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An Investigation of Supply Chain Operational Improvements for Small and Medium Enterprises (SMEs): A UK Manufacturing Case Study

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Abstract

In an increasingly turbulent business environment and intensive market competition and globalisation, manufacturing organisations of the 21st century have been forced to continuously seek improvements in their supply chain operations to increase productivity and quality. Therefore, making competition no longer between organisations but rather among its supply chains by seeking to reduce costs and improve quality as an alternative to gain higher market share. This paper investigates different aspects of operations and supply chain improvement of a small and medium manufacturing organisation in UK. The main objective of this paper is to help SMEs to identify deficiencies in their operations and take necessary steps to correct them to enhance performance and productivity in their supply chain operations. For this to happen, the current study has implemented lean approach as a method to improve the organisation's supply chain, enhancing the quality of processes and products. By conducting interviews and observations together with gathering company internal records, it remarks some potential problems of the manufacturing company. Finally, several recommendations (such as introducing ERP system) are made for future improvements.

Keywords:

Supply Chain Operations, Performance Improvement, Small and Medium Size Enterprise (SME)

1. Introduction

The new global economy, operations and supply chain improvement have fast become a central issue in enhancing performance improvements processes (Slack and Lewis, 2017). Not only that but also, have played a significant role especially for small and medium enterprises (SMEs) in enhancing collective learning processes that facilitate effective and efficient ways of reducing operational costs and quality improvements (Baymout, 2015). Both the former and latter have revolutionised how SMEs and large manufacturing organisations operate in response to competition and the increase of unpredictable market demand so as to enhance end-to-end supply chain operations (Awheda et al, 2016). As a result of this, effective supply chain management (SCM) practices have become valuable in enhancing competitive advantage by reducing waste, increasing efficiency therefore, improving overall organisational performance (Li et al., 2006).
Despite the several advantages that have been brought by operations and SCM practices and research there is still a lack of holistic view in its knowledge base, application and the methods used towards enhancing performance for SMEs (Fayezi and Zomorrodi, 2015). Furthermore, (Baymout, 2015) points out that there have been relatively few studies in literature that have investigate how operations and SCM tools can be leveraged so as to enhance performance of SME supply chains (SC). Chen and Paulraj (2006) point out that SCM as a discipline encompasses several functions between and within an organisation.
This research begins by evaluating and analysing the role of operations and supply chain improvement methods towards enhancing organisational performance. The reasons for this, is to help SMEs to identify deficiencies in their operations and be able to take necessary steps to correct them to enhance performance and productivity in their SC operations. It is focused on looking at addressing three main challenges that face manufacturing SMEs; which are order planning procedures, supply chain partnerships, production level efficiency and capacity utilisation. In order to address the mentioned challenges, this research has identified three main methods of improvement that seek to provide a wider picture on how performance can be enhanced in a small manufacturing organisation. Therefore, to address these challenges this research looks at the implementation of (1) lean approach as method to improve the organisation's supply chain, (2) enhancing total quality management (TQM) as factor that can be used in improving product and processes as well as the introduction and (3) the application of an ERP system.
Therefore, in light with the above, this paper attempts to explore the ways in which operational performance can be enhanced and improved in a small manufacturing organisation through an extensive and critical review of models and theories as discussed in the existing literature. This paper aims at closely examining how SMEs can improve their SC by adopting different SCM tools and practices that can be necessary for to create sustainable competitive advantage. Therefore, this paper looks at addressing the following questions:

- RQ1: What are the key performance measure areas?
- RQ2: What tools can be used to enhance manufacturing performance?
- RQ3: What are the current challenges and future opportunities for SME manufacturing supply chains?

This paper has been divided into four main parts. The first part deals with analysing the literature review related to this study. The second part is concerned with analysing the research methodology. Furthermore, the third part looks at providing the results, findings and a brief discussion. To finalise the fourth part of this paper provides recommendations of further areas of research.

