companies in Nairobi City County, Kenya**



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Influence of Supply Chain Visibility on Performance of Manufacturing Companies in Nairobi City County, Kenya

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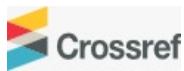
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ABSTRACT

Purpose: This study examined the impact of supply chain visibility on the strategic performance of manufacturing firms based in Nairobi City County, Kenya, within the framework of the Resource-Based View, considering visibility as a strategic capability.

Methodology: A convergent mixed methods design was employed, incorporating a descriptive survey of 393 employees across 454 firms using stratified random sampling, alongside semi-structured interviews with supply chain managers. Quantitative data were collected through ordered Likert-type questionnaires and analyzed using descriptive statistics, Pearson correlation, and multiple regression. Interview data were thematically coded and cross-referenced with survey findings. Reliability (Cronbach's alpha = .762) and validity (KMO = .85; Bartlett's $p = .001$) measures indicated strong instrument performance for assessing supply chain visibility.

Findings: Real-time tracking and related visibility practices were commonly implemented, substantially improving inventory turnover, order-fulfilment cycle time, stock-out reduction, and on-time delivery. Regression analysis demonstrated that visibility was a positive and significant predictor of strategic performance ($R^2 = 0.879$; $b = 0.223$; $p = 0.001$).

Unique Contribution to Theory, Policy and Practice: This study empirically validates the Resource-Based View within the African manufacturing sector by demonstrating that strategic performance is driven by information-based visibility capabilities. It identifies technology and infrastructure adoption as barriers for small and medium-sized enterprises and offers evidence-based recommendations for managers and policymakers to prioritize digital visibility investments to enhance resilience and competitiveness.

Keywords: *Supply Chain Visibility, Strategic Performance, Manufacturing Firms, Resource-Based View, Real-Time Tracking*

INTRODUCTION

Recessions and pandemics exemplify the unstable international economic environment currently confronting manufacturing companies, underscoring the necessity of supply chain resilience as a competitive imperative (Ryciuk and Zabrocka, 2024; Katsaliaki et al., 2022). Scholars debate whether resilience primarily results from internal strengths, such as flexible workflows and cost efficiencies (Sharma et al., 2021; Yang et al., 2022; Patel, 2023), or requires comprehensive supplier-customer integration to absorb external shocks (Enyejo et al., 2024). While proponents of evidence-based practice in the United States argue that integration is central to enhancing financial performance, critics contend that integration overlooks industry-specific challenges, such as regulatory constraints in the aerospace sector, where digital tools may optimize performance but are not universally adaptable (Saeed et al., 2023). Without the capacity to monitor real-time supply chain dynamics, companies cannot effectively balance internal agility with external integration to achieve sustained long-term performance.

In emerging markets such as India, debates focus on internal factors like production flexibility and external factors including trade frictions. Mittal and Panchal (2023) highlight inefficiencies in addressing global volatility, while Jha et al. (2022) emphasize concerns regarding internal flexibility. The Namibian and broader African context reflects similar dynamics; while continued operations and risk management are advocated, Yahaya (2024) and Guston and Sarewitz (2020) argue that risk awareness alone is insufficient, and proactive measures supported by predictive analytics are necessary. Hakizimana and Kumar (2018) and Lawrence and Mupa (2024) recognize risk management as a contributor to customer satisfaction in Rwanda, yet do not address the potential of digital augmentation. Reliance on traditional risk management neglects supply chain visibility, rendering businesses reactive rather than resilient to infrastructure and political risks.

Transport delays and political instability significantly undermine the Kenyan manufacturing sector. Karani (2022) advocates for recovery through enhanced risk integration and monitoring, while Ksoll et al. (2023) emphasize diversification; however, neither approach incorporates digital tracking to mitigate disruptions such as the 2017 Mombasa strike. Global comparisons further expose persistent gaps in traditional industries, as seen in the technology-driven flexibility of French SMEs described by Alimohammadlou and Khoshsepehr (2022), whose fuzzy models exclude artificial intelligence, and in South African fast-moving consumer goods research (Magagua et al., 2020; Ebrahim et al., 2022). These discussions reveal a critical issue in Nairobi's manufacturing sector: the underexplored relationship between supply chain visibility and performance, which necessitates more than partial real-time knowledge to foster disruption resilience and maintain a competitive advantage in volatile environments.

