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Abstract

Purpose: This study sought to establish the influence of order management on supply chain performance of motor vehicle assembly firms in Kenya. The study was premised on the order management theory.

Methodology: The study adopted cross sectional survey design. The target population comprised the five (5) motor vehicle assembly firms in Kenya which are registered by Kenya Motor Industry (KAM, 2019). These firms are Isuzu East Africa Ltd (IEA), Associated Vehicle Assemblers (AVA), Kenya Vehicle Manufacturers (KVM), Trans Africa Ltd (TAL) and Mobius Motors Ltd. A total of 199 staff were selected from departments that engage in upstream and downstream supply chain activities in these firms. The sample size was determined using Slovin's formula and stratified random sampling in the selection of 133 respondents from the target population. Primary data was collected using semi structured questionnaires. Prior to data collection, a pilot test was conducted to assess the validity and reliability of the research instruments. In the data processing and analysis, descriptive statistics was used and statistical output was generated using SPSS version 26. Inferential statistics was also used to infer correlation analysis as well as linear regression analysis.

Findings: The study findings showed that order management had a positive and significant influence on the supply chain performance of motor vehicle assembly firms in Kenya. Motor vehicle assembly firms should streamline customer orders through automation of order management to improve accuracy and reduce delays. Further, improvement on the supply chain visibility is critical consideration in ensuring efficacy in ordering processes and combating shipment uncertainties through embracing supply chain agility practices.

Unique Contribution to Theory, Practice and Policy: This study is anchored on order management theory that postulates the indispensable strategic relevance of order processing in motor vehicle assembly firms. It provides vital insights connecting capabilities, enabling mechanisms and supply chain performance outcomes to drive supply chain resilience and competitive advantage.

Keywords: *Order Management, Supply Chain Performance, Motor Vehicle Assembly Firms, Competitive Advantage.*

INTRODUCTION

Over the years Kenya has been regarded as a motor vehicle assembly hub in East Africa. The unparalleled position has been occasioned by a seamless logistics network that has created an upward trajectory in terms of sales turnover (KMI, 2019). Notably, the realm of motor vehicle assembly in Kenya has benefited immensely from logistics management practices inculcated in various industries to spur supply chain performance. According to Sabadka (2015), customers' expectations in the ever-erratic markets have been aligned with the best practices that focus more on the efficacy of business operations like cross docking, fourth party logistics system and multi modal transportation systems. These approaches have necessitated the proliferation of high levels of efficiency in motor vehicle assembly firms in Kenya (ROK, 2019).

The success of motor vehicle assembly firms in global markets is pegged on the inherent business structures underpinned in the supply chain. According to Chopra & Miendl (2013) supply chain management involves a set of synchronized decisions and activities utilized to efficiently integrate manufacturers, suppliers, logistics service providers, distributors, warehouses, transporters, retailers and customers/consumers so that the right products are dispatched at the right quantities, to the right locations and at the right time in order to minimize system-wide costs while satisfying customer service level requirements. In the context of motor vehicle assembly firms all these considerations play a significant role to the performance of the organizations in the contemporary business environment (Gitonga, 2017). It is worthwhile to note that vehicle assembly firms are supposed to marshal and leverage all the necessary inputs from various markets to the production sites. After the conversion of the input to the final output seamless order management and efficient warehouse operations becomes the area of focus as the products transcend to the final consumers and the end justifies the means in terms of how the vehicle assembly firms perform in the business (Koster, 2012; Faber et al. 2013).

Motor vehicle assembly firms in Kenya have devised strategic plans to remain afloat in business. The concerted efforts that have been deployed are primarily based on implementing the definitive goals and objectives of the organizations (KAM, 2019). The concept of order management has been earmarked as yardstick of performance in the holistic supply chain management. The actualization of the activities such as order processing speed, fill rates and order accuracy are precursor to proliferation of motor vehicle sector at large (PWC, 2019). According to Christopher (2011) effective logistics system is a panacea to some of the impediments in supply chain in this era of business turbulence in all spheres of the economy. The trend towards a strong customer focus coupled by operational efficiencies and effectiveness paves way to competitive edge to all business firms in the wide market (Lysons & Farrington,

2020).

