

Inventory Management Practices and Sales Performance in Retail Outlets: Case of Supermarkets in Nakuru Town, Kenya

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Abstract: The ability to achieve a seamless flow of inventories remains to be a major challenge among retail stores in Kenya. Major retail companies in Kenya have entered into quantity or time-based service contracts with suppliers. While was envisaged to that this will lead optimal stock management, most of these retail companies suffer from both overstocking and stock run-outs, a potential source of low sales. In view of this, this study seeks to bring to the fore the likely influence of inventory management practices on sales performance among retail stores in Nakuru Town. Specifically, the study brings to the fore the influence of four practices; inventory management systems, strategic supplies selection, vendor managed inventory and inventory forecasting practices. A census of 80 employees working in the 16 retail stores within Nakuru town was adopted. Inventory management systems and vendor managed inventory was found to have a positive and significant relationship with sales performance of retail stores. Based on the current findings. This calls for the retail outlets to take a critical look and analyze their inventory practices, before their implementation.

Keywords: Inventory Management Practices, Sales Performance, Retail Outlets, Supermarket.

I. INTRODUCTION

With the advent of stiff competition in the retail sector globally, distortion to the supply chain brings with it a multiplier sequence of disruption and loss of revenues and profitability. Importantly, increasing focus on global expansion in the sector continues to foster greater attention on streamlining the supply chain management function. Increased adoption of these best practices has since enabled retail firms to minimize waste and costs and increase revenue (Zer and Wei, 2006). The need for sustainability in inventory management is gaining acceptance in both academic literature and industry practice as an area of opportunity. Companies and public sector organizations across geographical and industry boundaries are implementing sustainability initiatives in the inventory management in response to pressures from customers, suppliers, investors and even employees (Melnik, Davis, Speakman & Sandor, 2010).

While many organizations have a formal and structured inventory management practices as a way to achieve organizational objectives such as enhanced efficiency, profitability and improved procurement operations, adoption of effective internal inventory management practices remains a challenge to many (Onchoke & Wanyoike, 2016). The need for efficient and effective inventory management in formal organizations has several justifications; first is to ensure that all input materials of production or trade are available as and when required. Secondly, once availability is guaranteed, they must be maintained at a level where operational cost is kept at a minimum without affecting operation efficiency (Eneje, Nweze, & Udeh, 2012). More importantly, the holding of inventories is, in essence, a customer centered concept. Holding and managing inventories is in the interest of meeting customer's convenience (Agus and Noor, 2010). Inventories indirectly influence cash flow management, tax burdens and risk exposure closely associated with the overall financial performance of a firm.

Increased complexity in the global supply chains and the presence of strong consumer demands continue to drive the need for effective inventory management. Worldwide organizations, both private and public continues to face inventory

management challenges based on the premise that inventory management is an important factor in service delivery, customer satisfaction and improved performance. Further, organizations, whether large or small, public or private, local or global are in one way or another concerned about inventory management; It has been the attempt of most organizations striving to achieve optimal inventory control while minimizing inventory costs (Swaleh & Were, 2014).

In Kenya, a country with an emerging consumer-driven middle class, the retail sector is highly dominated by large retail stores often referred to as supermarkets stocking a wide range of products under one roof. In a quest to attract a diverse clientele, the emergence of holistic shopping experience continues to gain popularity in most outlets. For instance, it is becoming a standard practice to have a bakery, eatery, chemist and financial service providers under the same roof as compared to the previous model that was purely retail. Despite the growth in the sector, it is still facing a number of challenges. Increasing pressure from product customization, demand for superior quality at low price, engaging in collaborative efforts with their suppliers, educating the organization on supply chain fundamentals, quality improvement, and demand responsiveness as well as need to reduce production cost, shorten lead time, and lower inventory level to ensure profitability (Holweg, 2006) are some of the dominant challenges seen across the sector. Other challenges in the retail industry and which are specific to supermarkets in Kenya are long delivery timelines, unpredictable transportation system and Logistical, financial, technological and operational challenges (Magutu et al, 2011).

