

The role of Just In Time implementation on procurement performance in the Manufacturing industries, Rwanda

Uwamahoro, M. J¹, and Mulyungi, M.P²

^{1,2} Jomo Kenyatta University of Agriculture and Technology

DOI: 10.29322/IJSRP.10.11.2020.p10797
<http://dx.doi.org/10.29322/IJSRP.10.11.2020.p10797>

Abstract- The main objective of this study was to determine the effect of Just-In-Time on the cost of procurement materials, to assess the effect of Just-In-Time on wastage of SKOL The specific objectives of this study were to find out if lead time affect SKOL Brewery's procurement performance, to determine the influence of procurement process on performance. Data was collected from selected respondents to generalize the results of the study. The study was conducted on 31 respondents. Universal sampling techniques, questionnaires and documentation methods were used to collect data relating to this topic. The study found that lead-time has a strong positive correlation to the procurement performance and highly significant. Procurement process has a strong positive correlation to the procurement performance and significant too. Procurement professionalism has a strong positive correlation to the procurement performance. The study concluded that Just In Time implementation contribute to the procurement performance of manufacturing industries in Rwanda. The study recommends that Leadership should actively collect information about procurement and Just in time to help create new approaches, and networks among other strategies to understand the organizational environment and any signs of change.

Index Terms- Just In Time, procurement, procurement performance, manufacturing industries

I. INTRODUCTION

Public procurement is the process by which public entities contract for acquisition/supply of goods services or wants and disposal of public goods. In public procurement, a good JIT procurement system ensures that all the equipment and services required by the customers are always available for them and hence a superior service from the organization. JIT is a procurement system which is very efficient and enables the public sector to have a competitive advantage over the other but JIT procurement system has not been fully adopted and used in many organizations despite its many advantages, compared to other old methods of procurement system such as hand to mouth and speculative system (Amin, 2011).

Just in time (JIT) concept has been applied with considerable success in manufacturing environment. This research was to provide an insight of JIT concept and procurement performance in public sector. Although JIT concept has many advantages, current study suggests that its application has not been applied in total within public sectors organization. Nevertheless the essence of JIT concept in the context of procurement management can and should

be explored. JIT is a broad based philosophy of management, which embraces everybody in the public sector and covers every process towards a culture of never ending or continuous improvement by removing wastes and non-value adding processes (Kinyua, 2015).

The essence of JIT is to purchase materials and the material are therein time for consumption and these materials must be of high quality to enable smooth running of the system. Procurement systems have increasingly taken a pivotal strategic role in supply-chain management. Although the strategic role of the procurement systems have not been fully subjected to rigorous theoretical and empirical scrutiny. Extensive research has remained largely unreliable and theoretically underdeveloped. Procurement systems have assumed an increasingly pivotal strategic role, evolving from an obscure buying function into a strategic business partner. Researchers have documented how strategic procurement systems actively participate in corporate planning process, facilitate beneficial organization-environment alignment and foster cross-functional integration among supply-chain activities, among other things (Kinyua, 2015). This study aims to assess the role of Just In Time (JIT) on procurement performance in public sector.

Just in time (JIT) is 'an inventory control philosophy whose goal is to maintain just enough material in just the right place at just the right time to make just the right amount of product. Public institutions procurement is an instrument of Government policy. The setting of new policies to serve socio-economic objectives, changed working environment, and good governance require a turnaround approach in public procurement system, which is an inevitable pre-requisite for service delivery. The government needs to adopt dynamic changes to be able to govern in an efficient and effective manner in order to deliver services. Government just like any business venture has obligations and commitments to fulfil to its customers 'the citizens', who are claim holders and it's duty bound to deliver on the promises made in manifestos, service charters and during performance contracting (Adagala, 2014).

II. OBJECTIVES OF THE STUDY

The main objective of this study is to determine the effect of Just-In-Time on the cost of procurement materials, to assess the effect of Just-In-Time on wastage of SKOL Brewery and to confirm the effect of lead time in the procurement process of industry manufacturing.