Statement of the Problem

The automotive sector is a key pillar of local, regional and global economy in the business environment. In particular, Kenya motor vehicle assembly sector contributes approximately 3% to Kenya GDP but inefficiencies in the sector have limited its potential for growth, with improvements in the supply chain the sector could contribute up to 5% by 2030 (KNBS 2023). The perennial challenge facing the sector has been stiff competition from importation of second hand vehicles which are relatively cheap compared to the locally manufactured vehicles (KAM 2022). Local automotive part manufacturer meets only 25-30% of the total parts demand in the country forcing assembly firms to rely on imports for over 70% of components used (KAM 2022). This therefore results to lengthy supply chains networks with Kenya transporters association (KTA) noting that logistics cost accounts for approximately 20-30% of the total vehicle production in Kenya. The lead times has also been prolonged and uncertain with a difficulty in keeping pace with the dynamic customer's preferences has been the problem facing the motor vehicle assembly firms in Kenya.

A number of empirical studies have been conducted on the area of order management and supply chain performance. Pamulety and Pillai (2022) conducted a study on the impact of ordering decisions on performance of a supply chain using a simulation study and experimentation on inventory policies, distribution and information sharing under a comparison of the two. Further, Oteki et al (2018) studied the influence of electronic order processing on supply chain performance of sugar processing firms in Kenya. On the same breadth, Nasser et al (2016) explored on the evaluating the performance of order fulfilment process in supply chain. The purpose of the study was to evaluate the order fulfilment process through a developed framework. Although these researchers have provided vast contribution on order management on supply chain performance, these studies were conducted in different spheres of the economy using different methodologies. Therefore, this study sought to bridge this knowledge gap by exploring the influence of order management practices on supply chain performance in motor vehicle assembly firms in Kenya.

The null hypothesis was:

H_0: There is no significant influence of order management on supply chain performance in motor vehicle assembly firms in Kenya.

LITERATURE REVIEW

Theoretical Review

The Order Management Theory has its origins in the work of Walters and Rainbird (2004) who first identified the strategic value of integrated order processing in improving supply chain dynamics. As supply chains became more complex with globalized networks, product variants and sales channels, Walters and Rainbird (2007) highlighted how seamless order fulfillment can drive organizational growth, boost efficiency and provide competitive edges. The theory emphasizes order management's evolution from a back-office function to an indispensable driver of financial performance, customer loyalty and long-term viability for automotive companies (Mişra, 2021).

Core aspects of the theory as elucidated by Walters (2008) encompass the end-to-end order journey spanning credit approvals, inventory allocation, shipment execution, invoice generation and after-sales service. Streamlining interconnections between these sub-processes using workflow optimization, data integration and organizational alignment is key for cost-optimal, flexible and responsive order fulfillment (Koster, 2012; Lysons & Farrington, 2016). For instance, Bhatnagar and Teo (2009) established empirically how capabilities like inventory fill rates and perfect order fulfillment link to higher revenues and return on investments. Aldin and Stahre (2003) noted that volatile demand, global logistics and product customization necessitate world-class order management competence to gain sustainable competitive advantage in automotive industry supply chains.

Walters and Rainbird's (2007) theory of order management perfectly anchors the order management variable of the study by quantify the performance impact of order management. Croxton (2003) analyzed how reducing order cycle times increase supply chain profitability by lowering cost of goods sold. Christopher (2005) demonstrated the linkages from order processing times to customer satisfaction levels using empirical models. Raghavan and Mishra (2015) assessed the customer retention improvements and profit margin gains from order fulfillment accuracy metrics like documents and invoice error rates.

As automotive supply chain complexity continues to intensify with omni-channel imperatives, personalized options and regional supply-demand variability, the Order Management Theory will be indispensable to elevate the strategic relevance of order processing. It provides vital insights connecting capabilities, enabling mechanisms and performance outcomes to drive supply chain resilience and competitive advantage.