The growth and development of supermarkets in Kenya, especially during the last two decades, has been tremendous. Kenya is the second most advanced country after South Africa, with over 206 supermarkets and 18 hypermarkets (Economic Survey 2015). The first to be established was Uchumi supermarket with the first branch opening its door in 1975. Currently, over 220 supermarkets spread across all major towns in Kenya with a strong in largest towns of Nairobi, Mombasa, Nakuru, Eldoret and Kisumu. Nairobi is the capital city of Kenya since independence has attracted local and foreign investors in the business. Supermarkets are one of the businesses that have attracted quite a number of investors (Maiywa 2013). There are at least six big Kenyan owned supermarkets, including Nakumatt, Uchumi, Tuskys, Naivas, Ukwala and Chandarana. Kenya's advancement in supermarkets is evident from the fact that it's top five cities (Nairobi, Mombasa, Nakuru, Eldoret, and Kisumu) have at least 165 supermarkets and 13 hypermarkets (Economic Survey, 2015).

II. PROBLEM STATEMENT

A number of Supermarket in Kenya are currently going through turbulent times with a constant threat of liquidation from creditors who are mainly suppliers. For instance, Uchumi supermarket, the oldest supermarket in the country is a point of liquidation due to non-payment of suppliers dating back as far as 7 years, while Nakumatt, at one time was considered the largest retail store in Kenya is facing an uncertain future due to low stock levels occasioned by non-payment of suppliers and creditors. In Kenya, performance associated inventory management remains low and under development as a result of unclear or poor partnership and collaborative. Misoi and Nyoro (2005) observed that this has been highly attributed to supply chain systems are haphazardly established without clear strategy and goals. More notable is that, every member of the supply chain pursues their own cost reduction and profit motives at the expense of each other. This has seen the unending shortages of products, spiraling prices, poor inventory handling and management leading to poor quality products and high costs along the supply chain, putting into question the influence of inventory management systems of the performance of retail outlets.

III. OBJECTIVE

The objective of this study was to assess whether the choice of inventory management practices used in retail outlets influences their sales performance.

IV. LITERATURE REVIEW

Theoretical anchoring of prudent inventory management can be seen from two strong theories that have gained wide acceptance; the Theory of Economic Order Quantity founded on the economies of scale theory and the Strategic Choice Theory.

The Economic Order Theory

The Economic order quantity sees optimality as the desired outcome in inventory management rests on the balance between opportunity cost of missed revenues due to missed sales as a result of stock outs and additional cost arising from

excess stocking (Lwiki et al., 2013). The dynamic and unproductive nature of customer demands and supplier lead times by nature makes the balance between the two extreme cost levels a constant challenge at the centre of inventory management decisions. Optimal inventory management calls for not only prudent inventory cost determination but also accurate forecasting of both the demand and supply side of the supply chain. (Swaleh & Were, 2014). The Economic Order Quantity (EOQ) model has found prominence as a tool of inventory control and has been applied to finished goods inventories, work- in- progress inventories and raw material inventories. It regulates the purchase and storage of inventory in a way to ensure that an even production flow at the same time restricting excess investment on inventories (Kumar, 2016).

EOQ suffers from a number of challenges, a majority of which are centered on underlying assumptions. First, EOQ ignores the need to maintain buffer stock, a critical component of any inventory management system given the unpredictability of demand and lead times. Secondly, EOQ model demands that each item must be managed independently, a required that is almost practically impossible in diverse product setting. Thirdly, the model assumes that all other variables will remain constant during the entire period. For instance, uncertainty is often inherent in demand, transportation or even during clearing and handling. In such eventualities, EOQ remains unaccommodative and limits its applicability in real world context.

The strategic choice theory

The strategic choice theory builds a bridge between the choices of management and the resulting performance, given internal and external environmental context. The origin of the theory is traced to the works of Blau, Hage and Aiken, Hal, Lawrence, and Lorsch) and Pugh and Woodward (Child,1972). As a domain output of management function, the quality of decision made directly translates to the performance outputs and efficiency. Within the context of inventory management decisions, the choice and quality of implementation of inventory management practices define the final cost of product or services delivered to the customer. Strategic choice theory suffers from a number of limitations. It gives less importance to the contextual aspects, including environment, technology as well as the degree of operation into account and merely considered how the structure of a firm help in the performance of a business. The theory is known for greater concern for governance structure and political forces in decision making and has less attention to the functional execution of organizational processes.

