

Decoupling Point Strategies Promoting Supply Chain Performance of Manufacturing Firms Listed in Nairobi Stock Exchange in Kenya

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Abstract

The study sought to establish the influence of leagility specifically postponement strategies on supply chain performance in the Kenyan manufacturing firms Listed in the Nairobi Securities Exchange context. Explanatory research design was adopted while data was collected from all the 70 functional managers in the 10 firms. A pilot study of 7 respondents was conducted and the instrument overall Cronbach coefficient of 0.889 which was found to be sufficient and fit for the tool to be used in the actual field study. Data was collected using a semi structured questionnaire by dropping and picking after two weeks. Collected data was analyzed using both descriptive and inferential statistics. A response rate of 93% was realized in the study. Key finding of the study was that postponement strategies had a positive and significant influence on supply chain performance with a correlation coefficient of 0.883. The study therefore recommends that manufacturing firms need to embrace more inventory, distribution, decoupling Point and transport postponement strategies since they lead to improved supply chain performance.

Key Words: Decoupling point, Deferment, leagility, Performance, Postponement, Supply Chain, Strategy.

1.0 Introduction

Deferment is characterized as a technique that purposefully defers the execution of an errand, rather than beginning it with deficient or inconsistent data input (Yang et al., 2004). Van Hoek (2001) sees it as a hierarchical idea by which a portion of the exercises in the inventory network are not performed until client orders are gotten. The executives started to comprehend the worth of deferment when the creation theory changed from large scale manufacturing to mass customization. A few analysts accept that deferment is mostly an even minded means to move towards mass customization (Feitzinger and Lee, 1997; Kotha, 1995; Lampel and Mintzberg, 1996). Others view deferment as a valuable instrument in the design of worldwide stock chains and virtual coordinations to acquire the advantages of both leanness and spryness. (Clarke, 1998; Christopher, 1992; Christopher and Towill, 2001; Cooper, 1993; Van Hoek, 1998). Postponement refers to delaying the final form of a product until an order is received from customers dictating the quantity and qualities of the goods demanded (Zinn and Bowersox, 1988).

Numerous specialists have utilized numerical models to concentrate on the impacts of specific determinants on deferment methodology, for example, request vulnerability (Aviv and Federgruen, 2001; Gary and Tang, 1997); item assortment (Eric Johnson and Anderson, 2000; Su et al., 2005); and creation attributes (Mama et al., 2002; Van der Vlist et al., 1997). By utilizing the concept of postponement, firms may utilize lean methods up to the de-coupling point and agile methods beyond it (Harrison et al., 1999). The approach calls for lean operations in the production of generic, semi-finished product, and agile accommodation in the customization process (Mason Jones et al., 2000). As such it provides possibility of modular production or intermediate inventory as well as delayed final configuration or distribution.

In a manufacturing firm the choice of decoupling point is solely based on the nature of the product and demand and the total lead-time. Hence, the choice of these strategies should be based upon a careful analysis. (Kant et al. 2016). Banerjee and Mukhopadhyay (2016) believe those different ways have been utilized in working on the presentation of the supply chain, for example, decoupling focuses methodology, coordinated effort among provider and client, strategic advancement, collective arranging guaging and recharges, creation proficiency, acquirement process upgrades and reception of information technology and e-business. Krishnamurthy and

Yauch (2007) took a corporate viewpoint of leagility to show that the decoupling point isn't simply restricted to the actual progression of items yet might be situated between a "deals and services" division (coordinated and market focused) and a "creation" office (lean and creation focused).

Manufacturing in Kenya contribution to the economy has stagnated at around 10% of the Gross Domestic Product (GDP). This is according to the Kenya Association of Manufacturers (KAM) report on Manufacturing in Kenya Under the 'Big 4 Agenda (2018). However, there has been renewed interest in the manufacturing sector because of the Government's Big 4 Agenda which seeks to increase the Gross Domestic Product (GDP) contribution of the sector to 15% by this year. Supply chain efficiency and cost minimization are becoming increasingly important in the operation of businesses in order to produce significant results. Without a doubt, any business company chooses to make plans and decisions relating to maximizing performance while taking into account efficiency, cost, customer, and responsiveness all simultaneously. Kenyan assembling organizations, particularly those recorded in the NSE, are wasteful (GoK, 2008).

The best three needs for most of organizations before Covid-19 were to expand productivity, increment income and increment homegrown portion of the overall industry. These systems have now been pushed down the plan and are overwhelmed by reducing costs, retaining jobs, and improving cash flow. Competition, political upheavals, international governments issuing travel advisories, and an ever-increasing number of existing organisations are among the major challenges confronting Kenya's manufacturing industry (Cyton, 2017). Customers' expectations for better professional services, demand for skilled manpower, and increased sudden and unexpected customer desires and preferences (Ngandu, 2014). To address some of the issues caused by these problems, organisations should focus on implementing a flexible matching mechanism, such as leagile manufacturing strategies (Moenga, 2016).

