

Efficient Waste Management in the Procurement System on Customers' Satisfaction in the Service Industry

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Abstract

This chapter provides a theoretical framework and analyses literature which seeks to give a thorough understanding of waste reduction and management in the Procurement processes (Supply chain). The Review focused on the Introduction to Procurement waste management, Chartered Institute of Procurement and Supply (CIPS) Positions on procurement Waste Management, tips for reducing supply chain/logistics costs, challenges of managing procurement waste, lean manufacturing, the use of supply chain management technology in procurement waste reduction and the six (6) steps to removing procurement waste. The main objective of the study is to find out how effective the Volta River Authority reduces and manages wastes in their procurement processes. The specific objectives of the study are as follows: To identify the challenges the Volta River Authority encounters in the management of waste in the procurement processes and to examine the cost -benefits Volta River Authority achieves when they effectively manage waste in their procurement processes.

I. INTRODUCTION

Daud .B. A. (2010), Wu and Wee (2009) on “ Lean Supply Chain Implementation In Malaysia’s Electrical And Electronics Industry” concluded that the term “lean” means a series of activities or solutions to eliminate procurement waste, reduce non-value added (NVA) operations, and improve the value added (VA). A lean organization understands customer value and focuses its key processes to continuously increase it. The ultimate goal is to provide perfect value to the customer through a perfect value creation process that has zero waste. Rexhepi .L. & Shrestha .P. (2011) on “Lean Service Implementation in Hospital stated that Lean is one of the quality initiatives that organizations apply to improve organizational performance by identifying waste and reducing costs from the operations. The concept of Lean was first developed by Toyota executive “Mr Kiichiro Toyoda and Mr. Taiichi Ihno” by identifying different kind of wastes within the production system (Black & Miller, 2008, p.4). Service operations are becoming significant in global economy because of increasing need and demand for quality services (Frozen Food Digest, 2002; Bowen & Youngdahl, 1998).

Appiotti and Bertels (2010) also highlighted that Lean behavior was only considered beneficial for manufacturing industries; however, nowadays, Lean is considered a simple tool applicable for all sectors. To fill this gap, this research study aims to explore and understand Lean implementation process (waste management) in service sector with the emphasis on the Volta River Authority. In this context, the researchers will contribute to understand Lean tools and techniques, the challenges that are faced while implementing them, benefits derived from eliminating waste and ways to continually improve them.

Statement of the problem

According to S. Zygiaris (2010) on Supply Chain Management Innoregio Project (dissemination of innovation and knowledge management techniques), most companies procure raw materials and orders could be stored for almost three weeks before going into production and this is a waste (loss) to the

company. GoLeanSixSigma.com (2012) on the 'lean six sigma=eight wastes', explains that the following are areas of waste in the supply chain:

- (a) Defects – This is the situation where products or services produced are out of specification and therefore require resources to correct them for further resale at scrap value.
- (b) Overproduction – These are situations where products are being manufactured in too many quantities spending too much time in the finished goods stores.
- (c) Waiting – The time spent in waiting for the previous step in a value chain process to be completed before another step starts.
- (d) Non-Utilized Talent – This is the situation where employees are not effectively engaged in the process. (under utilization of employee skills)
- (e) Transportation – Transporting items or information that is not required to perform the process from one location to another or not using the route that is economically helpful during distribution of goods.
- (f) Inventory – Inventory or information that is sitting idle (not being processed) or used for a long time.
- (g) Motion – People, information or equipment making unnecessary motion due to workspace layout, ergonomic issues or searching for misplaced items.
- (h) Extra Processing – Performing any activity that is not necessary to produce a functioning product or service.

II. LITERATURE REVIEW

Introduction to procurement waste management

GoLeanSixSigma.com (2012) states that procurement waste are all efforts, processes, movements, time spent in an organization which does not add value to the Company's operations, products or services but rather increase cost of the company. According to M. Murray (2016), businesses are examining every area of their supply chain to reduce costs. Reducing waste has become a key component of any cost reduction program that is implemented. There are a number of processes that can be used in order to reduce waste in a company's supply chain. Many companies are examining the design of their products to identify where the use of raw materials can be reduced or expensive materials be replaced. Indeed many businesses are reviewing each component to identify whether it can be manufactured or purchased more cheaply.

Each production process should be examined to minimize the waste of raw materials. In manufacturing operations processes that waste material cannot be recycled or reused, it must be redesigned (M. Murray, 2016). Quality control is built into all manufacturing processes but is usually focused on the finished product rather than minimizing waste. Therefore quality management or assurance which includes the goal of minimizing the waste of raw materials as well as producing a quality product should be the appropriate method used. Improving the overall quality of a company's manufacturing process will reduce waste overall as it will increase the quantity of finished goods that pass quality inspection (M. Murray, 2016).

