



## **Inventory Management Practices And Financial Performance Of Manufacturing Firm In Rwanda A Case Of Muhabura Multichoice Company Ltd.**

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### **Abstract:**

**Background:** *The research objective was to assess the contribution of inventory management and financial performance of manufacturing firm in Rwanda and was carried out in Muhabura Multichoice Company Ltd as the case study with the following objectives; to assess the contribution of stock reviews on organization performance in Muhabura Multichoice company Ltd, to assess the contribution of just in time approach on organization performance in Muhabura Multichoice Company Ltd and to find out the contribution of ABC analysis on organization performance in Muhabura Multichoice Company Ltd.*

**Materials and Methods:** *The researcher used descriptive research design, the study population was 40 respondents and sample size was same using census technique. The researcher used questionnaires, which were distributed to the respondents above mentioned. The data was collected using questionnaires and secondary data sheets. The collected data was analysed using SPSS 2.1 for the mean, standard deviation, correlation and multiple regression analysis.*

**Results:** *The researcher concluded that the contribution of stock reviews on production performance in Muhabura Multichoice Company Ltd is that it facilitates regular analysis of stock, facilitates streamlining of activities, improving production and operations of the company, facilitates planning and forecasting of raw material, specifying the quantity and amount of stock of goods and raw materials required and that it leads to improve the firms total performance. JIT approach to contribute to performance of Muhabura Multichoice company Ltd through reduces costs of holding stock, the right time line from the time customers place the order, better handling of wastes, quality production, turning company assets, with improved quality products, helps manufacturing firms to reveal the activities which add no value to the firm, right things for the right quality and amount in the correct place as well as opportune time and leading to accomplishment of zero stock at the end of the period.*

**Conclusion:** *The role of ABC analysis on production performance of Muhabura Multichoice Company Ltd is that it facilitates identifying importance of each category of stock, it involves the tracking of the flow of goods and services, reduce costs of storage, classifying products on the value of importance, helps inventory planners to make forecasts of demand for the different products and better management of stock, helping the company to set price very strategically for the products that have more value in the company and that it allows different planners to set different measures based on product classification.*

**Key Words:** *Inventory Management, Financial Performance, Manufacturing Firm, Muhabura Multichoice Company Ltd, Rwanda.*

### **I. Introduction**

In the early years, people considered inventory management a cost center among other cost centers in companies because purchasing departments were spending a lot of money on inventory. Despite this the process of

liberalization and opening up of the global economy has led to a dramatic change in the business environment resulting into manufacturing business being exposed to competition in the market place. This resulted further into many companies in manufacturing business worldwide to employ various strategies to counter the faced challenges in order to remain competitive (Agus and Noor, 2016).

in a cross range of organizations and companies, inventory management is considered vital in managing both raw materials and finished good, inventory management facilitates management of the organizations in ensuring that the available stock of raw materials is used properly and efficiently as well as ensuring that ordering and reordering of raw materials is done times for the smooth flow of production activities (Amagoh, *et al* 2018).

Business operations are enhanced through effective inventory management through effective flow of goods and services within the organization, management of inventory and its control involves movement of products and services in relation to their demand. They are highly considered to be crucial in the success of businesses in the world of today since they determine the business survival or failure. Inventory management and knowledge about its usage are considered very vital in the enhancement of quality, improvements in the competitive ability as well as reducing inventory carrying and other related costs. It facilitates provision of strategies that can be integrated in the management, control, planning as well as other processes with the purpose of enhancing and making companies have successful management (Stierwed, *et al* 2010)

Proper inventory control requires an organization to undertake stocking and use appropriate method to value stock, so as to avoid under or over estimation of profits. Companies experience substantial costs in the procurement and maintenance of inventories, which cost form a large portion of production costs. Inventory costs include carrying costs such as storage and insurance, ordering costs like transportation and store placement, as well as stock out costs like redundancy and loss of sales. A company cannot achieve an outstanding performance without proper and efficient control. Any theft, wastage and excessive use of materials are of immediate financial loss and leads to poor performance of a company (Potilen & Goldsby, 2013).

Material control involved a systematic control and regulation of purchase, storage and usage of materials in such a way to maintain an even flow. In recent years, the manufacturing industry has been facing a number of challenges especially in inventory management or material control, thus affecting the performance of most manufacturing companies (Inyama, 2016). A company can adapt to its operations, in respect of inventory control system. In fact, the era of manual control of inventory is gone; especially, with increasing volume of inventories in organizations, computer based inventory systems will be more effective than using manual method (Coleman, *et al.* 2010).

