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Inventory Management and Performance of SMEs in the Manufacturing Sector of Harare

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Abstract

The study assessed the inventory management (IM) strategies that are used by SME's in the manufacturing sector of Harare, Zimbabwe. The study comprised of the population from Glevue complex, Siya So Mbare, Kuwadzana, Gazaland and Magaba industrial sites. Respondents were selected from each of the companies which the researchers selected purposively. The study used qualitative research design which was descriptive in nature. The study also used purposive sampling technique. A sample used a sample size of 244 respondents. Data was collected from the questionnaires which were completed and received back. The research established that most SME's use the Just-In-Time method of inventory management and do not have knowledge on the other computerized systems and methods. Since companies use JIT method, SME's face challenges in the supply chain as they always have to make sure they have constant communication with their suppliers and also to reduce the time in which they receive materials. However, due to lack of computerized communication, they have to make orders when they are needed which would make delays to the customer. Due to the finding, the researchers concluded and also made request for further studies on specific areas which needed more time and clarity.

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1. Introduction

Small and medium enterprises (SMEs) are recognised as instruments for economic growth and employment generation [1], [2]. SMEs assist in reducing unemployment and provide for products that larger firms are not able to deliver to the customers [3]. Although the SMEs contribute to the creation of economic growth through employment creation, they are faced with various challenges in delivering effective and professional services to their customers [4]. Their failure to deliver services to their customers at a micro level due to challenges such as lack of enough funding for their business has therefore resulted in heated debates on whether they are sustainable in creating economic development at a macro level [5]. The globalisation of commerce and trade has led to the involvement of SME's in the global value chains which has allowed SME's to participate into the global economy. They play a fundamental role in service provision, trade and manufacturing. SME's have also led to improve in technology advancement and innovation as well as enlargement of product lines at national, regional and global levels [6]. The significance of the SME sector is not uniform throughout the world as it differs from country to country in accordance with the level, pattern and rate of change in economic development [7].

In Zimbabwe due to the economic downfall in 2008, most companies closed down and hence paved way for the massive operation of SME's [8]. However, due to hyperinflation and high interest rates, SME's in the manufacturing sector were affected negatively as they lost purchasing power for production and also had to bear the risks of purchasing materials which would be rendered useless or under supplied due to changing demand [9]. The 2007-2009 economic downfall also led to SME's facing shrinkages in the performance which was attributed to theft, incompetent use of materials handling and production systems and this resulted in low profits and decrease in the delivery of services [10]. The economic disintegration in 2007 and the adoption of the multi-currency regime in 2009 has led to SME's facing logistical constraints which have seriously affected their performance and quality of service delivery. According to the [11], in its annual Manufacturing Sector Competitiveness reports (2010-2012), statistics show that capacity utilisation across all key sectors continues to hover below 60 %. This has been due to the collapse of agro-industrial cluster that used to exist which saw a lot of companies depending on the key agricultural sector for their inputs as well as a mixture of both demand-side and supply side constraints which have stalled the growth of manufacturing sector. Due to the collapse of the input source, which is agriculture, manufacturers have resorted to importing raw materials and other components from across the border. This has placed much pressure on the SME's as they have to meet available demand in time and also to forecast on what is needed. Hence planning on inventory management became a pressure to companies as it would be difficult to synchronise demand and supply. According to Reference [12], inaccurate inventory forecast creates a number of problems such as loss of productivity, production of unwanted items, accumulation of costly physical inventor and reduction in levels of customer commitment.

Effective inventory is of paramount importance in the running of a business [13]. Customers want dynamism and SME's have to face the competition to survive the market. Due to this competition, only the firm with the best logistics management would be able to out-compete other companies. Inventory being the most important aspect of logistics, has taken SME's to implement various inventory management techniques that best suit their organisations to maximise on the best results and manage their inventory [5]; [12]. Most SME's in the manufacturing sector are failing to accurately synchronize demand and supply which leads to excess stock or stock outs. Various inventory management systems are used by manufacturing companies but pose to affect their performance. The extent at which these techniques are used and their effectiveness in the industry has been the major reason of investigation. There has been a huge wall of disparity between theoretical and practical inventory management systems carried out in the manufacturing industries and there is need to bridge up the gap between the two.