Chartered Institute of Procurement and Supply (CIPS) Positions on procurement Waste Management

The Chartered Institute of Procurement and Supply (CIPS) knowledge works (2007), states how to develop a waste management and disposal strategy:

- CIPS recognizes that waste management strategy starts with, and has to be integral to developing the specification, evaluation and purchasing decisions.
- CIPS recognizes that managing waste is an increasingly high priority activity at a global, European, national and local level to achieving sustainable development goals.
- CIPS recognizes that good sustained management of waste adds value to the total procurement process.
- CIPS acknowledges that waste is generated in most supply chain activity and that people working in supply chains seek to eliminate waste.
- CIPS encourages purchasing and supply management professionals to work with suppliers to design out waste, especially at the design stage; for example, improving quality assurance to minimize the quantity of faulty products produced, or to reduce unnecessary packaging.
- CIPS recognizes there are legal and social requirements concerning the generation, storage and disposal of waste. Non adherence can have a negative reputational impact, and, in the private sector, impact shareholder value.
- CIPS recognizes that waste management related legislation within the European Union will increasingly impact those working in the purchasing and supply chain profession – a sound knowledge of this legislation is required.

Ten (10) tips for reducing supply chain logistics costs

H. Bernie (2005), on “10 tips for reducing supply chain logistics costs and waste”, states that as companies continue to manufacture and source materials from overseas, controlling costs remains a top priority. One key factor that should be monitored more closely is logistics management, which covers all activities relating to the procurement, transport, transshipment and storage of goods. Depending on the industry sector, supply chain logistics costs account from 5% to 50% of a product’s total landed cost.

H. Bernie (2005) proposed ten (10) tips for reducing waste in the supply chain as follows:

- Understand the true costs of sourcing overseas. Calculate freight, duty, brokerage, and inventory carrying costs to support these lengthened supply chains. Also factor in such items as the costs of engineers flying overseas. Once you understand the true total landed cost and total impact to the business, that domestic buy may look a lot better. For example sourcing from Ohio to your U.S. plant, distribution center or customer may, in the long run, be more cost effective than sourcing from China.
- Focus on eliminating the variability out of transit times. The more variable the transit times are, the more likely it is that the receiving party is using more premium freight, building buffers of inventory, or ordering more often and more quantity than necessary to compensate for the uncertainty. Understanding these dynamics can lead to the conclusion that paying higher freight costs to insure higher variability actually saves your company in total costs.
- Tariff engineering. Strategically source and manufacture products to take advantage of classification duty rates and eligibility for special trade programs.

- Consolidate. If you have multiple suppliers in one country, consolidate their goods into one shipment. In addition, if you always have LCL (less than container load) shipments out of one country, try to find another LCL importer of goods from that country. You may be able to partner and consolidate to a more cost-effective FCL (full container load) shipment.
- Informed decision-making. Provide to the decision-makers/customers of your logistics network the cost of freight for each service level, the reliability of each lane for each service level, and the true cost of carrying inventory so they can make informed decisions. People generally want to be good corporate citizens and will select the less expensive option that still meet their needs.
- Sometimes insurance doesn't pay. Often when a company has a shipment of premium goods they tend to use the Carrier's Insurance. Carrier's Insurance is very expensive. If the company is self insured, which most companies are, they should check their insurance policy to see if it covers shipment of goods. If it does, then they do not need to add the extra cost of Carrier's Insurance.
- Automate compliance processes. Companies that implement software solutions to automate trade compliance are able to speed the cycle times associated with tasks being performed manually, such as document preparation, and eliminate the associated errors. Automated compliance procedures also bring fewer delays at border crossings, resulting in on-time delivery, adequate inventory levels, increased customer satisfaction, and the avoidance of fines.
- Control your express shipping costs. Typically when a company runs into a supply chain issue, it will have an entire shipment sent on an express/expedited (highest cost) service level basis. Panicking often results in higher costs. If the company would just do a little bit of calculating it can determine the amount of goods that are needed immediately and have that amount sent using express/expedited service level, while the balance of the shipment can be sent using a standard (lower cost) service level.
- Planes, trains and automobiles. Which is cheapest? In general, rail is more cost-effective than trucking or air. Water is cheaper than air shipment. No matter the mode of delivery, always try to get three quotes for movements.
- Be aware of non-tariff trade barriers. Companies need to be more aware of the increasing level of non-tariff trade barriers that are in force to reduce sweat shop labor and support human rights and animal welfare issues. These restrictions can bring importers increased liability and compliance costs.