2. Literature Review

Supply chain management (SCM) can be described as a value adding process that relates to the managing, controlling and integration of the key business process that ensure effective delivery of products and services from suppliers through to the end customer (Tracey et al., 2001). In support of this Jacobs and Chase (2018) adds that SCM involves the process of enabling the effective flow of information, materials and services from supplier raw materials, to the warehouse or factories and finally to the ultimate satisfaction of the end customer. Furthermore, according to Baymout (2015) who points out that SCM allows the simultaneous integration of customer specifications which is an important aspect that helps in enhancing better performance of the internal process which ultimately influence greater upstream supplier performance. Based on these definitions it is evident that the common feature of SCM is to enhance end-to-end coordination as a result of effective integrating of both internal and external processes in the supply chain in order to deliver value to the end customer (Baymout, 2015). Therefore, it can be argued to suggest that the potential benefits of an enhanced SCM can be considered to provide shorter and more reliable delivery times, fewer disruptions, effective cost savings and risk reduction (Vaaland and Heide, 2007).

Moreover, Customer satisfaction and effective service delivery can be seen to be the key factors that enable a business to survive in the highly competitive market (Dao et al., 2018). In today's dynamic business environment, it is vital for organisations to continually evolve and develop to effectively deliver a common goal of efficiency and SC optimisation to survive while also gaining greater competitive advantage and growth (Hong and Jeong, 2006). As result of this, in order for both large enterprises (LE) and small and medium enterprises (SMEs) to remain profitable it is essential that their SC should be able to deliver the right product, for the right price, of the right quality and quantity, place and at the right time however also while minimising cost of all these aspects (Baymout, 2015). On the other hand, it is evident that supply chains are becoming increasingly competitive due to the ongoing development of technology and globalisation (Garza-Reyes, 2010). Therefore, as a result of this for manufacturing organisations to remain competitive it is essential that their supply chain operations are well equipped and efficient enough to face these challenges. For this reason, supply chain improvement can be defined as the processes and activities that help in increasing the speed, efficiency and accuracy of product or service flow from the manufacturing point through to its storage and replenishment, and distribution to the end-user.
Furthermore, this has also been influenced by the growing market unpredictability and demand that seek better services and choices and availability of products, therefore this has put pressure on manufacturing firms to improve their supply chains (Tracey et al., 2001). Based on this Bozarth et al (2013); Hannagan (2008) and Taylor (2005) all maintain that improving supply chain operations is imperative to the survival of an organisation as it helps in enhancing its key business process to increase productivity, efficiency and maintain quality while also minimising risks and cost. Furthermore, (Slack et al., 2011) adds that improving business processes should be at the core of an organisation's operations and supply chain management as performance levels of most processes tend to decrease over a period.
Despite the potential benefits that SCM process can provide it is also evident that the costs towards implementing it has several challenges (Baymout, 2015). While these processes can be easier for large manufacturing corporation, SME's face several challenges such as the lack of technological resources, funding, space and others that prevent them from being able to fully optimise SCM practices (Vaaland and Heide, 2007). Based on the studies conducted by (Arend and Wisner, 2005) which points out that supply chain improvement processes between LEs and SMEs differ to a large extent, these studies show that SC practices in SMEs were considered as low priority. Hence this has hindered the effective implementation and adoption of SCM practices in their operations. On the other hand, as shown by Business Statistics (2018) SMEs have a major impact to the UK economy and innovation for instance their annual turnover for 2018 amount to circa £2.0 trillion. Furthermore, small scale firms make important contribution to innovation which enable them to form strategic relationships with larger firms (James et al., 2014).

Critical evaluation of supply chain operations
Barabosa and Azevedo (2015) suggest that performance measures are vital as they reflect on the supply chain operations that are required to support sustainable continuous improvement within the supply chain. The result of this can be assumed to show that, supply chain performance measurement facilitates greater inter understanding and integration of processes among the supply chain thereby, resulting to reduced uncertainty, lower costs of production and therefore ultimately leading to increased level of meeting customer demands (Limam and Reijers). Moreover, (Fantazy and Salem, 2016) adds that performance measurement also helps in assessing organisations supply chain whether their chains have improved or degraded. Similarly, the operational performance objectives of the small manufacturing organsation, maintains its commitment in ensuring investment towards enhancing speed, accuracy and consistency in order to maintain long-term relationship with its customers (Baker Engineering, 2018). Therefore, the section below will evaluate how relevant are its performance measures in relation to four key supply chain operations which are order planning in relation to the order entry method, supply chain partnership, production level and customer service satisfaction based on research and observations. Furthermore, these four aspects will be used to determine the main supply chain performance measures and methods using different theories and models like lean supply chain model, Just in Time (JIT), OEE etc.