Conceptual Framework

According to Mugenda (2008) conceptual framework is a detailed description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. Order management variable was the independent variable while supply chain

performance of motor vehicle assembly firms in Kenya was the dependent variable (see Figure 1).

Order Management	Supply Chain Performance
-Order Processing Speed -Fill Rates -Order Accuracy	-Cost -Supply Chain Agility -Lead Time

Independent Variable   **Dependent Variable**

Figure 1: Conceptual Framework

Empirical Review

Empirical review has shown that order management practices influence greatly the holistic performance of supply chain in motor vehicle assembly firms in the market and other spheres of the economy. Bhattacharya et al. (2022) investigated supply chain operational challenges in the automotive industry through an in-depth case study spanning a tier-1 manufacturer, warehouse and channel partners. Using qualitative analysis supported by operational data review, the researchers analyzed order process gaps covering order digitization enablement, workflow inconsistencies and visibility constraints. By addressing these issues using technology interventions, analytics capabilities and process standardization, the case study firms achieved substantial improvements reflected in 26% higher fill rates, 19% increase in perfect orders and 7% points reduction in order emancipation losses. This led to enhanced customer retention attributed from order fulfillment reliability improvements along with 2.1% incremental profit margins from supply chain effectiveness.

Koster & Ventro (2012) studied order orchestration complexities in multi-product, multi-echelon appliance supply chains with intricate cross-docking needs. By creating an integrated data exchange platform encompassing order, inventory and logistics visibility supported by robust analytics, the proposed approach increased order promising reliability by 33%. This led to optimized production and distribution planning, contributing to enhanced product availability and on-time dispatch rates - quantified by a 21% points reduction in stock-out likelihood. The cascading benefits of higher customer service levels translated to 8.4% revenue growth and 5% increased market share.

Krishnamurthy & Suri (2020) developed an automotive order-to-delivery framework to address supply chain fragmentation complexities. The digital platform encompassed integrated customer relationship management (CRM), enterprise resource management (ERP), logistics execution systems and control tower analytics capabilities tied seamlessly using IoT and cloud

technologies. Through extensive simulation modeling, the proposed blueprint achieved over 30% lower order fulfillment lead times by synchronizing production, warehouse and logistics workflows. Service parts availability increased by 55% by leveraging inventory visibility. Enablement of data-driven dispatch optimization resulted in 12% reduction in supply chain costs.

RESEARCH METHODOLOGY

The researcher adopted cross sectional survey design. Basically, cross sectional survey design is a design in which a researcher is able to collect data from many different individuals at a single point in time (Sekaran, 2010). The rationale behind the adoption of this design is precipitated by the intrinsic benefits embedded in this design more so the leeway to gather data from a pool of participants with varied characteristics. Further, cross sectional survey design aims to prove or validate the variables applied in the research study (Mugenda & Mugenda, 2003). These considerations commensurate with the inherent framework of this study and the adopted research design is geared to provide a good picture of the trends as well as documenting existing study population conditions, characteristics and their view at a specific point in time. The unit of analysis for this study comprised 5 motor vehicle assembly firms in Kenya registered under Kenya Motor Industry Association (2022). The unit of observation comprised respondents from supplies, finance, quality assurance, research and development, production as well as sales and marketing departments of all the five motor vehicle assembly firms in Kenya.

This study used stratified random sampling technique to select the definitive sample size while simple random sampling was used to pick the participants for the study. This procedure was preferred since it involves dividing the heterogeneous population into subgroups that are homogeneous then taking a sample in each sub-group (Kothari, 2004). Since the target population N is known, the study adopted Slovin's formula as shown in the equation 1, to determine the sample size, n, of case study respondents:

$$n = \left[\frac{N}{1+N\,(e)^2} \right]$$

Where n is the optimum sample size, N is the target population while e is the probability of error i.e. the desired precision e.g. 0.05 for 95% confidence level n was 133 respondents as shown in equation 2 below:

$$n = \left[\frac{199}{1+199\,(0.05)^2} \right] \quad \frac{199}{1.4975} \quad = 133 \text{ Respondents}$$