STATEMENT OF THE PROBLEM

Manufacturing represents a significant economic driver in most global economies, contributing substantially to gross domestic product (GDP) and employment. In China, the manufacturing

sector accounts for over 27% of GDP (World Bank, 2022), whereas in Kenya, it constituted 7.4% of GDP in 2022 and provided employment to over 1.5 million individuals (Kenya National Bureau of Statistics [KNBS], 2022). The development of resilient supply chains is widely recognized as critical for achieving strategic objectives such as efficiency, cost reduction, and competitiveness, primarily through the implementation of risk management practices and technological integration (Das & Canel, 2023; Koskei, 2023).

Despite its significance, the manufacturing industry in Kenya, particularly within Nairobi City County, has faced persistent challenges following various disruptions. These challenges are primarily attributed to ongoing supply chain inefficiencies, inadequate infrastructure, and limited adoption of technology. According to KNBS (2023), in 2022, only 42% of manufacturers based in Nairobi achieved their growth targets, 35% reported increased earnings, and 23% ceased operations due to disruptions such as political instability and transportation challenges (Ochieng, 2019). Research by the Kenya Association of Manufacturers (KAM, 2024) indicates that the average revenue loss resulting from supply chain disruptions was 28%, significantly higher than the national average of 12%. This heightened vulnerability is linked to insufficient transparency in real-time operations and the absence of predictive tools, both of which elevate operational risks (KNBS, 2023).

In response to these challenges, this research paper examines the impact of increased supply chain visibility on the performance of manufacturing firms in Nairobi City County, Kenya. The study employed a mixed method approach utilizing descriptive design.

OBJECTIVE OF THE STUDY

- i To assess the influence of supply chain visibility on performance of manufacturing companies in Nairobi City County, Kenya

SIGNIFICANCE

This research offers policy-relevant and practical insights for multiple stakeholders. For manufacturing companies, it demonstrates that improving supply chain efficiency through supply chain visibility practices, such as real-time tracking and integrated data sharing, can mitigate delays caused by environmental uncertainty. For policymakers, the study identifies gaps in regulation, infrastructure, and capabilities, thereby informing industrial and digital development processes aligned with the Kenya 2030 vision. The findings support enhanced coordination, information exchange, and the establishment of industry-wide standards among suppliers, logistics providers, and industry bodies. For scholars, the research contributes to existing knowledge by clarifying relationships among key theories and providing an empirical framework for future studies.

LITERATURE REVIEW

Supply Chain Visibility on Performance of Manufacturing Companies

Today, supply chain visibility plays a crucial role in enhancing the performance of manufacturing firms around the worldwide. Following the movement of items and data through the supply chain makes it easier for manufacturers to increase productivity, reduce expenses, and respond to customers' requirements. However, the ways countries implement and utilize supply chain visibility differ significantly (Fatorachian, & Kazemi, 2021).

Real-time tracking and management technologies for inventory are being introduced in Ukraine to enhance the visibility of the supply chain, leading to improved turnover rates and timely deliveries (Żywiołek, Szymonik, & Smal, 2025). According to Butler, Yigitcanlar, and Paz, (2020), Manufacturers use these systems to address logistics problems and run operations more efficiently. However, specific infrastructure challenges hinder the expansion of these technologies, particularly in low-populated or rural areas. Due to the use of outdated infrastructure, manufacturers are unable to optimize the efficiency of their supply chains, leading long lead-time and occasional warehouse shortages.

In India, supply chain visibility is regarded as integral part of supply especially in the automotive industry. Pethe, Sahu, Kodarlikar, and Vamshidhar, (2024) opine that the use of real-time tracking and inventory management software enabled companies to deliver products on time and prevent product shortages. Despite having favorable results, the study highlights the fact that manufacturing firms especially SMMEs in India struggle to utilize and benefit from advanced visibility solutions due to a lack of technology and significant costs. For this reason, SMEs struggle to utilize these technologies, resulting in inefficiencies. In South Africa, leveraging real-time systems and predictive analytics enhances the performance of supply chains, particularly in the food and beverage firms (Liu, 2025).