3. Methodology
The proposed methodology of this paper will give a broad overview of the research method that has been used; which can be adapted in other literature domains as well as in the domain of small and medium manufacturing enterprises. There are several instruments available that have been applied. The methodology that has been adopted in this paper is organised into three parts: (1) Data Collection, (2) Data Analysis, and finally (3) Recommendations

Question	Description
Q1.	How long does it take to process a client's products?

Q2.	What entry method is used in detailing customer specifications?
Q3.	As a tier 3 supplier how do you ensure the products are delivered to your clients on time?
Q4.	How does shop floor layout and space impact on the quality of products and components produced?

Data Collection

This research mainly focuses on the application of both qualitative and quantitative data collection methods. The qualitative method looks at an in-depth structured interview and a personal structured data collection, that paves the way for a thorough quantitative data collection method.

Qualitative Data

The first in-depth structured interview is conducted with the manufacturing company (one with the managing director and second with the operations managers) with open-ended questions regarding the aspects of operations performance measures and supply chain improvement methods. The second interview is conducted with the company's warehouse manager and the operations team regarding the advantages and disadvantages of the methods used when processing client orders and stock replenishment method based on how on supplier performance.

Quantitative Data

Below is the quantitative data that was collected:

- Order process time
- The manufacturing process time
- Supplier lead time

4. Analysis and Discussion

Performance Metrics and Measurement of the Small Manufacturing organisation SCM

Chan et al., (2003) points out that performance measurement (PM) as the feedback on activities and processes involved with respect to meeting customer expectations and strategic objectives so as improve quality and efficiency in areas of unsatisfactory performance. Duarte et al., (2009) argues that, the end-to-end processes involved in getting finished products to the final customer involves a network of partners that are distributed both locally and globally, within which innovation needs to be faster and effective to ensure customer needs are met. Therefore, for a small firm to grow, it should be able to effectively manage and adopt a well-designed supply chain operation that will deliver strategic objectives that enable effective planning, organising and control of resources and activities necessary to meet customer demands (Waller, 2003). This section will attempt to analyse how supply chain operations performance metrics and measures in terms of their speed, consistency and accuracy.

Measuring Order Planning Procedures

One of the ways in which performance can be determined in an organisation is through its order related activities. Organisations can measure efficiency of their order fulfilment process by looking at reducing cost of doing business as well as increasing throughput time (Lysons and Farrington, 2012). This process measures the effectiveness of supplier fulfilment, as (Mitchell, 2015) points out that the perfect order from a supplier is the one that delivers products at the right time, in the right quantity, in the right condition and packaging, with the right documentation. The small manufacturing firm currently uses a route card form which is used to assess its order fulfilment as can be seen from figure 1, however it lacks an evaluation process that measures supplier fulfilment therefore this affects its ability to accurately evaluate their processes so as to reduce order time. On the other hand, Bhagwat and Sharma (2007) point out that three important issues in order planning that is order entry method, order lead-time and path of order can be used to measure performance.