A large body of research has been developed in relation to leagile supply chain strategy. Majority of the studies in the assembling fields of Kenya show a positive connection of lean assembling and benefit levels up to 41.4% (Noah, Donatus, Suzan, and Cathy, 2014). Ogema (2017) embraced a review in discovering nimble and lean obtainment drives carried out by the East African Breweries Company and regardless of whether it had some impact on the association's presentation. The review discovered that administration of waste is profoundly connected to authoritative execution of the fermenting organization, firmly followed by the executives of interest, conduct and normalization. Koori (2017) attempted an examination concentrate on leagile rehearses and the presentation of the SC in Non-administrative associations working in the wellbeing area in Nairobi, Kenya. The review reasoned that SC leagility has been there in that and exist an immediate connection between SC leagility and execution of helpful associations in Kenya. Hence the study sought to evaluate the influence of postponement strategies on supply chain performance of manufacturing firms Listed in the Nairobi Securities Exchange, Kenya. As alluded earlier, postponement strategy is one of the leagility strategies applied in Kenya's manufacturing sector.

2.0 Literature Review

Postponement strategy has been widely applied across the world. In the literature, for instance, there are postponement studies focusing on the fast moving commercial goods in Italy (Battezzati and Magnani, 2000), the supply chain producing mobile phones in Denmark (Catalan and Kotzab, 2003), the information technology industry in Taiwan (Chiou et al, 2002), the manufacturing procedure in Poland (KisperskaMoron, 2003) and the bicycle industry in the U.S.(Randall and Ulrich, 2001). The viability of postponement is determined by the structure of the supply chain characteristics (Battezzati and Magnani 2000). On the other hand, postponement affects the supply chain. The implementation of postponement often leads to the reconfiguration of the supply chain. Postponement application has also resulted in a blurring of warehousing, assembly and retail operations, and the warehouse is often the place where final assembly, labelling and packaging are processed. By employing postponement and combining it with a holistic view, some companies have managed to improve the

performance of the supply chain (Pagh and Cooper 1998). As pointed by Alderson (1957), cited in Jahre, Jensen, and Listou (2009), one strategy to reduce risk-uncertainty cost is to postpone the differentiation of goods; that is to delay value-adding activities. This maximises flexibility in the face of demand uncertainties. Naylor, Naim, and Berry (1999) refer this as the process of upstream of the decoupling point (postponement) and characterised as lean and those downstream as agile. Mangan, Lalwani, and Butcher (2008) suggest that leagility in situations in which replenishment lead time is long and demand is unpredictable. The inventory is held in a generic form and configured only when the precise customer requirement is known (Christopher and Towill 2001).

Postponement in manufacturing is generally applied through re-designing of the product, and the form and identity of the product are held at an aggregated level for as long as possible. However in logistics, postponement requires that forward movement that is delayed in time with the aim of finding the best location for the de-coupling point, which for a given service level, minimises the cost of inventory handling and increases the scale of economies in manufacturing (Jahre, Jensen and Listou 2009). Leagile strategy positions the decoupling point so as to best suit the need for responding to a volatile demand downstream yet providing level scheduling upstream from the marketplace. With 'Leagility', the supply chain can thereby adopt a lean manufacturing approach upstream, enabling a level schedule and opening up an opportunity to drive down costs upstream while simultaneously still ensuring that downstream of the de-coupling point there is an agile response capable of delivering to an unpredictable marketplace thereby capitalizing on the benefits of both paradigms (Naylor et al., 1999). Mason-Jones et al., (2000) argue that agility will be used downstream and leanness upstream from the decoupling point in the supply chain. Thus, leagile enables cost effectiveness of the upstream chain and high service levels in a volatile marketplace in the downstream chain. Therefore the hypothesis Postponement strategies do not significantly influence supply chain performance of manufacturing firms Listed in the Nairobi Securities Exchange was tested.

3.0 Research Methodology

The study utilized explanatory research design which is appropriate when establishing the relationship between variables. The study targeted 10 manufacturing firms in Nairobi stock exchange in Nairobi, Kenya. A census was carried out of all the 70 supply chain functional managers in the areas of procurement, logistics, production, human resource, finance, marketing and risk management. A 5-point Likert scale structured questionnaire was used to collect primary data by dropping and picking after two weeks. Data was analyzed by way of descriptive statistics, correlation analysis and multiple regression analysis and findings presented in tables. The study model took the form; $Y = \beta_0 + \beta_1 X_1 + \epsilon$ Where; Y = Supply Chain Performance, X_1 = Postponement strategies and ϵ refers to the error term

4.0 Findings and Discussions

To establish the relationship between the postponement strategies and supply chain performance respondents were asked to indicate their level of agreement on the following statements in a scale of 1-5, strongly disagree and strongly agree respectively. The results of the means and standard deviations are shown in table 1.