According to Vaka, (2024), articulates that the adoption of these technologies enabled companies to deal with fewer stock outs, manage inventory more effectively, and deliver products on time. On the other hand, the authors note that while large companies can leverage such systems, smaller manufacturers are often hindered by high technology costs and issues with their equipment (Vaka, ,2024). Due to limited access to technology in these areas, companies cannot utilize supply chain data to the same extent as those in other regions.

In Uganda, manufacturer organizations is recolonizing supply chain operation to be at par with the fast-paced world. The utilization real-time tracking technologies to enhance their supply chain management is taking. As per Kabagambe, Tukamuhabwa, Mutebi, and Otaryebwa, (2022) found that increased visibility enables companies to prepare and handle orders more efficiently. However, the research found that smaller factories are unable to deploy visibility systems due to

the high expenses and limited available tools. Consequently, most companies in the industry do not reap the benefits of advanced technologies.

The adoption of real-time tracking systems has helped Rwanda enhance its supply chain in the manufacturing companies. The authors Hakizimana and Kumar (2018) found that improved visibility led to stock outs being handled more effectively and orders being fulfilled more quickly. Still, the research highlights that smaller manufacturers are missing out on some advantages of being more visible due to irregular access to good infrastructure and limited use of technology. This leads to more problems in how operations are handled, particularly for businesses that cannot afford top-notch tracking, making it difficult for them to improve their supply chain performance.

In Kenya, clear insight along the supply chain is viewed as essential for achieving better results, particularly in the manufacturing industry. Karani, (2022), pointed out that video-based monitoring and inventory control greatly help organizations achieve better rates of on-time deliveries and eliminate products running out of stock(Omino, 2023). On the other hand, the research indicates that SMEs face challenges in adopting technology due to expenses and technical infrastructure issues. Aside from that, shortages in resources and political challenges in Nairobi County make it difficult to utilize visibility solutions effectively (Omino, 2023). Due to issues with road networks and electricity, manufacturers are still unable to leverage supply chain visibility tools to boost their performance fully. Although tracking staff and data in real-time and analyzing supply chains with advanced tools help companies in other countries boost their performance, Kenya's manufacturers face challenges due to technology limitations, outdated infrastructure, and political issues.

THEORETICAL FRAMEWORK

The study is ground on canons of Resource-Based View (RBV) by Barney, (1991). Resource-Based View (RBV) was introduced in 1991 as a theory of strategic management that explains firm performance through internal resources and capabilities that are valuable, rare, inimitable, and non-substitutable. The RBV posits that firms possess heterogeneous resources, and that intangible assets such as knowledge, information systems, and relational capital can generate sustainable competitive advantage when effectively exploited (Barney, 1991). Supply chain visibility is conceptualized as a strategic capability derived from internal assets such as integrated ICT systems, data analytics competencies, and effective supplier and customer relationships (Madhani, 2010). Manufacturing companies in Nairobi City County that invest in these resources are more likely to achieve high visibility into inventory, supplier performance, and demand patterns, leading to greater reliability, responsiveness, and reduced costs in accordance with SCOR performance features (Barney, 1991; Madhani, 2010). Empirical studies on RBV and supply chain management further demonstrate that information integration and mutually beneficial relationships are essential resources that enhance supply chain performance and resilience (Barney, 1991; Madhani, 2010).