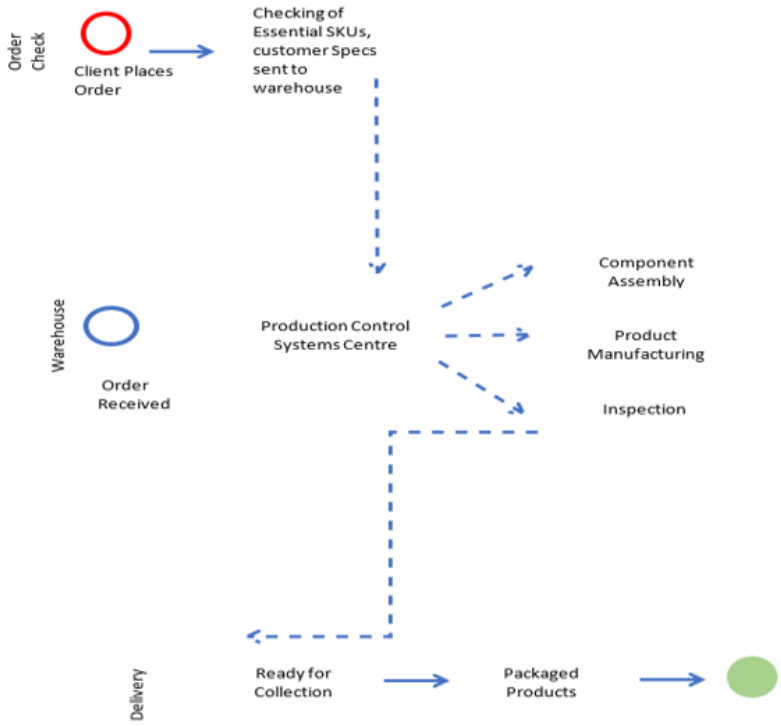


Figure 1. Order Process Flow Chart

The order entry method

This refers to all the processes that are taken by a company from the moment they receive the order to the moment the order is complete. As can be seen from figure 1. The firm uses a route card in receiving customer requirements. This is method is used in determining the extent to which customer specification have been converted into useful information, which this information is passed along SC (Gunasekaran et al., 2001). Slack et al., (2011) points out that the information that is transferred is important as it connects all levels of the supply chain and the scheduling of activities. Therefore, it can be assumed to show speed, accuracy and consistency of the order entry method should be effective control of the orders to maintain performance. Table 1 for instance, gives a clear understanding of the operational process flow that takes place to complete production. However due to its size and capacity, the firm faces many challenges in relation terms of their order fulfilment processes and demand planning. Demand planning for instance, is one of the ways in which organisations can know in advance what the demand for a product will be, therefore help in coordinating the right entry method (Jacobs and Chase, 2018). This is important as it helps manufacturing organisations to manage product demand and determine the raw materials required which in turn influences the procurement process (Gunasekaran et al., 2001). Using systems such as material resource planning (MRP) this can help in coordinating and ensuring the timely, accurate and usable data at different entry levels. Hence, this can be used a metric to measure performance at firm.

Order lead-time

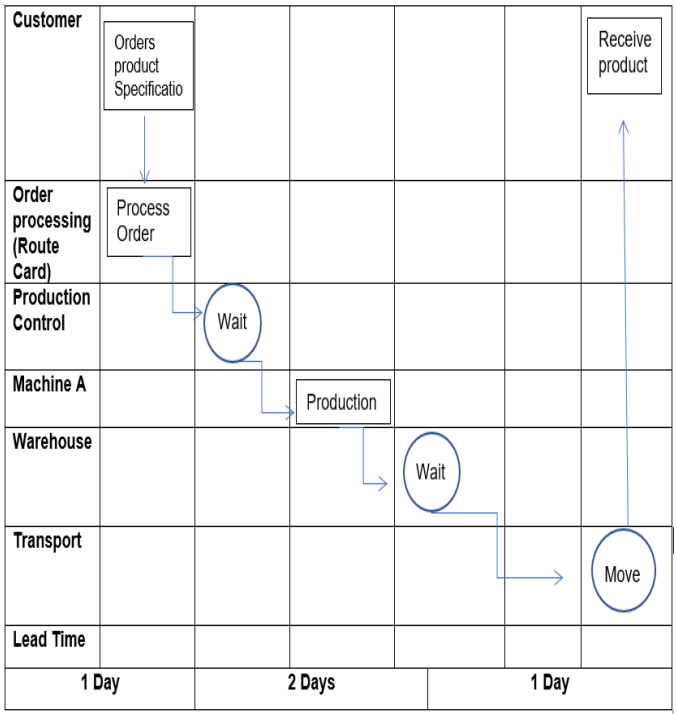
Lead-time is an important aspect in supply chain operations as it is used in measuring the time to complete customer requirements (Mitchell, 2015). According to (Gunaserkaran et al., 2001) lead-time entails the total order cycle that is, the time between the receipt of the order to product delivery of finished goods to the customer. As can be seen from table 2, depending on the type of product and client the firm uses 24 hours on manufacturing components to 4 days. Order lead-time is an important measure of performance as well as a vital source of competitive advantage (Harison, 2013). This helps in enhancing the ability of an organisation to reduce the waiting time from when an order is made to the time it reaches a customer is essential as it directly influences customer satisfaction (Bhagwat and Sharma, 2007). Therefore, instead of producing a component in 4 days this process can enable the adoption of JIT be used to identify and eliminate non-value adding activities decrease the lead-time that results in customer satisfaction (Chopra and Singh, 2015). Furthermore, it is important to understand that order lead-time varies from vendor to vendor; therefore, this makes it difficult for the firm to predict when raw materials will be delivered. For example, the firm has 30 critical material suppliers, rather than having to order from multiple suppliers have less can ensure on time delivery of components that in turn will enable reliability and consistency.