Table 1: Postponement Strategies and Supply Chain Performance

Statements	1	2	3	4	5	Mean	Std. Dev
We produce products after receiving orders	4	5	14	28	14	3.818	0.753
In our company, product differentiation is driven by end users	3	7	11	22	12	3.936	0.837
Production is delayed until the orders have been received	5	4	14	46	16	3.900	0.808
Our company has system that allows smooth flow of materials	5	5	12	16	27	3.845	0.849
Our organization has two autonomous divisions: one that produces product and the other buys from the production to sell to customers	3	4	10	25	23	4.445	1.330

The respondents agreed that organizations have two autonomous divisions: one that produces product and the other buys from the production to sell to customers as shown by a mean of 4.445. this helps to decouple supply chain operations. Product differentiation is driven by end users as shown by a mean of 3.936, production is delayed until the orders have been received as shown by a mean of 3.900, the companies have systems that allow smooth flow of materials as shown by a mean of 3.845 and the firms produce products after receiving orders as shown by a mean of 3.818. The findings concur with those of Pagh and Cooper (1998) that by employing postponement and combining it with a holistic view, some companies have managed to improve the performance of the supply chain. Mason-Jones et al., (2000) also argue that agility will be used downstream and leanness upstream from the decoupling point in the supply chain. Thus, leagile enables cost effectiveness of the upstream chain and high service levels in a volatile marketplace in the downstream chain.

The study analyzed the variations of supply chain performance due to the application postponement and continuous improvement.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886 ^a	0.785	0.779	0.00613

Adjusted R squared was 0.779 implying that there was 77.9% variation of supply chain performance due to the changes in postponement strategies. The remaining 22.1% imply that there are other factors that lead to supply chain performance which were not discussed in the study. From the findings, the study found out that there was a strong positive relationship between the study variables as shown by 0.886. The findings concur with those of Nderitu and Ngugi (2014) that supply chain performance improved due to some attributes of leagility.

The analysis of variance ANOVA was used to determine whether the data used in the study was significant. Results were as shown in table 3.

Table 3: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.251	1	9.063	97.759	.008 ^b
	Residual	9.734	105	0.093		
	Total	45.985	109			

From the ANOVA statistics, the processed data (population parameters) had a significance level of 0.008. This shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The F calculated was greater than F critical ($97.759 > 2.458$). This shows that postponement strategies significantly influence supply chain performance. The findings concur with those of Blome, Hollos and Paulraj (2014) that the practice of leagility is instrumental in its achievement of enhanced supply chain performance. The regression equation was $Y = 1.269 + 0.506X_1 + \epsilon$ revealing that postponement strategies significantly influence supply chain performance by a constant of 1.269 as shown in table 4

Table 4: Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
1 (Constant)	1.269	0.148		8.574	0.000
Postponement Strategies	0.506	0.106	0.461	4.774	0.003

Postponement strategies was statistically significant to supply chain performance as shown by ($\beta = 0.506$, $P = 0.003$). This shows that a unit increase in postponement would lead to a 0.506 increase in supply chain performance. The findings agree with those of Yang and Zhao (2019) that postponement strategies is a solid indicator of green trust, which upgrades green brand connection. Also, green trust is a viable middle person between postponement plan and green brand connection. However, the findings differ from those of Purnama and Purnama (2019) that postponement strategies, legitimately has direct and indirect influence on supply chain flexibility.

5.0 Conclusion and Recommendations

The study found a significant and positive association between postponement strategies and supply chain performance. Further, it was revealed that product differentiation is driven by users since the firms produce after receiving orders. The firms have put in place systems that allow smooth flow of materials. The organization have two autonomous divisions: one that produces product and the other buys from the production to sell to customers. This helps the firms to decouple supply chain operations and hence allow each function to operate at better efficiency levels. The study therefore concludes that an improvement in adoption of appropriate postponement management strategies leads to an improved performance of manufacturing firms supply chains to a great extent.

The study recommends that manufacturing firms listed in Nairobi Securities Exchange should improve on their postponement strategies for improved supply chain performance. This can be done by ensuring product differentiation is driven by end users as well as producing products after receiving orders only. The study suggests that similar studies could be conducted in other sectors including the unlisted manufacturing firms in Nairobi county. This will help in cementing an holistic view of the study concepts.

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