Empirical Review

Empirical evidence linking inventory management practices and sales performance remain inconclusive. Onyango,(2011) in evaluating the impact of inventorying management on the profitability of supermarket in Nairobi noted that majority of the retailers face a number of challenges, most of which are closely associated with increasing pressure of customers' requirements in product customization and attempts to ensure that the right products at the lowest cost. In operations, much of the challenges relates to the need to maintain active engagements through collaborative efforts with their suppliers, educating the organization on supply chain fundamentals, quality improvement, and demand responsiveness as well as need to reduce production cost, shorten lead time, and lower inventory level to ensure profitability. Other challenges in retail industry and which are specific to supermarkets in Kenya are working for long hours, delivery time, transportation and Logistical challenges, financial challenges; Physical challenges in terms of location and Information Technology penetration (Magutu et al, 2011).

The level of supplier development among Kenyan retailers has not been clear on partnership and collaborative basis. Misoi and Nyoro (2005) observed that this can be attributed to the haphazard nature of supply chain protocols where every member of the supply chain pursues their own cost reduction and profit motives at the expense of each other. Dryden and Brownell (2012) posit that excess inventory in the supply chain blocks the cash flow and this might negatively affect organizational performance. Additionally, Agus and Noor (2010) argue that proper inventory management must seek to control the costs associated with the inventory, both from the perspective of the total value of goods included and the tax burden generated by the cumulative value of the inventory.

A study conducted by Swaleh and Were (2014) on factors affecting effective implementation of inventory management systems in the private sector of Kenya revealed that the main objective of Kenyan organizations in inventory control is centered on holding the right quantity of inventory at the lowest cost possible. Consequently, organizations were increasingly developing inventory control systems and adopting inventory control practices in a bid to resolve the

challenges associated within their inventory management. Additionally, the noted that most of the organizations in Kenya use inventory control systems as a competitive tool and in a wider perspective to improve financial performance (Nyabwanga, 2012).

The adoption of technology as a platform on which prudent inventory management can be achieved is gaining acceptance among retail outlets in Kenya. The need to enhance customer service, through an efficient supply chain, according to Irungu & Wanajau (2011) is one of the most factors that continues to influence the adoption of technology in retail outlets. More importantly, the ability to leverage technology in developing and maintaining the right stock level lends more justification for the adoption of better inventory management practices.

Despite the retail sector dominating in studies seeking to reveal the challenges associated with supply chains, most of the studies have established the existence, strength and the potential impact of such challenges on the performance of retail units. Studies by Njogu(2015), Onyango (2011), Mbutia (2014), Mwangi (2018) among others have sought to assess diverse sets of challenges and factors that have influenced the performance of retail outlet in Kenya. There is evidently a strong omission and gaps on the influence that specific inventory management practices have had on the performance of retail outlets, a basis on which our current study is justified.

V. METHODOLOGY

The study adopted descriptive design due to the need for self-reported facts given that all the facts and opinion desired were within the management of the target entities. A total of 80 managers comprising store managers, retail floor managers, branch managers, supply chains manager and chief/senior accountant in 16 retail outlets operating in Nakuru town. The choice of managers as respondents was based on their role and participation in decision-making processes relating to inventory management in their assigned outlets, a position that enhances the quality of responses received. A structured questionnaire that modelled inventory management practices and sales performance were used to collect data where a research assistant dropped the questionnaires and collected them back after they were filled. With all the questionnaires collected back, coding, entry and clearing were done with the aid of Statistical package for social sciences Version 24 software that was also used for in-depth analysis. The analytical framework on which the influence of inventory management practices on sales performance was anchored on both correlation analysis and multiple regression model. Correlation analysis was used to establish the associations between individual inventory management practices and sales performance, while multiple regression model provided a basis with the collective influence of the inventory management practices bore on sales performance as indicated in equation (1).

$$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad (1)$$

Where;

Y= Sales performance, α =constant, $\beta_1 \dots \beta_4$ = Regression Coefficients, X_1 = Inventory Management Systems Practice, X_2 = Strategic Supplies Management Practice, X_3 = Vendor Managed Inventory Practice, X_4 = Forecasting and Replenishment Practice and ε - Stochastic term

To ensure that the validity and accuracy of the estimated coefficients were achieved, three basic assumptions namely: normality of residuals, homoscedasticity and multi-collinearity were tested before the interpretation of the model coefficient.