Table 1: Sample Size

Firms	Target Population	Sample Size
Isuzu east Africa ltd	39	26
Associated vehicle assemblers	62	41
Kenya vehicle manufacturers	46	31
Mobius motor limited	25	17
Trans Africa ltd	27	18
Total	**199**	**133**

The data was obtained through a semi structured questionnaire that comprised closed-ended and open-ended questions. To establish the validity and reliability of the research instrument a pilot test was conducted with 13 respondents (10%) of the sample size. Validity of the research instrument was determined through content and construct validity measures. Further, reliability of the research instrument was examined by use of Cronbach Alpha. Consequently, descriptive statistics that comprised measures of central tendency (mean and standard deviation) were used and statistical output was generated using SPSS version 26. Additionally, inferential statistics was used to infer correlation analysis as well as multiple linear regression. The general regression model used in the study is as follows:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$

Where; Y=Supply Chain Performance of Motor Vehicle Assembly Firms in Kenya

β_0=constant

β_i is the coefficient for Xi (i=1)

X_1= Order Management

ε = error term

RESEARCH FINDINGS AND DISCUSSIONS

A total of 133 questionnaires were issued to the respondents in the supplies, finance, quality assurance, research and development, production as well as sales and marketing departments from the registered vehicle assembly firms in Kenya. Out of this 110 questionnaires were filled and returned accounting to 82.7% while the unreturned questionnaires were 23 that amounted to 17.3% (see Table 2).

According to Mugenda (2008), a response rate of 50% is adequate for analysis, a rate of 60% is good and a response rate that is over 70% is excellent. Thus the response rate for this study is considered excellent for making conclusions and generalization of the study results and can be adopted for policy inferences in motor vehicle assembly firms in Kenya.

Table 2: Response Rate

Response Rate	Sample Size	Percent
Filled and returned questionnaires	110	82.7
Unreturned questionnaires and nonresponse	23	17.3
Total	**133**	**100**

Descriptive Analysis (Order Management)

The study sought the opinion of the respondents on the various aspects of order management in relation to supply chain performance. The respondents were required to rate each statement that match the application of order management in motor vehicle assembly firms in Kenya using a 5 points Likert scale, where a rate of 5 represented, Strongly Agree and 1 represented Strongly Disagree (see Table 3).

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Table 3: Statements on Order Management

n=110	Mean	SD
Our company processes customer orders in a timely manner	4.18	0.693
The time taken from receiving an order to its processing completion is consistently short	4.04	0.729
Our company consistently achieves a high fill rate for customer orders	4.35	0.656
We regularly fulfill customer orders completely on the first shipment	4.12	0.843
The accuracy of our order fulfillment is consistently high	4.13	0.679
Our system for ensuring order accuracy is effective and reliable	4.14	0.670
Average Score	**4.16**	**0.712**

From the basis of Table 3 majority of respondents agreed, with a mean of 4.18 and a standard deviation of 0.693 that their company processes customer orders in a timely manner. On the opinion that the time taken from receiving an order to its processing completion is consistently short, a mean of 4.04 and a standard deviation of 0.729 was registered. On the statement that the companies consistently achieve a high fill rate for customer orders, a mean of 4.35 and a standard deviation of 0.656 was denoted. On the opinion that the firm regularly fulfill customer orders completely on the first shipment, a mean of 4.12 and a standard deviation 0.843 was recorded. Further, the respondents agreed with a mean of 4.13 and a standard deviation of 0.679 that the accuracy of the firm's order fulfillment is consistently high. Finally, on the opinion that the firm system for ensuring order accuracy is effective and reliable, majority of the respondents agreed with a mean of 4.14 and a standard deviation of 0.670 was recorded. These findings correspond with Kanja et al. (2017) who affirmed that effective order management significantly reduces lead time and increases customer satisfaction.

The respondents were requested to provide information regarding the concerted efforts embraced by the organizations as a strategy of ensuring sustainable order management. Majority (24.5%) of the respondents indicated that embracing technology within the firms will enhance sustainable order management. Further, the results showed that 22.7% of the respondents affirmed that performance review would enhance sustainable order management. According to the study 21.8%

of the respondents confirmed customer relationship management will enhance sustainable order management while 20% indicated that order consolidation would enhance sustainable order management. Lastly, 10.9% of the respondents indicated that collaboration with Suppliers would enhance sustainable order management in motor vehicle assembly firms in Kenya.