Specific objectives

- i. To find out if lead time affect SKOL Brewery's procurement performance
- ii. To determine the influence of procurement process on procurement performance of SKOL Brewery
- iii. To establish the relationship between procurement professionalism and SKOL Brewery's procurement performance

III. LITERATURE REVIEW

III.1. Concept on Just in Time

Just In Time found a great acceptance in developed countries such as USA, Malaysia, UK, and Canada, as well in in developing countries like Kenya. Just-in-time (JIT) is an [inventory](#) strategy companies employ to increase efficiency and decrease waste by receiving goods only as they are needed in the production process, thereby reducing inventory costs. This method requires producers to forecast demand accurately. This inventory supply system represents a shift away from the older just-in-case strategy, in which producers carried [large inventories](#) in case higher demand had to be met (Farrington, 2006).

This study describes the factors of Just In Time implementation such as lead time, procurement process and procurement professionalism.

A. Lead Time

Lead time is one of the main competitive factors among companies. The ability to deliver quickly influences export, sales and thereby revenue. The definition of lead-time can vary, depending on what part of the company is focused upon. Lead time begins with the first receipt of a customer order and ends with customer receipt of the product or service. Everything in between is the lead-time. Lead-time refers to the time lag between placing an order and receiving it. Lead time is therefore defined as the time it takes from getting order from a customer and receiving the delivered product by that customer When the duration between the ordering period and the delivery varies from the expected time, then lead time variability occurs. Lead time variability therefore refers to the variations in lead time that can occur for purchased items and for those that are manufactured in-house (Berkowitz, M.; Mohan, K., 2014). A major factor related to these variations is quality problems. Typically, either safety stock or lead time is utilized to cushion the impact of this variability. In either case, larger variability requires increased inventories.

Lead time is the amount of time between the placement of an order and the receipts of the goods ordered. It depends on the nature of the product e.g. whether it is made to order or if it is a from the shelf product. Lead time also depends on planning and supply chain management, logistics services and of course distance to customers and suppliers. Long lead time does not need to be a problem if delivery is predictable and demand is stable. However, if there is uncertainty about future demand, long lead time is costly even when the customer knows exactly when the merchandise will arrive. If future demand has been underestimated, running out of stock has costs in terms of foregone sales and the possibility of losing customers. If future demand has been overestimated, excess supply must be sold at a discount. Furthermore, the longer the lead time and the more varieties of the product in question are on the market, the larger

stocks are needed. It is also important to notice that competitiveness on lead time is not a static concept. When some firms are able to shorten lead time, others must follow in order to avoid punishment in terms of discounted prices or at worst exclusion from the bidding process. The latter can happen when a critical mass of suppliers is able to deliver just-in-time and the customer finds it safe to reduce inbound inventories to a couple of days or in some cases even a couple of hours (Beer, 2011).

B. Procurement process

Most organization use strict rules on procurement processes that must be followed by the whole organization with contract value thresholds dictating the procurement practices to be adopted. Generally, good procurement practices should be competitive, whether it be comparing quotations for low value purchases, right up to formal tender process for high risk, high value contracts. There is a number of different procurement practices choice of which depends on different firms' policies, complexity and value of the procurements. The three most commonly used procurement processes are discussed below (CAvinito, 2002).

Request for quotations is a standard business process whose purpose is to invite suppliers into a bidding process to bid on specific goods, products or services. This procurement process is commonly used by most organizations. Procurement obtains three written, comparable quotations from any three potential suppliers. Further negotiations can be entered into with either or all of the suppliers. This process is appropriate for low value, low – medium risk procurements.

Request for proposal is an invitation for supplies, often through a bidding process, to submit a proposal on a specific commodity or service. A bidding process is one of the best methods for leveraging a company's negotiating ability and purchasing power with suppliers. RFPs are commonly used for procurement of highly technical purchases where suppliers are expected to come up with own solution to a request. Again, companies usually request for at least three proposals from potential suppliers as stipulated by the company's procurement policy (Amin, 2011).