CONCEPTUAL FRAMEWORK

Independent Variable

Dependent Variable

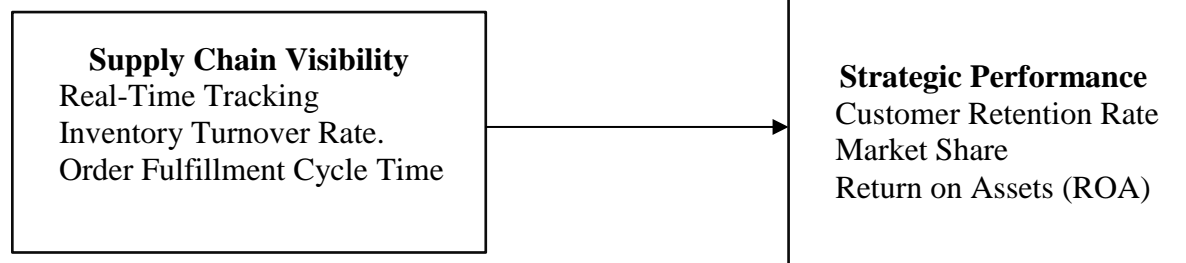


Figure 1: Conceptual Framework between Supply Chain Visibility and Performance.

According to the conceptual model, supply chain visibility, as indicated by real-time tracking, inventory turnover rate, and order fulfillment cycle time, directly influences the strategic performance of manufacturing firms. Strategic performance is measured by customer retention rate, market share, and return on assets. Enhanced real-time monitoring increases supply chain visibility and ensures that disruptions are promptly identified and addressed, which can improve delivery performance and foster customer loyalty. Higher inventory turnover and shorter order fulfillment cycle times indicate efficient material and information flow, which may reduce holding and operating costs, enhance service levels, and increase market share. Collectively, these dimensions of visibility are likely to yield operational gains that translate into improved financial outcomes, specifically higher returns on assets, thereby establishing a coherent relationship between the independent and dependent variables.

METHODOLOGY

Research Design

A mixed methods research design was employed to examine measurable relationships and contextual factors related to the role of supply chain visibility in strategic performance. A convergent mixed methods approach was adopted, in which quantitative survey data and qualitative interview data were collected concurrently, analyzed independently, and synthesized during interpretation to facilitate comparison and corroboration of findings (Creswell & Creswell, 2017; Creswell & Clark, 2007). The quantitative component used a descriptive survey design, which is suitable for characterizing large populations at a specific point in time and for comparing variables without manipulation. This methodology is frequently applied in research on Kenyan manufacturing.

Target Population

The target population comprised employees in manufacturing companies located in Nairobi City County. These companies operate in sectors such as food and beverages, pharmaceuticals, textiles, chemicals, construction materials, and agro-processing, which form the core of the county's

manufacturing industry (Kenya Association of Manufacturers, 2020). The study focused on staff from the Stores, Procurement, Finance, Operations, and Quality departments, as these departments are directly involved in inventory management, sourcing, production, quality control, and related financial operations, and therefore possess relevant knowledge regarding supply chain visibility and strategic performance.

Table 1: Population Matrix

Category	Number of Companies	Percentage of Total (%)	Estimated Workforce	Stores	Finance	Operations & Quality	Procurement
Food and Beverage	91	20.0%	13,650	2,730	2,048	5,460	3,413
Pharmaceuticals	39	8.6%	5,850	1,170	878	2,340	1,463
Textiles	117	25.8%	17,550	3,510	2,633	7,020	4,388
Chemicals	97	21.4%	14,550	2,910	2,183	5,820	3,638
Construction Materials	54	11.9%	8,100	1,620	1,215	3,240	2,025
Agriculture-Agro Processing	56	12.3%	8,400	1,680	1,260	3,360	2,100
Total	454	100%	68,100	14,620	12,217	27,240	17,025

Sample Size and Sampling Technique

Stratified sampling was employed to ensure that the sample accurately represented employees from all departments associated with the supply chain. The target population was first divided into homogeneous strata based on departmental affiliation, specifically Stores, Finance, Operations and Quality, and Procurement. Respondents were then randomly selected from each stratum to form the final sample (Kothari, 2017). This approach enabled the collection of perspectives from staff involved in inventory management, sourcing, production and quality control, as well as cost and budget management, thereby engaging all key functional areas of the supply chain. Stratified random sampling was appropriate because it increases the accuracy and representativeness of estimates, reduces sampling bias, and ensures adequate representation of smaller groups within the study.