The challenges of waste management in the supply chain processes

Even though Lean has shown great success in manufacturing, there are challenges they face during implementation. Worley and Doolen (2006) point out that it is hard to persuade workers in the organization to change their thinking in order to focus on customer value and waste identification, because they might be resistant to new tools, such as Lean. Moreover, delivering smaller amount of parts will be difficult for suppliers to apply JIT concept. Also, customer order forecast might not be the amount of products they want, which cause an excess of inventory for organizations (Womack & Jones, 1994, cited in Worley & Doolen 2006).

The main challenge is the lack of standardized process within the service industry. Sarkar (2009) points out that it is more difficult to identify processes within the service, because they are not as evident as in manufacturing. Also, due to the size and complexity, it is difficult for organizations to deal with processes to minimize the waste. Therefore, processes should be documented in order to keep track of the performance continuously. George (2003, p. 256) also emphasizes the importance of following a procedure to keep track of process for services. For example, in Bank of America, there is no documentation of the process, and when employees need something, they have to contact the person who has highest experience.

Furthermore, Grove, Meredith, MacIntyre, Angelis, and Neailey (2010) discuss the challenge of process variability in the health visiting service. It was hard to find fixed processes, which made it difficult to apply the value stream mapping and there were various stakeholders, who were not all supporting Lean principle.

Beside these, there are other Lean challenges related to people, which lead to complexity of processes. Sarkar (2009) emphasize that Lean should engage all people from organization. This involves strategic changes because of the hierarchy's barriers. It requires low level of organization to be more empowered as they are the ones working in the operation, who can identify the waste easier. Even Aherne (2007) agrees that in the healthcare while implementing Lean practices, the main challenge is empowering and providing the relevant training to the staff. Another challenge is that employees cannot keep track of process since they are not able to measure the time needed for different work items as there is uncertainty in task completion (George, 2003, p. 256).

This happens because employees have control over their structure of tasks, which is the reason why processes are hard to define in service industry. However, employees should be aware that working by standardizing processes will give them more freedom and empowerment, as well as they will receive information about change management (George, 2003, p. 256).

Sarkar (2009) mentions the importance of managing employees' behavior and actions because Lean applicability depends on their mood in every day work; therefore, there is need to avoid their mistakes in processes. Employees of NHS UK faced challenge because of lack of effective communication and leadership. There was no proper collaboration between middle managers and low level of organization, because they did not develop strategic planning on how to implement Lean (Grove et al., 2010). Aherne (2007) also highlighted that in NHS UK, the challenge was to get the support from the government and support for the program from the management.

Lean Manufacturing

According M. Murray (2016), Lean supply chain management gained popularity in the manufacturing area, as this is where significant improvement can be achieved. Manufacturing processes can be improved to reduce waste and resources while maintaining operational performance. Quality is an important part of lean manufacturing. Having zero defects in the manufacturing process reduces waste and increases efficiency within the organization as a whole. With greater quality customers will no longer return goods, which means fewer resources will be needed for returns and quality issues.

Companies who have adopted lean supply chain practices have examined each of their routings, bill of materials and equipment to identify where improvements can be achieved. Warehouse processes should be examined to find areas of eliminating waste of resources and non-value added steps. One area the companies should always be working on is the reduction of unnecessary inventory. The accumulation of inventory requires money and resources to store and maintain it. By reducing unnecessary inventory, a company can

minimize warehousing space and handling, in turn reducing overall costs. Businesses who want to implement lean processes often look to their transportation procedures to see where they can be streamlined. In many instances, companies find that their efforts to improve customer satisfaction leads to poor shipping decisions. Orders are shipped without combining additional orders to minimize costs or expensive shipping options are selected because of a customer request. Businesses often find that they are using a number of shippers unnecessarily when they could be reducing their shipping options and reduce overall costs. Lean supply chain management requires businesses to examine every process in their supply chain and identify areas that are using unnecessary resources, which can be measured in dollars, time or raw materials. This will improve the company's competitiveness as well as improve the company's overall profitability (M. Murray, 2016).

The use of Supply Chain Management Technology in procurement waste reduction

According to M. Murray (2016), if a company expects to achieve benefits from their supply chain management process, they will require some level of investment in technology. The backbone for many large companies has been the vastly expensive Enterprise Resource Planning (ERP) suites, such as SAP and Oracle.

These enterprise software implementations will encompass a company's entire supply chain, from purchasing of raw materials to warranty service of items sold. The complexity of these applications does require a significant cost, not only a monetary cost, but the time and resources required to successfully implement an enterprise wide solution. Buy-in by senior management and adequate training of personnel is key to the success of the implementation. There are now many ERP solutions to choose from and it is important to select one which fits the overall needs of a company's supply chain. Since the wide adoption of Internet technologies, all businesses can take advantage of Web-based software and Internet communications. Instant communication between vendors and customers allows for timely updates of information, which is key in the management of the supply chain.