Request for tenders is a structured invitation to suppliers for the supply of goods and services. RFTs are commonly used by government procurement agencies at the local, state and federal levels, and the private sector equivalent is the RFP. Under the standard tender process all requests are advertised accordingly. Where there is a strong market, many potential suppliers, a Supplier Pre-Qualifying Questionnaire (SPQQ) may be provided for interested suppliers to fill out. The SPQQs are evaluated and short listed suppliers and invited to tender for the contract. The Invitation To Tender (ITT) will usually constitute of the buyer's service specification, buyer's model terms and conditions of contract, tender brief, form of tender, tender brief and a cover letter with detailed tender instructions, thus the dates and times by which tender responses need be returned and evaluated, contact details of buyer representative to whom further queries should be made. Once the decision has been made all the bidders who submitted a response was notified of the decision. Tender process guiding principle is that all bidders must be treated equally, fairly and in

transparent manner. Standard tender processes take the form of open or restricted tender process as explained below (Amin, 2011).

Under the open tender procedure, all suppliers or bidders who respond to an advertisement are invited to tender, supplied with tender documentation, and in some cases a supplier questionnaire. All responses are evaluated on the same basis and contract awarded to the winning bidder. This is a two-stage approach in which the buyer invites interested suppliers to express an interest and undergo a pre-qualification assessment before being invited to tender. All submissions have to be compliant with the instructions to tenderers. Upon completion of the assessment, suppliers are short listed and officially invited to tender for the contract. The tender responses then evaluated by a panel of evaluators and the contract awarded to the winning bidder. Commonly used in the private sector, the closed tender process has elements of the tender process and the auction process. The buyer submits written offer or bid for the goods or services and the vendor either accepts or rejects the offer. The vendor may accept the highest offer or decide to negotiate with the buyer whose tender they like best or they could reject all the tenders. This process is commonly used by real estate agencies for the sale of properties or commercial land or for sale of motor vehicles or other suitable goods and services (Amin, 2011).

C. Procurement professionalism

Are professionals conveying professionalism? Unfortunately, there's increasing debate over this topic supported by day-to-day encounters. There's much written about the frustrations caused by a lack of professionalism demonstrated by professionals. It's reaching a point where there are declarations that "professionalism is dead." This perception is reinforced by anecdotes of: ignored messages, calls not returned, being late or not showing for a meeting and the most damning--checking messages during a discussion (a.k.a. not paying attention). Hopefully, this is all just anecdotal but, it's probably not (Amin, 2011).

Procurement professionalism means many things to me. But one of the most important components of procurement professionalism to me is confident, fast and good decision-making. Today's procurement professional is faced with having to make many decisions. Some of them, like selecting a supplier for a long-term contract, allow for deliberate decision-making over weeks. Others, like dealing with a supply disruption in a JIT situation, require the right decision to be made immediately. And, let's face it, the higher one goes up the corporate ladder, the more decisions there are to be made and, therefore, the quicker they need to be made. So I believe that making high quality decisions in a short amount of time is a requisite competency for success in procurement and in business (Kinyua, Benmoffat Kimathi, 2015).

III.2. Concept on procurement performance

To achieve Procurement Performance, companies have to find the right balance between agile and fast adaptation of the supplier's portfolio and the development of long term partnerships with suppliers capable of assuming a risk-sharing position (Hines, 2004). Organizational audit & diagnosis, purchasing processes definition and deployment, redesign to cost, global sourcing, suppliers qualification and integration.

Purchasing performance optimization

Clients improve their purchasing efficacy and efficiency: purchasing portfolio optimization, project purchasing, purchasing service center, training & coaching, consultancy.

Sourcing strategy

All the stakeholders from executive level must to suppliers within a change management program guaranteeing the effective transformation

Cost analysis and management

A large range of services from standardizations to redesign to cost, including make or buy, value analysis and calculation models to support design- to-cost approaches and validation at an early stage of technical options.

Purchasing professionalization - training & support

The training modules combine a practical approach based on our past experiences and business methodological material. They are dedicated both to purchasing and engineering organizations in order to raise project managers' understanding of their project cost and negotiation leverages (Neely et al., 2015).