Supply Chain Performance of Motor Vehicle Assembly Firms in Kenya

Table 4: Statements on Supply Chain Performance

n=110	Mean	SD
We have a policy framework of ensuring cost effectiveness in logistics management operations on supply chain performance	4.45	0.600
We always register cost effectiveness in all operations in line with logistics	4.29	0.708
We constantly embrace supply chain agility in our organization	4.20	0.739
Our strategies on supply chain agility enhances our supply chain performance	4.16	0.711
We have a definitive lead time for various consignments that are subject for delivery from various suppliers in the market	4.09	0.796
Our suppliers strictly observes the stipulated lead time when dispatching consignments to the organization	4.01	0.963
Average Score	**4.20**	**0.753**

On the opinion that the firms have a policy framework of ensuring cost effectiveness in logistics management operations on supply chain performance, majority of the respondents strongly agreed with a mean of 4.45 and a standard deviation of 0.60. To add on that, the statement that firms always register cost effectiveness in all operations in line with logistics denoted a mean of 4,29 and a standard deviation of 0.708. On the opinion that firms constantly embrace supply chain agility had a mean of 4.20 and a standard deviation of 0.739.

Further, respondents agreed on the statement that motor vehicle assembly firm's strategies on supply chain agility enhances the supply chain performance with a mean of 4.16 and a standard deviation of 0.711. Equally, on the opinion that firms have a definitive lead time for various

consignments that are subject for delivery from various suppliers in the market a mean of 4.09 and standard deviation of 0.796 was registered. Lastly, the statement that the motor vehicle assembly firm's supplier's strictly observes the stipulated lead time when dispatching consignments to the organization recorded a mean of 4.01 and a standard deviation of 0.963. These findings correspond with Oketch et al. (2014) who opined that close monitoring of supply chain management deliverables that include, costs, lead time, supply chain flexibility and order fulfilment have a positive implication to supply chain performance.

Further, the respondents were requested to provide information on supply chain performance practices inculcated by the firms to enhance overall supply chain performance in motor vehicle assembly firms in Kenya. Majority (31.8%) of the respondents indicated that embracing technology would enhance overall supply chain performance while 20.9% opined that focusing on continuous improvement will enhance supply chain performance. Further, 20% of respondents indicated that ensuring compliance with regulatory requirements would enhance supply chain performance while 16.4% opined that prioritizing supplier relationship management would enhance supply chain performance. Lastly, 10.9% were of the opinion that employee training and development will enhance supply chain performance of motor vehicle assembly firms in Kenya.

Correlation Analysis (Order Management)

Sekaran (2010) posits that correlation is a measure of the degree of relatedness of variables. In line with this, correlation coefficients enable a researcher to quantify the strength of the linear relationship between two or more variables (Saunders et al., 2009). To add on that, Pearson product-moment correlation coefficient r, requires at least interval level of measurement for the data. The rule of the thumb in line with correlation analysis denotes that the size of the absolute value gives information on the strength of the relationship where; (r=0.1 to 0.29 weak correlation; r=0.30 to 0.49 moderate correlation; r=0.5 to 1.0 strong correlation). Based on this study, Pearson product moment correlation was applied to compute bivariate correlation values of all the independent variables against the dependent variable (see Table 5).

Table 5: Pearson Product Moment Correlation

Variables		Order Management	Supply Chain Performance
Order Management	Pearson Correlation	1	**0.780**[**]
	Sig. (2-tailed)		0.000
	N	110	110
Supply Chain Performance	Pearson Correlation	0.780[**]	**1**
	Sig. (2-tailed)	0.000	
	N	110	110

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

According to the study's findings, the correlation between order management and supply chain performance had an r of 0.780 and p-value of 0.000 at 95% confidence levels. The results therefore, denoted a strong correlation between order management and supply chain performance hence the variables are associated. These findings correspond with (Alshurideh et al 2022) who opined that order management has a strong correlation with quality service which is a key component of supply chain performance.