A Six-Step Process for Removing Procurement Waste

Jason Finnerty (2016) in his article entitled "A Six-Step Process for Removing Procurement Waste" and they have been explained as follows:

(a) Complete a Top-to-Bottom Spend Analysis

Undertaking a comprehensive spend analysis should be the first step towards identifying where your biggest spending challenges are. Take a strategic approach to your spend analysis, prioritize by department and category, and then collect the data from your available sources. A spend analysis should be conducted regularly to ensure your procurement processes are running optimally. For instance, if you are using an e-invoicing solution, the data available through this source is essential. If not, collect the data from every resource connected to your procurement functions. The next step is to categorize the different channels of your spend. Analyze and prioritize the data and you should start seeing potential sources of procurement waste. Look for opportunities to consolidate vendors, renegotiate contracts, or eliminate maverick spending.

(b) Review Your Strategic Sourcing Policy

Strategic sourcing enables you to minimize your indirect spend by eliminating one-off and unoptimized purchases. Look at your current strategic sourcing process to identify potential bottlenecks and inefficiencies. Watch for opportunities to streamline the purchasing process for your enterprise by grouping purchases for departments or projects. Don't limit yourself to the initial purchase – be sure to look at the entire process to ensure you're minimizing costs, maximizing value, and eliminating waste.

(c) Improve Supplier Relationship Management Practices

An effective Supplier Relationship Management program can help your organization become the nimble enterprise needed to thrive in today's economy. Developing an effective relationship with high-quality, vetted suppliers who provide effective reporting and spend analysis as well as improved delivery standards can help you bring your innovation to market faster, cheaper, and better. Your review should look at the vendor relationship as a whole. It must determine who is benefitting from the arrangement, and what can be done to ensure that it is beneficial for your suppliers as well as your enterprise. Finding ways to improve collaboration, sourcing, and delivery can lead to substantial savings for your enterprise.

(d) Verify Your Compliance Consistency

The procurement policies must be applied consistently across every department in your enterprise. Ensuring a consistent procurement process is an excellent way to minimize the potential for procurement fraud and wasteful practice. Some organizations have opted to implement a compliance checklist to ensure the consistent application of purchasing standards, resulting in an easy-to-follow, transparent, and fair purchasing process for your enterprise.

(e) Audit Your Sustainable Processes

Choosing a sustainable approach to run your Size Zero Enterprise can be beneficial to your bottom line as well as to your corporate image, while ensuring your enterprise is building a better tomorrow. Regular reviews of your sustainable processes can reveal areas of opportunity within your current supply chain.

(f) Convert to Cloud Software & Managed Services

Providing your team with access to the most current software to run your procurement can be an expensive undertaking. The hardware and software costs for an enterprise-level solution can be staggering. But a cloud-based option can be much more cost-effective and manageable, and can often be accessed for a nominal initial investment, all while minimizing your need for an in-house IT team. Migrating to a cloud software and a managed services platform, such as blur Group's Enterprise Services Platform, can help you eliminate waste and procurement inefficiencies through a transparent, efficient, and effective purchasing solution. Using a single platform for sourcing, purchasing, project management and delivery can also minimize the potential for creating waste and inefficiencies that utilizing multiple platforms could possibly produce.

III. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. Summary of the Findings

The research assessed the challenges encountered in procurement waste management, its benefits and ways to improve it. Based on the objectives of the study, the research specifically investigated the above-mentioned at the Volta River Authority. A quantitative analysis was conducted based on Fifteen (15) responses gathered. From the study, evidence shows that employees and Management of Volta River Authority ensures that at least proper policies of waste management. The study revealed that there are normally staffs trained into how to manage waste in the procurement process. It is believed by the employees that various vital benefits such as reduction of costs can be derived from effective waste management. Volta River Authority's employees believe that the sales of unused goods to scrap dealers and donations will be a great remedy for asset waste disposal.

B. Conclusions

Based on the findings of the study, the following conclusion was drawn. It can be concluded that waste management at the Volta River Authority, Tema Branch matches with what is been described as “cost reduction while adding value”.

C. Recommendations

The following recommendations, if implemented can contribute to improving procurement waste management in Volta River Authority:

- (i) Management should minimize bureaucracy which will also ensure that procurement lead times are shortened to ensure early delivery of goods and services to users.
- (ii) Volta River Authority needs to comply with the budget and ensure that quantities of assets purchased are critically assessed and compared with the level of need before procurement so that goods bought should not be in excess or become outmoded or not needed.
- (iii) More procurement officers who are knowledgeable in waste reduction in the procurement process should be employed to assist in that aspect.

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