Table 1. Operations Process Flow

Activity name	Sequence	DIST IN FEET	TIME IN MINS	CHART SYMBOLS	PROCESS DESCRIPTION
Processing Customer Order	1	1.5	5 Mins		The order is received, and route card is filled to customer specifications.
Stock Check	2	12	5Mins		Materials are checked if are available for producing the required components. Check materials in storage
Man-Machine and component production	3		4hrs		Components are produced to customer specification. This depends on different customer needs/specifications on average a component takes about 4hrs. However larger components take more than 24 hrs to produce.
Product Completion & Component inspection	4	12	1hr to 30 mins		Product inspection depends on the type of component that's being manufactured. On average using a CDM machine will take about an 1hour
Ready to collect and delivered	5		3hrs		Assemble orders and sent to customers.
Total		**25.5**	**8hrs 40mins**		
Value-added time = Operation time/Total time = (0.5+4.0+1)/8.40= 0.654					

= Operations = Transportation = Inspection = Delay = Storage

Table 2. Time Function Map



Customer order path

The order path is another vital measure of operational performance which analyses the different channels the product passes and the time spent in each channel as can be seen from table 1, which shows operations process (Kumar et al.,2011). This is an essential part of supply chain as it determines the value adding and non-value adding activities which can be identified so as appropriate steps can be taken. For instance, the delay of paper work, time consumed while product is in the warehouse or time spent in inspection (Jacobs and Chase, 2018).

Measuring Supply Chain Partnership

According to (Melton, 2005) who suggests that the growth and success of any organisation is determined by how effective management it is in managing of close relationship between manufacturers, transporters, distributors and customers which is a key factor that enhances competitive. Currently the firm has about 30 key suppliers, therefore measuring supplier performance is essential as it ensures that the firm acquires the right product, for the right price, at the right time, place, quantity and quality (Lyssons and Farrington, 2012). This is important as it ensures the reduction of lead-time and customer order cycle times, which results in the reduction of response time. However, this is not possible if suppliers are not able to supply at the required time, which is one of problems that is faced by the firm. This therefore affects their ability to be consistent and deliver required components, which in turn affects their customer loyalty. Gunasekaran et al., (2001) points out that performance can be measured based on the level and degree of information sharing. Successful SCM requires that organisations cannot simply act as a single player, hence sharing information can be essential for instance when replenishing raw materials (Chopra and Singh, 2015).

Measuring Production level Efficiency

As mentioned above after the order is planned and raw materials are sourced, the next stage is the assembly products. This process is carried out by firms that own production sites, and their performance is measured by its impact on product cost, quality and speed of delivery (Jacobs et al., 2009). The increase of production level

efficiency is one of the most important part of SCM, therefore placing effective performance management strategies is essential as it results in cutting down costs, improve throughput and quality of products (Comeaux and Sarker, 2004). Furthermore, unlike productivity which aims at maximising a company's ability in producing several units in a given time frame, efficiency requires a company to make the best possible use of its resources with less waste, less energy in a given period (Jacobs et al., 2009). The firm manufactures tools and equipment using a wide range of materials such as milling and turning techniques to produce a variety of components. As previously mentioned, this process takes 4 hours per machine and 4 days to a week when producing larger components, however the firm does not have the capacity in measuring efficiency of their production. According to Bhagwat and Sharma (2007) production level efficiency can be measured based on factors such as range of products and services efficiency and capacity utilization as discussed below.