As part of the efforts to adopt a long term and strategic view of their procurement needs and performance, most organizations and countries have resorted to turning to their annual procurement plans as a possible 'problem-solver.' The combination of focusing more on collaborative relationships and the increasing strategic role of purchasing has resulted in a rise in prominence of strategies of supply base and the quest for global efficiency and effectiveness has led to increased centralization and coordination of the purchasing function (Neely et al., 2015).

Many publications and sources show that procurements arrangements are often split into two major categories – direct procurement, which is applicable to production, related settings and the second category being indirect procurement, which applies to non-production, related procurement. Direct procurement is primarily driven by contracts and plans for manufactured goods, impacted by changing demand and product configurations and determined by design factors and supplier capacities. The scope spans the design to plan to procure processes and is a critical success factor in demand driven operations. As such, direct procurement focuses in supply chain management, and affects the production process in manufacturing settings only. With indirect procurements, procured goods or services do not end up in the product or services delivered to the customer (Hines, 2004).

III.3. Research gap analysis

Many researchers studied about Just In Time (JIT) like Kinyua (2015) studied on just in time procurement system on organization performance: a case study of corn products Kenya Limited, Nyakundi and Simeon (2015) established the factors affecting the implementation of JIT inventory in public institutions in Kenya, Onyiego (2015) established the factors affecting the implementation of JIT inventory in public institutions in Kenya. No empirical study showed the role of Just in Time implementation on procurement performance in manufacturing industries. No empirical study showed the percentages of correlation between Just in Time implementation and procurement performance in manufacturing industries. There is therefore a gap in the empirical evidence available. This study seeks to bridge the gap by studying the role of Just in Time implementation on procurement performance in manufacturing industries. The study

identifies the percentages of correlation between the Just in Time implementation and procurement performance in manufacturing industries by using Spearman correlation and multiple regression models.

III.4. Just In Time implementation and procurement performance of manufacturing firms

The proposal of implementing Just in time (JIT) practices upstream with the supply chain is possibly as old as the concept of JIT itself. Regarding the impact of JIT supply practices, many authors have the same opinion that implementation of JIT at the public supplier interface may contribute to the production planning processes, which significantly streamline procurement processes and this efficiency results in cost saving and smoothening the material flow (Quresh, 2013).

According to Mackelprang (2010) revealed that JIT deliveries are positively associated with inventory from the suppliers, delivery performance and cycle time. Numerous studies have been conducted so far regarding JIT techniques in the context of Pakistan. Irfan et al. (2008) identified the problems of Pakistani firms regarding supply chain management in order to improve their overall performance and competitive positions. They found that regional level suppliers need to interact with manufacturers using JIT approach in order to enhance the effectiveness of supply chain. From the above discussion, the study posit the following hypothesis i.e.,

While probing into the current scenario of automotive manufacturing industry its productivity and possible remedies to improving the productivity, Another survey study reported the benefits of JIT that include reduction in inventory, minimizing the lead time, quality improvement, and better equipment and employee utilization. Provided with the effective implementation of JIT process if not then it was difficult to get the desirable benefits (Abdi, 2015).

Improving manufacturing flexibility and decreasing in-process inventories JIT enhances reduction in lot sizes capabilities of a firm. It is essential during implementation to continuously monitor the production plans in order to recognize the importance of JIT mechanisms. JIT production process refers to the adoption of practices aiming at the reorganization of shop floor and streamlining production flows within production plants, JIT production and Internal JIT. Some of the commonly used JIT production practices involve set up time reduction, daily schedule adherence, small lot size, kanban based pull systems, cell layout (u-shaped) and heijunka boxes (Adagala, 2014).