A desired size was determined by Fisher's formula in determination of an appropriate sample size.

$$n = \frac{Z^2 p(q)}{d^2}$$

Where n= sample size

Where: n = Sample size [where population > 10,000]

Z = Normal deviation at the desired confidence interval. In this case it was taken at 95%, Z value at 95% is 1.96

P = Proportion of the population with the desired characteristic.

Q = Proportion of the population without the desired characteristic.

d^2 = Degree of precision; was taken to be 5%. Since the proportion of the population with the characteristic is not known, then 50% was used i.e.

$$n = \frac{1.96^2 \times 0.5(1 - 0.5)}{0.05^2}$$

= 384

The sample was further distributed across department and manufacturing company categories

The desired sample size of the respective company categories were obtained by Cooper and Schindler (2011) formulae which states that a sample size of 10% of the entire population is adequate for any academic research. In this context 10% was applied to each company category and sample.

$$n_d = \left(\text{Departmental} \frac{\text{total}}{\text{grand total workforce}} \right) \times n$$

Table 2: Sample Distribution Matrix

Category	Category sample	Stores Sample	Finance Sample	Operations & Quality Sample	Procurement Sample	Category Total
Food and Beverage	9	15	12	31	19	86
Pharmaceuticals	4	7	5	13	8	33
Textiles	12	20	15	40	25	100
Chemicals	10	16	12	33	21	82
Construction Materials	5	9	7	18	11	45
Agriculture-Agro Processing	5	9	7	19	12	47
Total	45	76	58	154	96	393

Data Collection

A mixed methods approach was utilized for data collection. Structured, self-administered questionnaires featuring close-ended and Likert scale items were employed to gather quantitative data on supply chain visibility and supply chain performance. These questionnaires were

distributed both physically and electronically to a broad sample. Semi-structured interviews with selected managers and supervisors served as the qualitative data collection method to examine implementation practices, obstacles, and perceived outcomes. The integration of these two methods enabled triangulation, combining measurable trends with in-depth insights.

Data Analysis Procedures

The data were cleaned, coded, organized, and subsequently analyzed. Descriptive statistics were applied to the quantitative data from Likert-scale questions to summarize observed patterns. The relationships between supply chain visibility and strategic performance were examined using Pearson's correlation and multiple regression analyses. Thematic analysis of qualitative data was conducted using a structured approach to identify key patterns related to challenges, enablers, and practices. The results from both techniques were presented and interpreted together to provide integrated conclusions.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where:

Y = Supply Chain Strategic Performance

β_0 = Constant Term

X_1 = Supply Chain Visibility

X_2 = Supply Chain Agility

X_3 = Supply Chain Collaboration

X_4 = Supply Chain Diversification

ε = Error Term

$\beta_1, \beta_2, \beta_3, \beta_4$ Represent Regression Coefficients for Independent Variables

RESULTS

Pilot Study Results

The researcher conducted a pre-test study in Kiambu County on manufacturing companies in April 2024 on 20% of sample of the actual sample (Whitehead et al, 2016). These 77 individuals were represent and drawn of Bidco Africa Ltd, Blue Nile Rolling Mills, Ruiru Mabati Factory, Uniform Masters Ltd and Benmad pharmaceutical Ltd.

Reliability of Research Instruments**Table 3: Reliability Analysis for Constructs**

Construct	Cronbach's Alpha	No of Items	Decision
Supply Chain Visibility	.762	7	Reliable

Source: Research Data (2026)

The reliability analysis indicated that the construct of supply chain visibility had a Cronbachs alpha coefficient of 0.762 based on seven items, which is above the generally accepted level of 0.70 thus a level of satisfactory internal consistency and reliability of the measurement scale.

Validity of the Instrument**Table 4: KMO and Bartlett's Test of Sphericity Results**

	No. of Items	KMO value	Bartlett's test	Sig.	Remarks
Supply Chain Visibility	7	0.85	150.25	0.000	Valid

Source: Research Data (2026)

The construct validity as measured by the Kaiser Meyer Olkin (KMO) measure and Bartlett sphericity test further formed the basis of the validity of the selected data, with a KMO value of 0.85 which means the meritorious adequacy in sampling and Bartlett test statistic of 150.25, which was statistically significant, was above the $p = 0.000$ level.