Range of products and services Efficiency

Chan (2003) points out that companies that manufacture a wide range of products are more likely to produce new products in a slower rate than companies with narrow range of products. This situation can be a challenge to small manufacturing firms. However, Eckel and Neary (2010) suggest that the impact of product range in supply chain plays a vital role in determining performance in organisation that can directly influence organisations success. According to Garza-Reyes (2010) one of the process in which firms can measure machine productivity is through measuring the Overall Equipment Effectiveness (OEE). This approach suggests three main aspects into identifying losses and waste in equipments or process efficiency; hence it looks availability, performance and quality and these factors can be used to indicate the overall effectiveness of a machine (Garza-Reyes, 2010). Therefore, the better the OEE of a machine, the better the quality and speed of production, the more profitable and cost effective the business will be (Dadashnejad and Valmohammadi, 2017).

Measuring Capacity Utilisation

Capacity utilisation is another important aspect of performance measurement which enables an organisation to measure the extent of how its manufacturing output capacity is being utilised at a given point in time (Lam et al, 2014). For instance, the firm has a total of 15 machines to which only 10 are used. Bhagwat and Sharma (2007) adds that capacity looks at how an organisation can utilise all the resources available that is both inputs and product outputs so as to increase the overall efficiency and profitability of manufacturing operations. In order to ensure effective capacity utilisation (Heizer and Render, 2014) points out that all operations planning should take place within a framework that is based on a set of capacity decisions that measures how each machine rate of production. By doing so this can reduce the overall cycle time and increase flexibility, which in turn affects the speed of response to customers' demands and productivity (Myreson, 2012). Therefore, based on the above evaluation it is important also to look at ways in which performance can be improved, hence the analysis below provides recommendations of how performance can be improved.

5. Results and Recommendations

Operations management (OM) entails the management of all internal and external processes and activities that transform raw materials into finished products (Kauppi et al, 2016). For example, table 3 is based on the SIPOC model, which gives a clear illustration of the input-transformation-output processes. Operations and process management are essential as they can contribute in enhancing the ability of an organisation to generate more revenue, lower cost and boost competitive advantage (Slack and Brandon-Jones, 2018). This suggest that the failure in managing these processes will result in the decrease in quality and performance of an organisation (Kauppi et al, 2016). Furthermore, one of the most important aspect of OM is to optimize performance of all the resources and activities in the supply chain in order to add as much value as possible and at the lowest cost possible (Koh and Tan, 2006). This suggests, the aim of OM is to link all the supply chain activities to jointly corporate within an organisation to maximise productivity and quality in the supply chain. However, both Render and Heizer (2014) point out that business operations managers' work in a dynamic and environment that is influenced by globalization, technological improvements, Just in Time performance, sustainability and others. Because of this operational improvement, activities are necessary factors that can help in closing the gap between current and desired performance objectives of an organisation. These are explained as follows.

Table 3. SIPOC Model

SIPOC Model

Supplier	Input	Process	Output	Customer
15 Full time Employees	Skilled Labour	Component Modelling and Design	Test and Inspection	
30-50 Material Suppliers/Vendors	4 Automated Machines	Drawing and Cutting using CNC and EDM	Production records	
	3-D Computer Numerical Control (CNC) Systems and Electrical Discharge Machines (EDM)	Inspection	Finished components	
	Component Specifications	Check quality		
	Sourcing Materials such as Aluminium, Zinc, Metal alloys and plastic	Packing		
	Quality Control Process			Customer Product Collection