IV. METHODOLOGY

The study adopted a descriptive research design. The target population was employees of Skol Brewery. Universal sampling techniques was used to select 31 employees. Data was obtained by use of closed ended questionnaire and was analysed for descriptive and inferential statistics. Correlation coefficient was used to determine the relationship between 2 variables

V. RESULTS AND FINDINGS

The major findings on the Just In Time implementation and procurement performance in manufacturing industry in Rwanda.

i. Findings on the effect of lead time on procurement performance of Skol Brewery Ltd

The evidences form table 1 indicated that lead-time has a strong positive correlation to the procurement performance of Skol Brewery Ltd equal to .801** and the sig. is .000 which is less than 0.01. When sig. is less than significant level, thereafter researcher concludes that variables are correlated and the null hypothesis is rejected in favor of alternative, this leads to confirm that there is significant relationship between lead-time and procurement performance of Skol Brewery Ltd. It is therefore concluded by the researcher that there is a statistically significant correlation between lead-time and procurement performance of Skol Brewery Ltd.

ii. Findings the influence of procurement process on procurement performance of Skol Brewery Ltd

Procurement process has a strong positive correlation to the procurement performance of Skol Brewery Ltd equal to .786** and the sig. is .001 which is less than 0.01. When sig. is less than significant level, thereafter researcher concludes that variables are correlated and the null hypothesis is rejected in favor of alternative, this leads to confirm that there is significant relationship between procurement process and procurement performance of Skol Brewery Ltd. It is therefore concluded by the researcher that there is a statistically significant correlation between procurement process and procurement performance of Skol Brewery Ltd.

Findings the influence of procurement process on procurement performance of Skol Brewery Ltd

Procurement professionalism has a strong positive correlation to the procurement performance of Skol Brewery Ltd equal to .816** and the sig. is .000 which is less than 0.01. When sig. is less than significant level, thereafter researcher concludes that variables are correlated and the null hypothesis is rejected in favor of alternative, this leads to confirm that there is significant relationship between procurement professionalism and procurement performance of Skol Brewery Ltd. It is therefore concluded by the researcher that there is a statistically significant correlation between procurement professionalism and procurement performance of Skol Brewery Ltd.

Source: Author, 2020

VI. CONCLUSION AND RECOMMENDATIONS

The main purpose of this study was to find out the relationship between Just in Time implementation and procurement performance of manufacturing industries in Rwanda, a case study of Skol Brewery Ltd. The study concluded that Just In Time implementation contribute to the procurement performance of manufacturing industries in Rwanda. There is relationship between Just in Time implementation (lead time, procurement process and procurement professionalism) and procurement performance of manufacturing industries. On the basis of the conclusion the study recommends that organizations collect

information about procurement and Just in time and create a network of listening systems, among other strategies to understand and update organizational procurement environment.

REFERENCES

- [1] Adagala. (2014). Factors Influencing Implementation Of Just In Time Procurement in Public Institutions: A Case of Office of the Attorney General and Department Of Justice. Nairobi: JomoKinyatta University.
- [2] Amin, S. H. (2011). Supplier selection and order allocation based on fuzzy SWOT analysis. *Expert Systems with Applications*, 38 (1), . 334-342.
- [3] Beer, J. (2011). Rethink, reinvent and renew. *Efficient Purchasing*.
- [4] Berkowitz, M.; Mohan, K. (2014). The role of global procurement in the value chain of Japanese steel". *Colombia Journal of World Business*, 22, 79 – 110.
- [5] Farrington, L. K. (2006). *Purchasing and Supply Chain management*,. 7th Edition, Pearson Education Limited.
- [6] Kinyua, B. K. (2015). An assessment of just in time procurement system on organization. *European Journal of Business and Social Sciences*, Vol. 4, No. 05, 1.
- [7] Kinyua, Benmoffat Kimathi. (2015). An assessment of just in time procurement system on organization performance: a case study of corn products kenya limited. *European Journal of Business and Social Sciences*, Vol. 4, No. 05, 1.
- [8] Neely et al. (2015). The evolution of performance measurement research. *International Journal of Operations and Production Management*, 1, 1264-1277

AUTHORS

First Author – Uwamahoro, M. J, Jomo Kenyatta University of Agriculture and Technology

Second Author – Mulyungi, M.P, Jomo Kenyatta University of Agriculture and Technology