Supply Chain Visibility Strategies on Strategic Performance of Manufacturing Firms**Table 5: Supply Chain Visibility and Strategic Performance of Manufacturing Firms**

Statement	SD	D	U	A	SA	Mea n	Std. Dev
Our company uses real-time tracking to monitor inventory.	0 (0.0%)	0 (0.0%)	51 (23.7%)	95 (44.2%)	69 (32.1%)	4.08	.744
Real-time tracking helps improve inventory turnover rates.	0 (0.0%)	0 (0.0%)	37 (17.2%)	73 (34.0%)	105 (48.8%)	4.32	.750
Real-time tracking helps us reduce order fulfillment cycle time.	0 (0.0%)	11 (5.1%)	53 (24.7%)	83 (38.6%)	68 (31.6%)	3.97	.877
Our lead time has improved with the use of tracking technologies.	0 (0.0%)	5 (2.3%)	53 (24.7%)	91 (42.3%)	66 (30.7%)	4.01	.806
We consistently meet our customers' expectations for on-time delivery.	0 (0.0%)	6 (2.8%)	55 (25.6%)	91 (42.3%)	63 (29.3%)	3.98	.814
The frequency of stock outs has reduced due to visibility improvements.	0 (0.0%)	0 (0.0%)	51 (23.7%)	70 (32.6%)	94 (43.7%)	4.20	.798
Our company uses real-time tracking to monitor inventory.	0 (0.0%)	0 (0.0%)	56 (26.0%)	94 (43.7%)	65 (30.2%)	4.04	.751

Source: Research Data (2026)

According to the findings in table 5, real-time tracking technologies play a significant role in boosting several aspects of how a supply chain works. Based on the data, 44.2% of participants indicated that their organizations use real-time tracking to monitor stock amounts, and 32.1% stated they strongly agreed. As a result, the mean score was 4.08, and the standard deviation was 0.744. Implying that most of the manufacturers rely on real-time tracking. According to the study, real-time tracking positively impacts the turnover rates of inventory. In total, 82.8% of respondents that is, 48.8% strongly agreed and 34.0% agreed with the statement—so the survey's overall mean was 4.32 and deviation was 0.750. It illustrates that using real-time tracking improves manufacturing companies' ability to handle and move their inventory well, which agrees with what Żywiołek et al. (2025) stated in their study.

Similarly, the study established that using real-time tracking helps decrease order fulfillment time, with 38.6% agreeing and 31.6% strongly agreeing, giving a mean score of 3.97 and a standard deviation of 0.877. The findings agree with those of Pethe et al. (2024) in the Indian automotive industry, where faster tracking of data and orders resulted in more efficiency. It was also found that 42.3% of those surveyed agree, and 30.7% agree entirely that real-time tracking has raised lead time, giving these responses a mean value of 4.01 and a standard deviation of 0.806. Consequently, this demonstrates that making information readily available helps processes run

smoother, speeding up responses and the whole supply chain. One more important point is that meeting customer deadlines is very common. Real-time tracking makes customers happy, according to 71.6% of respondents, since it reduces the waiting time for deliveries. Pethe et al. (2024), cautions that high levels of visibility in supply chain activities allow manufacturers to ensure delivery on time, keep their customers content, and hence, the chances of repeat buying. In addition, due to improved visibility, the percentage of stock outs was cut down, as 43.7% strongly agreed and 32.6% agreed, while the average score came out to 4.20 and had a standard deviation of 0.798. Vaka (2024) agrees with these results, showing that by reducing stock outs with better supply chain visibility, companies can improve their supply chain's strength and always have enough products, resulting in a stronger performance. The results of this study are consistent with Resilience Theory (Folke, 2006), which holds that resilient systems can deal with shocks and move with changes. For manufacturing companies in Nairobi County, using real-time tracking makes their supply chains stronger and more able to cope with problems like shortages and delays. The introduction of supply chain visibility helps manufacturers cope with problems and changes in the market, which, in turn, benefits their strategic results.