2.1 Inventory Management Systems used by SMEs

Inventory management systems are mostly based on well-recognised inventory concepts, models and techniques. From a theoretical point of view, these techniques still apply in the modern world. Reference [14] noted that in spite of the shortcomings of inventory techniques and concepts, their application have an impact on the overall performance of a company [15]. According to [16], [18], ABC analysis divides inventory into three classifications on the basis of annual cost volume. When used in a manufacturing plant, ABC analysis classifies plant components into three critical components namely; very important (A-class), important (B-class) and less important (C-class) [20]. According to [19], 'A' items represent a total of 70-80 percent of the total value used, regardless of them representing 15 percent

of the total percent of the total inventory items. On the other hand, 'B' items are those items of medium annual total value and represent 15-25 percent of total value used whereas 'C' items occupy 5 percent of annual cost value and represent at least 55 percent of the total inventory [18]. According to [20], 'A' items implies a high usage rate and requires an accurate inventory record whereas 'C' items are low usage items. The purpose of these classifications as propounded by [19] is to establish proper degree of control over each item. ABC analysis is regarded as the most suitable for long term decisions since the classification is solely based on annual rete usage. This in particular is important to SME's because it does not matter if the company is small or big in size, since the principles will assist the management team to make crucial decisions regarding the approach used in keeping inventory. The adoption of ABC analysis in SME companies has been slow due to them facing different challenges when compared with larger firms [21]; [22]. Reference [23] view Economic Order Quantity (EOQ) as the most essential and simplest model which has been developed for years for single commodities. The EOQ is used to determine the optimum order size for each inventory item and reduces ordering and carrying costs [24], [19]. An advantage from this model is that it gives satisfactory answers given substantial variations in its parameters [18]. According to [24] the underlying assumptions of EOQ are: the ordering cost, holding costs, acquisition cost per unit remains constant; an order is delivered at one time; and an average of one half of the inventory is in stock at any time. Economic Order Quantity is found where there is a balance struck between two costs. An optimum order size is the one that maximizes holding and ordering costs [24].

SME's face challenges and consequences in development in communications, computing and information, which then lead to increased competition and threats [25]. According to [26] effectiveness of an IM system depends on information quality that is taken in and company's ability on the Information Technology. Thus, making information that is used in the business more efficient. Implementation costs of ERP systems are high and difficult for SME's to acquire and have benefits of these systems. Large ERP vendors include SAP, ORACLE, JDEDWARDS and PEOPLESOFT [13]. SME's have, however, found less complex systems which were developed such as Alliance Manufacturing (Exact Software), MFG/PRO (QAD), and All- in One (SAP). For more effectiveness many SMEs combine this system with JIT, optimised production technology and advanced production scheduling. Despite these changes and use of less complex systems in ERP, there is no much competitive advantage SME's have experienced particularly on how change and uncertainty could be managed in a competitive environment [13]. Reference [16] regard Just-In-Time (JIT) as more holistic than earlier IM systems. JIT policy ensures that the exact quantity of material that is needed is delivered and this helps in reducing inventory investment and other costs [19] [28]. The sizes of batch become smaller and inventory levels lower when material is only purchased when they are required for production process [24]. SME's use JIT system when they only want to satisfy an already available demand. [27] asserts that JIT gives many advantages when used which include saving on carrying cost, handling, and storage costs, but a business can be placed in a vulnerable position when there are disruptions in the supply chain. Most clear that JIT has advantages in its operations, but strong relationships with the suppliers are needed to ensure the systems effectiveness.