Lean Supply Chain Approach

Melton (2005) suggests that the application of lean supply chain (LSC) approach as a model for change, can play a vital role to the enhancement of manufacturing performance for small engineering companies. Additionally, from both internal and external perspective (Myerson, 2012) point out that, LSC can be considered as a business strategy that helps in reducing manufacturing and service costs which in turn creates significant improvements in value creation, customer satisfaction and overall bottom line savings. Moreover, Evans and Mason (2015) suggest that the lean approach enables organisations to understand what value the customer assigns to different products and services. For instance, table 1 shows that the firm only spends 65% of its efficiency time, therefore, by establishing and identifying these values the firm can create a top-down approach that focuses on eliminating waste and deliver the value that customers expect and therefore optimise its processes to add value in the whole supply chain (Melton, 2005). Furthermore, Kumar and Sosnoski (2009) both argue that the main challenges that face manufacturing firms is being able to be both efficient and effective in relation to customer satisfaction, therefore plans must be made to acquire and keep customers. This is done by understanding the process flow in the production process, (Melton, 2005), points out that the Kanban lean manufacturing principle of flow can help in identifying waste and defects in the production process. If implemented, the focus of LSC is to enable organisations to effectively manage the flow of products and services that deliver what the customer wants, at the exact quantity, at the right time, at the lowest possible cost (Prashar, 2014). One of the ways in which it can manage its workflows and production processes is by implementing a Kanban system. According to (Aprevtesei et al., 2010) this is a visual representation system that allows organisations to manage actual workflow and actual work being done as its moves along the process. By doing so this gives a visual representation of identifying how value adding and non-value adding activities move in the production process therefore enabling process improvements in organisations by reducing waste during production and fix them in a cost-effective way (Bozarth and Handfield, 2013). Furthermore, Melton (2005) suggests that the system enables an organisation to create a visual signal that supports a 'pull' strategy flow of manufacturing rather than a 'push' strategy. Additionally, this suggests that the firm will be able to produce and manage its inventory at JIT production that is, what to produce, how much to produce as of when required by customers, hence avoid over stocking and reduce overproduction (Slack and Lewis, 2011). Therefore, this process suggests that if products, customers and information flow smoothly not only will throughput time be reduced, but also all negative effects in relation to in-process inventory and unnecessary delays will be avoided hence boosting customer satisfaction (Lyssons and Farrington, 2012). Therefore, for this approach to be implemented, Myerson (2012) points out that a lean strategy requires organisations to adopt a top-down and bottom-up approach that facilitates continuous improvement processes in identifying waste and non-value adding activities in the supply chain (Prashar, 2014).

Recommendations

The Five S's Model for Shop floor Management

This is another approach towards enhancing a lean supply chain strategy in an organisation with the aim of eliminating waste and enhancing performance. The 5S stands for sort, straighten, shine, standardize and sustain, as illustrated from figure 4 these are workplace practices that ensure reliable working environment from every process undertaken in the shop floor (Hemmant, 2007). The 5 S's is a lean supply chain strategy that focuses on removing all physical waste from the organisation's workplace; that is set things in order, clean and inspecting daily to create a culture that rewards, promotes and endorses the above from the management to the shop floor (Hemmant, 2007). As previously mentioned, small manufacturing firm, has about 5 square meters of work floor layout and about 15 large CMC machines, hence making work difficult and at times inefficient due to inefficient working space. Based on the size and the work floor space this model can be a useful tool for enhancing work place efficiency by reducing unnecessary handling, incorrect plant performance measures etc (Hemmant, 2007) This model is further explained below.

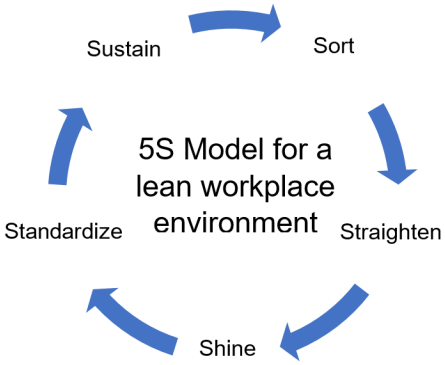


Figure. 5S Model

Sorting

This is the identification of the best physical organisation that is distinguishing between what is needed and what is not in the shop floor as part of increase effectiveness and work place productivity (Hemmant, 2007). This is an important aspect to consider as it allows managers to remove anything in the path flow of production hence making it easy to spot anything missing. This helps in eliminating excess materials for instance unwanted objects such as redundant equipment, and tools that can have affect quality, the flow production as well as increase lead time, hence impacting performance.

Straighten

This practice focuses on the orderly storage of equipment, so as the right item can be placed in the right place and can be easily accessed by everyone.

Shine

This process looks at addressing the regular cleanliness and inspection of the shop floor. This is important as it helps in identifying harmful dirt, dust, oil and scrap. According to (Hemmant, 2007) this is a preventive maintenance method of cleaning critical parts of a machine which contributes to increase of efficiency of the machine.