Making and delivering do not usually take place instantaneously, therefore companies must maintain the products that can be used in a timely manner whose sale doesn't necessarily have to wait until completion of production process. When a big increase expected in the sale of important raw materials, a sufficient quantity must be stored at the lowest price prevailing at the moment. In the same way, if shortages of necessary raw materials are foreseen, it is important to have stock enough to facilitate continuity in production operations. Production department in organizations being one of the major departments that generate incomes through ensuring efficient and timely supply of the required goods and services, it relies much of stock stability for its performance. Therefore inventory management contributes to performance of production in companies (Augustine and Agu, *et al.* 2013).

In Rwanda, manufacturing companies and other companies that are engaged in production, rely most on their capacity to produce goods and services that are required by the market in order to perform better, many organizations have therefore resorted to improvements in inventory management giving emphasis to different inventory management techniques in order to ensure that they have a stable flow of production activities resulting from availability of inventory and improved used of stock for both raw materials and manufactured goods. Production performance in most Rwandan companies is a function of how bet they handle the issues of stock and inventory, companies that have management to keep their customers happy and satisfied with availability of services and goods that is consistent tend to have a large percentage of customer loyalty and retention which all facilities improvements in the production performance among companies.

Muhabura Multichoice company ltd is a business-oriented company that deals in production of different goods, services and products. The company is in manufacturing industry in the lines of soap productions and wood works as well as production of different agriculture products. In order for the company to attain its goals and improve performance of its production activities, the company considers inventory management important through

effectively and timely provision of the required raw materials for effective performance of production department. However, the contribution of inventory management on performance of production department cannot be confirmed without sufficient research in this area. It is against that background that the researcher carried out this research with reference to Muhabura Multichoice Company as the case study. The general objective of this research study was to assess the contribution of inventory management and financial performance in manufacturing companies in Rwanda. The specific objectives that guided this thorough research are:

- i. To assess the contribution of stock reviews on performance of Muhabura Multichoice company Ltd.
- ii. To assess the contribution of just in time approach on performance of Muhabura Multichoice Company Ltd.
- iii. To find out the contribution of ABC analysis on performance of Muhabura Multichoice Company Ltd.

## **ii. Theoretical Literature**

### **Just in Time Theory**

Just in time is an inventory management technique that emphasizes products of products only when they are needed instead of making it before and then storing it, which may lead to increase in storage costs as well as other, costs and inconveniences. This may lead to risks in case there is a break down in one part of supply chain for example supply of raw materials (Agus and Noor, 2006). This theory is relevant to this study in that steady and stable supply as well as having raw materials and finished products in the right time when they are needed is part of inventory management leading to improved performance of manufacturing companies (Stierwald, 2010).

### **The Pareto (ABC) Model**

This model was derived by Pareto Vilfredo in 1889, the theory categorizes inventory into three groups of AB and C where Category A are those that are highly valued, B are valued and C are less valued. The highly valued items under group A are given much consideration and their availability is highly monitored so as to avoid delays. This theory is related to the study in that it emphasizes ensuring that the highly needed stock is available so as to promote improvements in performance. (Amuzu, 2010).

### **The Economic Order Quantity**

This is mainly applied in determining and controlling optimal levels of inventory, the principle by Harris (1913) emphasizes that the economic order quantity is the level that minimizes holding and ordering costs related to the required stock. It is the level at which the required quantity can be ordered to minimize delays and disruptions at work place. This minimizes holding excess stock of raw materials that may waste resources and time. The theory is related to the study in that it focuses on ensuring that there are no interruptions and disruptions in the process of holding stock through better inventory management hence leading to improved success (Augustine and Agu, 2013)

### **The Lean Theory**

This theory is an argumentation of the just in time theory, it dispenses of the buffer stock and minimizes the waste production procedure. This theory is important in that it influences the productivity of business firms as a best inventory control tool. It emphasizes how manufacturers' adaptability in the requesting choices can diminish the suppliers' stock aimed at reducing costs associated with transportation of inventory. It emphasizes that materials must be available when dealing in long processes that need data availability. The theory is related to this research in that it emphasizes the best way of keeping and managing stock to ensure that there are reduced costs hence resulting in better and improved performance.

## **iii. Theoretical Framework**

### **Stock Reviewed on Financial Performance in Muhabura Multichoice Company Ltd**

Stock review is the simplest inventory management methodology that is conducive to small businesses; it involves regular analysis of stock on hand against the future resource needs of the organization. It may be manual or automated and it enables monitoring, inspection and reordering of supplies to meet the required levels. Stock reviews provide a measure of control over inventory management process however; it can be labor-intensive and

prone to error (Amuzu, 2010). Inventory management further involves specifying the quantity and amount of stock of goods and raw materials required for better performance within the company in terms of production requirements and goods for meeting customer needs and expectations. It involves planning and controlling levels of inventory to ensure that the right amounts of stock are placed for better performance and production continuity leading to success, performance and increased profitability. It lowers storage costs and leads to improvements in sales increase, it ensures that goods are available when needed (Amuzu, 2010).