According to [16] Material Requirements Planning (MRP) helps business determine when and how much material needs to be purchased. When SME's adopt the concept of MRP, there is sufficient inventory that would meet production demand and meet available demand in a normal operating environment. MRP system can be done manually by hand and is straightforward, but systems are often in the form of commercial software [18]. For its functionality, MRP requires accurate data that is dependable, which is taken from the master production schedules, bill of material, lead times of each item and inventory records. The main aim of MRP system is facilitating calculations of required materials by converting inputs which are, bill of material, inventory data and the master production schedule into two main outputs which are planned order release and reschedule notices [29]. MRP system can be a challenge to SME's as it is costly to implement, and this can hinder its use by the SME sector which over-weighs its advantages [17].

VMI improves the supply chain within the company and helps in coordination of flow of products to customers [30]. According to [31] VMI is seen to be a solution when experiencing a supply-demand mismatch. There is high information sharing if VMI is adopted by the organisations since the vendor is given responsibility in the management of customer stock. Traditionally, when a need arises or when there is a demand for a product, an organisation places an order with the manufacturers. However, with VMI the manufacturer and the customer communicate via electronic Data Interchange. Since suppliers have access to customers' needs, they can take over the stock replenishment when

they track inventory levels of customers [32]. The collaboration in VMI reduces costs of storing and handling on the customers' side, but the supplier does not experience changes in these costs. When the supplier can handle the warehousing responsibilities, it would be easier to match the stocks and demand for a more flexible production process with few buffers. However, [32]; [33] are on the same page that the partnership between supplier and buyer does not necessarily reduce costs in supplier's stock system, but stocks are likely to rise since the supplier is responsible for handling the combined inventory system. Reference [34] states that SME's face challenges in implementing VMI due to lack of specialisation and skills in management and employment.

2.2 The impact of inventory management strategies on financial performance

IM is critical in the financial performance of a business since it is at the top rank in the most valuable physical assets in the balance sheet [35]. For this reason, IM should be well managed and apply replenishment rules for each item such as the strategies mentioned. The right stock should be available in the right place and in the right quantity, acquired at the lowest price possible [36]. Stock-outs mostly occur when there is demand in the market and there is little stock for fast selling items, which would lead to lost sales and customer loyalty. High stock in the company than needed leads to higher storage costs, handling costs and interests from the short-term borrowings. Eventually when selling, a loss can be experienced once materials are sold at a lower price than normal [37]. Reference [38] is of the assertion that the main goal of IM is minimising total inventory costs and ensure maximum profits in operations. Many cases have been experienced where IM and inventory planning decisions have been effective with the assistance also of inventory planning models developed and implemented [39]. A balance has to be achieved between costs of acquiring and that of holding inventory as they are the ones that significantly affect the company's profitability. The IM systems make specifications on the order quantity and re-order point with the intention to make profits [40]. EOQ should be ordered at once which then affects the inventory ordering and holding cost. This will have an effect on the profitability of the company. That is if few large orders are made, annual ordering costs tend to be lower, but the annual holding costs are high. Conversely, frequent small orders increase the ordering costs, but holding costs tend to be lower. Hence for a company to be profitable there is need to increase the order size and obtain volume discounts and off-set by lowering holding costs. Profitability of a company would be achieved at optimum level of relevant costs which are holding and ordering costs [38].

Inventory cannot be ordered and received at once, and hence there is need to make an order at a level where there is an off-set (Pandey, 1999). Additional inventory orders should be placed before current stocks are depleted. The re-order point should therefore take into consideration the lead time for replenishment after an order has been made. According to [40], the daily inventory demand and inventories assist to prevent stock-outs, which lead to lost sales and disruptions in the production due to the variations in lead times. He further observed that stock-outs lead to extras processing costs on back orders and lost opportunity costs from sales. Opportunity costs are seen as greater when customers look down upon other establishments. In this case, the profitability of an organisation is at stake and might face a down slope if no proper IM controls are taken into consideration. Effective IM which positively impact the profit of the company, a corporate culture should be instilled in employees to make it successful [41].