VI. FINDINGS

Out of the initial sample size of 80 respondents, the study managed to collect back all the issued questionnaires archiving a 100% response rate. More than 70% of the surveyed supermarkets having established their premises in Nakuru town for more than 10 years and employed between 50 -100, an indication that most were classified as medium enterprises based. Considering the growth path of any retail sector enterprises, within the first ten years, it would be expected that they should have grown from simple retail units, offering a limited product range to a medium or a large units stocking a diversified range of products as seen in the current results.

Inventory Information management system

The significance of inventory information management systems as a component of the wider inventory management framework was present in all the surveyor supermarkets, an indication of a strong use of information technology in

inventory management in the sector. The presence of information technology-based inventory planning, Stock level management, inventory tracking and computerized stocking systems was evident in more than 60 % of the retail outlets as seen in Table 1.

Table 1: Descriptive Statistics of Inventory Management Systems

Practice	SD	D	NS	A	SA
	N (%)	N (%)	N (%)	N (%)	N (%)
Inventory Planning & Budgets	6(8%)	3(4%)	5(6%)	29(36%)	37(46%)
IT stock levels Management	6(5%)	9(14%)	0(0%)	36(45%)	29(36%)
IT Inventory tracking	7(9%)	14(18%)	0(0%)	31(39%)	28(35%)
Computerized stocking System	3(4%)	2(3%)	8(10%)	21(26%)	46(58%)

Key: SA –Strongly Agree, A – Agree, NS – Not Sure, D- Disagree, SD – Strongly Disagree

The use of information systems to plan and budget for inventories, according to 82% of the respondents was evident in their retail outlets while management of stock levels based on a structured information system was noted by 65% of the respondents. The existence and use of IT-based inventory tracking and computerized stock management system were noted by 59% and 67% of the managers. This was a strong evidence to support wide adoption in retail outlets in Kenya and more so its integration as a key component of stock management systems.

Strategic Supplier Partnerships

Strategic supplier partnerships as one of the elements within the wider inventory management practices were examined from four perspectives; the existence and strength of supplier relationships, levels of trust, information sharing and the existence of common/ shared objectives between the suppliers and the retail outlet. A descriptive summary of based on the levels of agreements on statement assessing the respective components was as seen in Table 2

Table 2. Strategic Supplies Management Practice

Practice	SD	D	NS	A	SA
	N (%)	N (%)	N (%)	N (%)	N (%)
Relationship	6(8%)	7(9%)	9(11%)	37(46%)	21(26%)
Trust	0(0%)	5(6%)	11(14%)	41(51%)	23(29%)
Information sharing	0(0%)	10(13%)	15(19%)	37(46%)	18(23%)
Common objectives	0(0%)	16(20%)	8(10%)	47(59%)	9(11%)

There is a general agreement among the respondents on the existence of favorable strategic supplier relations between their retail outlet and their suppliers. More than 55% of all the respondent strongly agreed or were in agreement with the existence of the four elements of strategic supplier relationships. The proportion of the respondents who agreed or strongly agreed that there exists a strong supplier relationship accounted for 58% of the respondents with 64% indicating that they were in agreement or strongly agreed that the relationship was based on trust. Those acknowledging that information was shared between the retailer and the suppliers and the existence of shared objectives accounted for 55% and 56% respectively. Though a small proportion of the respondents disagreed, there is a strong indication that strategic supplier relations have taken root among retail outlets in Nakuru town. These findings hold a common view with those of Gichini & Namusonge (2018) and Mbuthia (2014) reporting significant levels of strategic supplier engagement in retail outlets in Nairobi. From the current findings, it is evident therefore that strategic supplier relationships have attained a significant recognition among retail outlets and hence a likely determinant of their performance.

Vendor managed inventory practice

With the advent of delegated inventory management in retail outlets, has seen the advent of Vendor Management Inventory systems contracts implemented in most retail outlets in Kenya. In assessing the adoption of this inventory management practice, three elements were investigated; Supplier integration, data sharing and inventory management contracts. The distribution of responses received were as indicated in Table 3.