While quantitative data shows how well the supply chain runs, qualitative information from the Supply Chain Officer and Procurement Office explains that technology is crucial for real-time management of goods movement. Thanks to ERP, cloud-based SMC, and IoT-enabled sensors, businesses become transparent in their operations and have rapid solutions for problems that may arise.

“We rely on an ERP system that gives us constant monitoring of what is in the warehouse, outgoing items, and the supply of raw materials. We connect this system with our suppliers, warehouses, and distribution networks so we can watch the movement of products from the point of purchase all the way to the final delivery. In our warehouses, we rely on RFID and IoT-based sensors to regularly check both products’ stock and their conditions, so we can spot any issues the moment they appear” Retorted Supply chain officer

Procurement office added

“We mainly count on cloud software for Supply Chain Management (SCM) so we can join forces with our partners, track deliveries, and manage our inventory, all in different areas. Dashboards in our system make it possible to watch over every aspect of the supply chain in real-time, which allows us to react fast based on data. We use GPS in our delivery vehicles to watch over the arrival times and plan changes if a delay happens.”

The synergy of real-time monitoring with ERP, SCM software, and GPS technology helps respond quickly to any problems, which boosts the efficiency of operations and benefits customers.

Regression Analysis

A multiple linear regression analysis was conducted to assess the effect of the constructs of supply chain visibility on strategic performance of manufacturing firms in Nairobi City County. The findings are captured in the model summary, ANOVA and coefficients tables provided below.

Table 6: Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.937a	.879	.876		.18532	1.868

a. Predictors: (Constant), Supplier diversification, Agility, Supply chain visibility, Risk management

b. Dependent Variable: Strategic performance

Source: Research Data (2026)

From table 6, almost 88% (approximately 87.9%, $R^2 = 0.879$) of the strategic performance variance is explained by the four predictors used in the robust model summary. Taking the number of predictors used into account, the adjusted R^2 value was 0.876. Supply chain visibility and strategic performance are positively correlated, and the R-value demonstrates strong positive correlation ($R = 0.937$). Reliable and un-auto correlated statistics were confirmed by the regression results, as shown by the Durbin-Watson value (1.868) which approximates 2.

Table 7: ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.192	4	13.048	379.911	.000b
	Residual	7.212	210	.034		
	Total	59.404	214			

a. Dependent Variable: Strategic performance

b. Predictors: (Constant), Supply chain visibility

Source: Research Data (2026)

The results of the ANOVA in table 7 confirm that the regression model was statistically significant ($F(4, 210) = 379.911$, $p < 0.001$) which means that, in aggregate, the factors of supply chain visibility formed a considerable relating factors to the variation in the strategic performance of the manufacturing firms in the county of Nairobi, in the city of Nairobi.

Table 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.106	.088		1.208	.229		
	Supply chain visibility	.222	.067	.223	3.311	.001	.127	7.843

a. Dependent Variable: Strategic performance

Source: Research Data (2026)

According to the regression model, the strategic performance goes up by 0.222 units with every unit of increase in supply chain visibility when other conditions of the model are held constant. The positive unstandardized coefficient ($B = 0.222$) and the significant world value ($p = 0.001$) indicates that visibility is a statistically significant explanatory variable of strategic performance in the sampled manufacturing companies.

DISCUSSION AND CONCLUSION

The findings of the research offer solid empirical evidence that can be used to validate the thesis statement that supply chain awareness is a key determinant of strategic performance in manufacturing companies in Nairobi City County. The statistically significant positive relationship between visibility practices, investments in real time tracking, integrated information systems and data sharing ($r = 0.223$, $p = 0.001$) shows that there are measurable improvements in operational and financial performance. Government corporations can make these improvements by embracing and adopting such visibility practices.

Such results are compatible with world literature and local literature. According to respondents, real-time tracking is an important way of improving inventory turnover and minimizing stock-outs. This finding corresponds to findings of Żywiolek et al. (2025) that found that turnover rates and punctuality of delivery increased following the installation of tracking technologies. In a similar manner, the detected decrease in the duration of the order fulfillment cycle and the enhanced lead times correlate with Pethe et al. (2024) that proved the usefulness of visibility tools in making manufacturing supply chains more responsive and efficient. Such findings indicate that supply chain visibility has its beneficial effects that can be used in different industrial settings.