3. Methodology

The study employed a descriptive research design in order to determine the impact on inventory management strategies on performance of SMEs in the manufacturing sector of Harare. The study targeted SMEs with less than 100 employees and their various stakeholder groups such as suppliers, creditors and Ministry of Small and Medium Enterprise Development. The most prominent of Harare's small businesses clusters are Glenview Complex, Gazaland, Mupedzanhamo and Siyaso. A list of SME's operating in these clusters was obtained from the Ministry of Small and Medium Enterprise Development. The list was comprised of six hundred and sixty-seven (667) SME's in the manufacturing sector of Harare, Zimbabwe. The sample size for this study was determined using Krejcie and Morgan (1970) and a sample size of 244 was obtained. The researchers employed purposive sampling. Purposive sampling was used because according to [42], purposive sampling is used when a researcher uses his or her judgement to choose only those participants who are capable to answer the research question. The researchers used questionnaires and observations in the collection of data. The study employed close-ended and open-ended questionnaires in gathering

data from respondents. In addition, the researchers used library reading in the form of management reports, audit reports and records regarding inventory management and financial statements. The study utilised thematic analysis as a data analysis framework. Data collected was organized into meaningful groups and sorted in accordance to the theme. Broad themes were firstly established which were then classified into sub-themes. This helped in identifying the concepts underpin the categories and allowing the researchers to draw some general inferences. Thematic analysis of data was appropriate for the study as it was flexible and highly inductive.

4. Findings

THEMATIC AREA 1

4.1 Inventory management systems used by SMEs in the manufacturing sector of Harare

The study findings in respect to inventory management systems used by SMEs in the manufacturing sector of Harare are present in Figure 1.

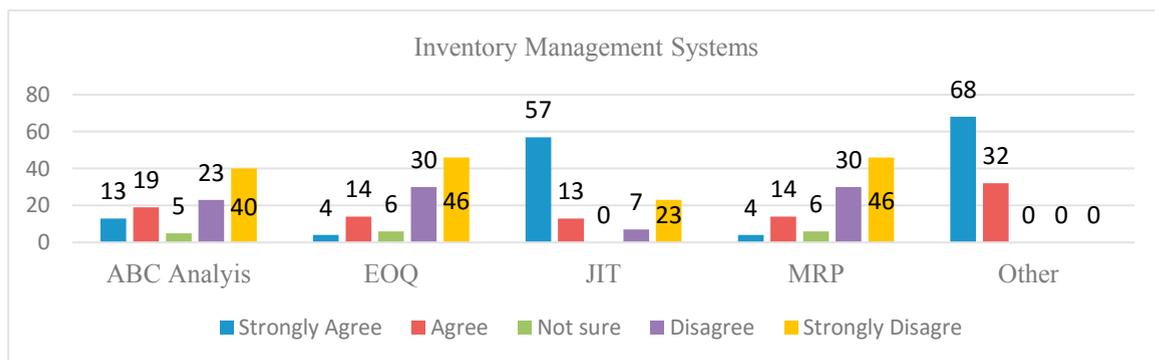


Figure 1: Inventory management systems

Source: Primary data

The study findings show that a cumulative majority of 70% of the respondents indicated that SMEs in the manufacturing sector of Harare used JIT in managing their inventories. Just-in-time (JIT) inventory management system minimizes the inventory investment by having goods arrive exactly at the time they are in demand or being ordered. The study findings on Figure 1 also shows that a cumulative majority of 76% of the respondents disagreed that SMEs used Materials Requirement Planning, a cumulative 18% agreed whilst 6% of the respondents were not sure if SMEs used MRP during the period under study. This can be attributed to the fact that most SMEs are financially crippled to such an extent that they cannot implement computer-based production planning and inventory control systems. Reference [17] pointed that MRP has advantages for SMEs, but the cost of implementing and maintaining discourages them from using the system. Reference [43] in his studies on SMEs in Ghana found that small businesses do not use computers in inventory control because of high cost of implementing and maintaining the computer system. A cumulative majority of 63% disagreed that SMEs used the ABC analysis while a cumulative minority of 32% agreed that SMEs used ABC analysis for inventory control and planning. This can be attributed to their poor financial acumen to implement the technique. This result is consistent to [44] in his studies on Reasons for Insolvency in SMEs. He noted that SMEs adopting ABC Analysis lag behind larger firms because the cost of implementing and maintaining the system is relatively high.