Table 3: Vendor managed inventory practice

Practice	SD	D	NS	A	SA
	N (%)	N (%)	N (%)	N (%)	N (%)
Supplies integration	4(5%)	5(6%)	5(6%)	37(46%)	29(36%)
Shared Inventory data	3(4%)	8(10%)	0(0%)	35(44%)	34(43%)
Inventory Management Contracts	7(9%)	11(14%)	0(0%)	29(36%)	33(41%)

Supply integration as a means to allowing vendors to take over inventory management was supported by 82% of the respondents who indicated that they were in agreement compared to 11% who did not find evidence of its existence. In a similar way, 87% and 62% were in strong agreement or agreed that shared inventory data and the use of inventory management contracts that gave power to suppliers to manage their inventories were in existence. The results agree with those of Mwangi (2018) Ngugi et al (2012) who found that VMI not only have gained acceptance in retail outlets in Kenya, and continues to influence both operational and financial performance.

Inventory Forecasting Practice

Accurate inventory forecasting is closely associated with better demand management and operational performance in retail outlets. To assess the level to which forecasting is implemented in retail outlets, five elements of inventory forecasting; expected future inventory levels, the timing the demand and demand fluctuation were examined with the results summarized in Table 4

Table 4: Descriptive Statistics of Forecasting

Practice	SD	D	NS	A	SA
	N (%)	N (%)	N (%)	N (%)	N (%)
Inventory Levels	9(11%)	3(4%)	8(10%)	39(49%)	21(26%)
Order timing	0(0%)	5(6%)	14(18%)	40(50%)	21(26%)
Future demand levels	0(0%)	4(5%)	9(11%)	33(41%)	34(43%)
Demand Fluctuation	0(0%)	8(10%)	28(35%)	31(39%)	13(16%)

Inventory forecasting was evidently present in a majority of the retail outlets involved in the study. There was a general consensus among the respondents indicating that inventory forecasting was in existence in more than half of the retail outlets with the exception of demand fluctuation forecasting where 44% of the respondents acknowledge its existence in their supermarket. The existence of inventory levels forecasting and order timing forecast was acknowledged by 60% and 61% of the respondents respectively while 67% noted that their retail outlet had in place systems to forecast future demand levels. The findings are confirmed by similar evidence that were found by Wesonga (2017), Songa (2017) and Kipturgo & Okello (2016) reporting a strong link between inventory forecasting and performance of retail outlets in different towns in Kenya.

Sales Performance

The aim of this study was to assess the link between the adoption of inventory management practices and the performance of retail outlets based on their sales. To measure the performance of the participating retail outlets, sales volume, customer numbers and inventory turnover were used and their results were as summarized in Table 5.

Table 5: Descriptive Statistics of Sales Performance

Practice	SD	D	NS	A	SA
	N (%)	N (%)	N (%)	N (%)	N (%)
Increased Sales volume	5(6%)	9(11%)	13(16%)	22(28%)	31(39%)
Increased customers	0(0%)	6(8%)	14(18%)	31(39%)	29(36%)
High inventory conversion	0(0%)	5(6%)	14(18%)	33(41%)	28(35%)

The direct link between the adoption of inventory management practices and retail performance based on sales and customers was evident. More than half (53%) of the respondents were in agreement or strongly agreed that adoption of the right inventory management practices had translated to increased sales volume, while 60% and 61% indicated that there were increased customer numbers and shorter inventory cycles respectively. However, between 13% 14% of the

respondents were undecided is worth noting. This was a confirmation of the growth trajectory that has been witnessed in the Kenya retail sector as it progresses toward maturity.

Inferential Analysis

To examine the relationship between inventory management practice and sales performance, a multiple linear regression analysis was employed. Prior to the regression analysis, a Pearson's correlation analysis was carried out to assess the levels of association between the independent variables and the dependent variable both as part of the wider regression assumption test and for gaining an in-depth understanding of the relationship between the specific inventory management practices and sales performance.