This study has also supported African context-based evidence. The results regarding a decrease in stock-outs and an enhancement of the delivery reliability are also similar to Vaka (2024) in South Africa and Hakizimana and Kumar (2018) in Rwanda, who stated that higher visibility results in a better inventory management and order delivery. The availability of real-time information is also cited as one of the powerful enablers of supply chain performance in the developing economies. The Ugandan-based study by Kabagambe et al. (2022) established that visibility improves the

efficiency with which orders are processed, which is also supported by the current research. Nevertheless, according to Karani (2022) and Omino (2023) in Kenya, the use of visibility tools lacks in adoption. The majority of companies, especially small- and medium-sized manufacturers, perceive their value but do not deem them important. The lack of transport and malfunctioning power supply, insufficient ICT infrastructure, high implementation costs, and other reasons still impede the broad application of visibility technologies including ERP system, IoT sensors and cloud-based supply chain management systems. These obstacles confirm earlier hypotheses that visibility might not be viable in order to maximize performance because of the infrastructural and cost-based limitations.

These results show a powerful evidence of the Resource-Based View (RBV). Supply chain visibility is a strategic asset, which is created with resources of value and inimitability, including integrated information systems, analytics functionality, and networking. When properly utilized, such resources contribute to greater responsiveness of the firms, less uncertainty, and better decision-making. Such aptitudes will help in improving performance. The findings support the claim that the use of information and knowledge as intangible assets is pivotal in attaining sustainable competitive advantage (Barney, 1991 & Madhani 2010).

This study contributes to the literature by showing that visibility is not a law but an essential process of connecting internal competency, including agility and effectiveness, with external integration, including that of suppliers. In Nairobi where frequent disruptions and infrastructure problems as well as volatile markets are more common than not, companies are being forced to implement proactive supply chain management practices. A gap in the past literature is addressed as the literature tended to focus on risk management and diversification without paying much attention to the importance of up-to-date information and predictive skills. Real-time monitoring and increasing transparency during all processes allow companies to control inventory, lead time, stock-outs, and customer expectations.

The results support and complement previous studies by showing that visibility promotes operations and financial performance. Similar associations have been found in international and local literature. The study provides localized empirical information particular to Kenyan manufacturing industry where the disruptions and infrastructure issues are highly evident.

However, the study illustrates that the advantages of supply chain visibility are not always achieved. There are still significant structural obstacles, such as low technology capacity, insufficient digital infrastructure, poor inefficiencies in their operations, especially in the smaller companies. It will take concerted action by policymakers, industry players and companies to overcome these problems. There is necessity to invest in digital infrastructure, accessibility of the affordable technologies as well as building of the technical capacity.

Overall, the improvement of the visibility of supply chains must be seen not just as an effective technological precedent but as a strategic need. The manufacturing companies that are able to set

visibility as a strategic competency are more able to be sustainable, create a competitive advantage, and enhance performances under unstable company environments.

RECOMMENDATIONS

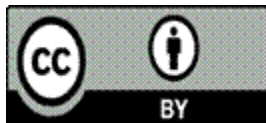
- i Manufacturing firms should adopt ERP systems, IoT, RFID, and cloud-based supply chain platforms to enable real-time monitoring of shipments and inventory. These technologies enable better decision making, inefficiencies and improved operational performance.
- ii Close interaction with suppliers and logistics partners through efficient information systems that will facilitate smooth coordination of the different internal departments will increase visibility further, thus leading to reduced uncertainty, stock-outs, and dissatisfaction of customers.
- iii The government can assist manufacturers by enhancing the digital and physical infrastructure, such as the internet connectivity and the transport system. Another way of facilitating implementation would be to offer incentives that can be in the form of tax breaks, or subsidies to adopt supply chain visibility technologies, especially among small and medium sized enterprises.

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