THEMATIC AREA 2

4.2 The impact of inventory management strategies on financial performance of SMEs in the manufacturing sector of Harare

The study findings in respect to the impact of inventory management strategies on financial performance of SMEs in the manufacturing sector of Harare are present in Figure 2.

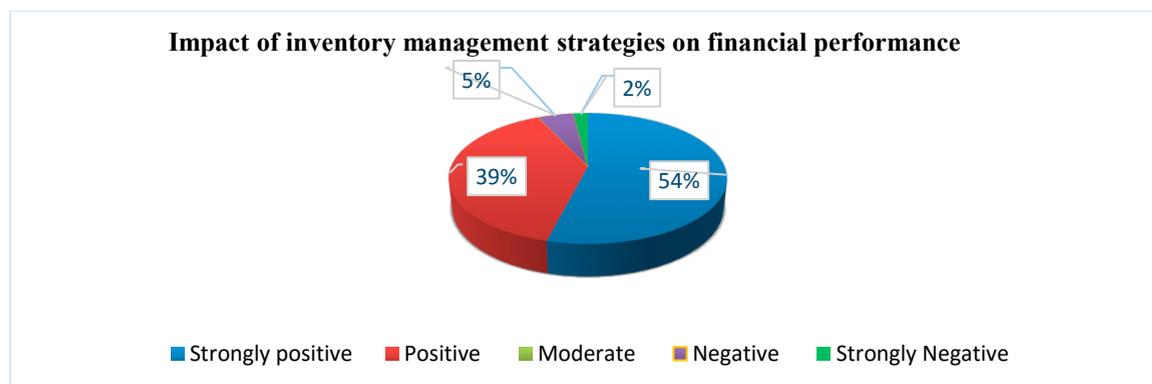


Figure 2: The impact of inventory management strategies on financial performance
Source: Primary data

The study findings on Figure 2 shows that a cumulative majority of 93% of the respondents agreed that inventory management strategies used had a positive impact on the financial performance of SMEs in the manufacturing sector during the period understudy. This means that there was a strong correlation between the inventory management strategies and working capital of SMEs. A cumulative minority of 7% indicated that inventory management strategies had a negative impact on the financial performance of SMEs. Reference [45] highlighted that there is a strong correlation between working capital management and corporate profitability. They also pointed out that inventory management strategies can affect both the working capital and profitability levels of an organization. They stressed out that its mismanagement will lead to excessive tying up of capital at the expense of profitable operations.

5. Conclusions

In light of the study findings it can be concluded that SMEs in the manufacturing sector of Harare used Just-in-time approach in managing their inventories. The study also concluded that inventory management strategies had a positive impact on the financial performance of SMEs in the manufacturing sector during the period understudy. This means that there was a strong correlation between the inventory management strategies and the financial decisions used in particular working capital and the return on investment decisions. SMEs incurred higher than necessary operating costs in order to satisfy their customer service by holding excess stocks. This was due to poor inventory planning and also that most SMEs were failing to create a balance between efficiency and responsiveness in managing their inventories.

6. Recommendations

The study recommends that there is need to develop professionalism and education in inventory management in order to enhance the knowledge, skills, and abilities of those responsible for managing and controlling inventories in SMEs. The study recommends that SMEs should make use of ERP and MRP systems. MRP systems help businesses determine exactly when and how much material to purchase, while it takes the guesswork out of purchasing. MRP will ensure that SMES have sufficient inventory to meet production demands in a normal operating environment but not more than necessary at any given time. Even though the software used in ERP and MRP are expensive for SMES they can adopt pastel evolution. The MRP, ERP and pastel system users must ensure that extensive training on these

systems are provided to system users to ensure effective management inventory. The study further recommends SMEs to improve inventory management techniques. SMEs in the manufacturing sector of Harare should strive to improve inventory management techniques so that they can meet their customers' needs profitably. In a way, choosing the best strategy will enable them to balance responsiveness and efficiency.

7. References

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