Table 6: Correlation between Inventory Management Practices and Sales Performance

	IMS	SSM	VMI	IFC
IMS	1			
SSM	0.549** (0.000)	1		
VMI	0.072 (0.534)	0.020 (.860)	1	
IFC	0.540** (0.000)	0.373** (0.001)	0.349** (0.002)	1
Sales performance	0.546** (0.000)	0.312** (0.005)	0.477** (0.000)	0.095 (0.308)

** Correlation is significant at the 0.01 level (2-tailed).

Key: IMS = Inventory Management System, SSM=Strategic Suppliers Management, VMI = Vendor Managed Inventory and IFC = Inventory Forecast

From the results presented in Table 6, inventory information management system was found to have a significant positive correlation with strategic supplier management ($r = 0.549$, $p < 0.05$). Inventory forecasting ($r = 0.540$, $p < 0.05$) and sales performance ($r = 0.546$, $p < 0.05$). Inventory forecasting was also found to be positively correlated with vendor managed inventory ($r = 0.349$, $p < 0.05$). Three out of the four independent variables were found to have a significant positive correlation with sales performance, an indication that the with the exception of Inventory forecasting, all the other inventory management practices were likely to have a significant influence on the levels of sales achieved by the retail outlets in Nakuru Town.

With the prerequisite assumption of Linearity, multicollinearity and homoscedasticity tested and found to be within compliance, the regression model coefficient was estimated and used as the basis for the hypothesis test. The results of the models explained variance, ANOVA, and coefficient estimates were as indicated in Table 7-9.

Table 7: Model Fit

Model	R	R Square	Adjusted R Square	Std. Error
1	.751 ^a	.564	.541	.36508

a. Predictors: (Constant), inventory management systems, strategic suppliers' management, vendor managed inventory and forecast management practices.

The four independent variables as studied explain that 56 % of the total variance in sales performance as shown by the R square. This, therefore, means the four inventory management practices explains 56% of sales performance achieved by the retail stores, while the rest of the practices exogenous to the research contribute 44 % of the sales performance of the retail stores. As seen in Table 6, the ANOVA results ($F=23.67$, $p < 0.05$) denotes that the model, based on the four inventory management practices was significantly explaining variation in sales performance.

Table 8: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.607	4	3.152	23.647	0.000 ^b
Residual	9.730	73	0.133		
Total	22.337	77			

a. Dependent Variable: sales performance

b. Predictors: (Constant), inventory management systems, strategic suppliers' management, vendor managed inventory and forecast management practices

Table 9: Regression Model Estimation Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
(Constant)	1.102	0.567		-1.943	0.056	
IMS	0.576	0.098	0.503	5.862	0.000	1.78
SSM	0.088	0.105	0.074	0.844	0.401	1.91
VMI	0.565	0.138	0.455	4.097	0.000	1.87
IFC	0.041	0.154	0.030	.269	0.789	1.76

Only two out of the four inventory management practices were found to significantly influence sales performance of retail outlets in Nakuru town. Inventory information management system and vendor managed inventories were found to significantly influence sales performance in retail outlets holding all other factors constant. For every unit increase in inventory management score, there was a 0.576 increase in the sales performance score. This was an indication that outlets with better inventory management systems had a 57.6% better performance in their sales holding all other factors constant. An increase in Vendor managed inventory practices score was found to translate to 0.565 increase in sales performance score, holding all other factors constant. This means that the involvement of Vendors in the management of inventories leads to better sales for the retail outlets.

Strategic supplier management and inventory forecasting system, despite having a positive influence on sales performance did not attain statistical significance. This was an indication that investment in strategic supplier partnership and the use of inventory forecasting techniques in retail outlets do not significantly translate into better sales performance in retail outlets. Strategic supplier management is a complex activity that requires significant investment in skill, time and resources and if there is no significant commitment, its implementation may not bear significant outcomes. Increased completion in the retail market has brought with it market shifts, a likely factor that makes inventory forecasting less accurate and less power in influencing the sales achieved by the retail outlets.

VII. CONCLUSION

This study sought to establish the influence of inventory management practices in sales performance of supermarkets within Nakuru town. Most of the supermarkets in Nakuru town have to a great extent embraced several inventory management practices that have significantly impacted on their sales performance. Inventory information management systems and vendor managed inventories are two key inventory management practices that were found to significantly influence the outlet's sales, customer numbers and stock turnover positively. Seen from the current findings, it will be of great importance for supermarkets and retail outlets to critically examine their inventory management practices so as to better understand their influence on the sales performance, upon which the right choice should be made.

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