Regression Analysis

Regression analysis was used to infer causal relationship between the independent and dependent variables. The goal of regression is to arrive at the set of regression coefficients (Beta values), for the independent variables that bring the Y values predicted from the equation as close as possible to the Y values obtained by measurement (Barbara & Linda, 2007).

Table 6: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.780[a]	0.609	0.605	3.902

a. Predictors: (Constant), Order Management

The coefficient of determination (r^2) value was 0.609 suggesting that approximately 60.9% of the variance in the supply chain performance of motor vehicle assembly firms in Kenya can be explained by order management. From the basis of the model summary, only 39.1% of variations on supply chain performance is determined by the stochastic terms not included in the model. Therefore, the independent variable greatly influences supply chain performance in motor vehicle assembly firms in Kenya which makes the model fit for managerial and policy inferences.

Table 7: Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2562.297	1	2562.297	168.286	0.000[b]
	Residual	1644.394	108	15.226		
	Total	4206.691	109			

a. Dependent Variable: Supply Chain Performance

b. Predictors: (Constant), Order Management

The analysis of variance shows how well order management predicts supply chain performance of motor vehicle assembly firms in Kenya. The regression results of the ANOVA indicate an F-statistic of 168.286 which was significant at 5% significance level (p-value 0.000<0.05). This implied that the null hypothesis was rejected and the study concluded that the overall model was significant at 5% significance level.

Table 8: Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.501	1.841		0.815	0.417
	Order Management	0.988	0.076	0.780	12.972	0.000

a. Dependent Variable: Supply Chain Performance

The results in Table 8 generates a regression equation as follows:

$Y = 1.501 + 0.988X_1$ (Order Management)

The regression results indicate that order management had a statistically significant influence on supply chain performance (p-value $0.000 < 0.05$). Holding other factors constant, a unit change in order management would lead to change in supply chain performance by 0.988 This implies that 1% change in order management results to 98.8% change in supply chain performance in motor vehicle assembly firms in Kenya.

CONCLUSIONS AND RECOMMENDATIONS

The findings of the study showed that order management practice influence supply chain performance in motor vehicle assembly firms in Kenya. According to the study's findings, motor vehicle firms processes customer orders in a timely manner, time taken from receiving an order to its processing completion is consistently short, the companies consistently achieves a high fill rate for customer orders, regular fulfillment of customer orders completely on the first shipment, the accuracy of order fulfillment which is consistently high and presence of effective and reliable systems that ensures order accuracy contributes immensely on the supply chain performance in motor vehicle firms in Kenya.

From regression results, the study found that a unit increase in order management would lead to increase in supply chain performance by a positive factor. The study, further, indicated that the influence of order management on supply chain performance in motor vehicle assembly firms in

Kenya had a p-value that was within the expected significant level. Further, the general findings from the regression analysis is that, order management have a positive influence on supply chain performance. The relationship is at 95% confidence levels that implies a strong relationship between order management and supply chain performance. Thus, the general conclusion of the analysis is that strong order management practice, positively influence supply chain performance in motor vehicle assembly firms in Kenya. Finally, the study recommends streamlining of the customer orders through automation of order management to improve accuracy and reduce delays, improve on supply chain visibility to ensure efficacy in ordering processes and combating shipment uncertainties through embracing supply chain agility practices.

Suggestion for Further Studies

The study sought to assess the influence of order management on supply chain performance in motor vehicle assembly firms in Kenya. Order management accounted for 60.9% of variations on supply chain performance at 5% significance level. This denotes that there exist other elements not studied in this research that contributes to 39.1% of variations in supply chain performance. Therefore, there is need for further studies to determine other factors that influence supply chain performance in motor vehicle assembly firms in Kenya. Further studies could be conducted to assess how order management influence supply chain performance of other firms in different spheres of Kenyan economy.
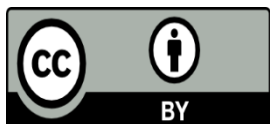
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