Standardization

This is part focuses on setting up standards of the best practices. This is done by maintaining and sharing of the established practices above. Therefore, this makes sure that everyone in the work place adhere to the same standards. A checklist of activities can be used to ensure effective participation of all staff.

Sustain

This process involves the continuous reputation and practice of all the activities mentioned above. This involves communicating, promoting reward and recognition strategies that will motivate people to take part in the activities. Therefore, by implementing these activities, this can enable performance improvement at the firm.

Implementation of an ERP system

One of the major challenges of small businesses is resource planning, control, while also managing, monitoring suppliers, customers, and competitors (Slack and Lewis, 2011). Small businesses struggle with issues such as these and inconsistent information, lack of up-to-date financial data and others, which ultimately influence their ability to improve their processes and capture new opportunities (Sage, 2018). An Enterprise Resource Planning (ERP) system attempts to help small businesses integrate and automate key business functions such as production,

order processing, and finances (Cousins et al., 2008). The firm use standard applications in monitoring its data such as spreadsheets and synced documents, which due to its size these applications can be useful, however are insufficient as information is usually misplaced or lost. Business process such as inputting sales and orders from various clients, updating inventory and keeping track of invoices cost businesses and if not managed can decrease the performance of an organisation (Slack and Lewis, 2011). Therefore, as businesses expand, transactions also tend to increase for instance, due to the increase in projects the firm plans to move to a new site. As a result, this means that their systems will need to be updated to avid errors and will need to be tracked, as data will need to be exchanged from one program. An ERP system is a cost-effective solution that can automate these processes and enable an organisation to allocate time in business development activities rather than administrative work (Oracle, 2018). Therefore, this can result to boosting performance and overall organisational efficiency.

Quality implementation

According to Garza-Reyes (2010), the success and growth of any manufacturing organisation depends on its effective management of quality in all stages of production. Due to intensive competition on the market organisations are forced to improve their processes and improve quality continuously in all its management activities in order to gain competitive advantage (Melton, 2005). ISO 9001 is one of the standards as an international standard for quality management that points out seven key standards to ensure quality systems that can help organisations manage work effectively and efficiently resulting in the increase in customer satisfaction (ISO, 2019). The firm is an ISO 9001 certified organisation; therefore, this shows how its committed in implementing quality management practices. Despite this, two important aspects of ISO 9001 can be improved is through continuous improvement (CI), employee empowerment and supplier partnership. CI means that organisations should continuously redesign and reengineer their process to ensure that quality is maintained as there is always room for improvements (Bozarth and Handfield, 2013). For instance, by implementing Kaizen as a model that suggests that identifying incremental changes in the day-to-day processes improvements that aim at enhancing sustainable quality improvements (Hayes, 2010). This is important as it enables the daily review of processes as they are transmitted in the supply chain hence, increasing efficiency (Hill and Hill, 2011). Furthermore, review of buyer-supplier relationship is important since if they do not share a positive commitment, this can lead to poor quality (Bozarth and Handfield, 2013). To ensure that suppliers are adhering to the quality requirements (Jacobs and Chase, 2018) suggests that organisations should be able to effectively monitor their performance and take necessary steps to improve where possible. In addition, employee empowerment is one of the most important factors that contributes to the improvement of quality. Employee empowerment means enhancing staff motivation in giving them more responsibilities as well as enough training and tools necessary to manage quality. Therefore, by implementing the above this can ensure not only the implementation of TQM, but also the improvement of performance.

Conclusion

Based on the above sections, performance improvement is a vital factor for organisational success and growth. Managing and measuring performance is important as it enables not only to identifies and eliminate any non-value adding activities in the supply chain operations, but also saves bottom-line operational costs of an organisations and therefore gain competitive advantage. The paper reviews several aspects of supply chain operations improvement in general and in the manufacturing industry in particular. In addition, it analyses the supply chain operational of a small and medium manufacturing company in UK. The results highlight the problems of the company in the supply chain operations and information flow in inbound and outbound logistics areas. Finally, several recommendations are proposed to cease the problems. This research offers several directions for future research such as the implementing ERP system in SMEs manufacturing industry, implementing lean approach and performance improvement as well as the difficulties related to a higher level of demand forecasts in the SMEs manufacturing industry.

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