It facilitates better planning and forecasting of raw material and stock needs within the organization. It facilitates optimal management of stock levels and forecasting predictable adjustments in these stock levels so that performance can be guaranteed through efficient and effective performance within the organization (Agus and Noor, 2016). It leads to efficient cost management, it streamlines activities in the production and operations department which enable real time reporting on the stock levels hence leading to curb down costs and other irrelevant issues related to production of goods within manufacturing firms. This makes it true that inventory management is a crucial aspect in ensuring improvements in the success of manufacturing companies (Agus and Noor, 2016).

Inventory consists of a proportion of current assets within manufacturing firms, since it constitutes of the investments made for obtaining returns. When inventory is inadequate then it has adverse potential for disrupting operations of the company in terms of disrupted production and failure to meet the required customer needs and preferences while at the same time excess inventory also has capacity to increase costs of the firm hence having an impact on the company profitability. Therefore the solutions are to keep or maintain optimal levels of inventory within the organization (Amuzu, 2010).

Company profits can easily be maximized with the effective management of inventory within the organization due to effective inventory management technique. Profit maximization is all about cost minimization and revenue maximization; it improved the firm's total performance through matching inventory management practices and competitive advantages especially due to the fact that companies work in competitive environments, the main objective of inventory management is to keep the required optimal levels of inventory that are necessary and important for the effective performance of production departments (Arora & Ceccagnoli, 2016).

Inventory management ensures that all material inputs for the production department are available when needed so that production can go on uninterrupted as well as ensuring that optimal stock levels are maintained within the organization. Inventory management is therefore a tool for improvements in production and operations of the production department with the manufacturing companies (Arora & Ceccagnoli, 2016). Inventory management is needed in many areas within the firm especially in the supply network so as to ensure that production is protected from unnecessary disturbances or running out of the needed and required raw materials of the firm. It enhances performance and improves effectiveness as well as increasing business competitiveness within the organization through holding the right quantity of stock levels (Anene, 2014).

### **Just in Time Approach on Financial Performance in Muhabura Multichoice Company Ltd**

The concept of just in time is described by the god father of Toyota systems Taiichi Ohno as all that is done in the right time line from the time customers place the order to the time when cash is collected and reducing the timeline by removing the no value added wastes. The major motivating reason for just in time concept as well as other better management techniques was that after world war II, Japanese had a very strong initiative to develop their manufacturing systems so as to rebuild the economy and as a result the following forms of waste were identified including the waste of production, waste of inventory, waste of repair, waste of motion, waste of processing, waste of waiting as well as waste of transportation. Just in time was therefore introduced as a technique to handle the wastes in manufacturing processes and systems. It aimed at improving quality and timely completion in supply, production and distribution. The way of having just in time to be successful was to have all stakeholders within the distribution systems involved and committed as well as fully utilization of output and efficiency in production and manufacturing as well as distribution immediately.

Three decades after the world war, many economies are still struggling with the concept of just in time and it has gained much attention as the best approach in meeting customers' needs timely and well as reduction of wastes in manufacturing. The approach facilitates quality production, reduced wastes and increased productivity (Augustine and Agu, 2013). The successful implementation of JIT requires a body of knowledge that includes a comprehensive set of management principles and policies as well as toolkits. It is believed that the implementation of JIT leads to an improved performance of manufacturing companies and firms. The study carried out on the adoption of just in time

approach indicated that the firms with better implementation of just in time approach outperforms others that do not have it (Appiah, 2014).

The major reason for the improved performance of just in time approach is that it facilitates turning company assets, with improved quality products and greater responsiveness to customer demands due to shorter lead time and improved product line variety. The performance dimensions are facilitated by the philosophical elements of Just in Time on reduction of wastes and flexibility in the performance process (Amuzu, 2020). Firms using just in time approach are largely associated with increased profit margins and reduced waste reduction, the approach helps manufacturing firms to reveal the activities, which add no value to the firm, such activities with their costs, are hidden either by exercising buffer inventories or simply ignoring them. Holding buffer stocks is considered to be convenient solution to such kind of problems like failure of production lines and other related systems. The implementation of just in time approach, excessive inventories can longer be allowed to exercise such challenges, just in time is more inclined to helping in cost saving and increasing profit margins hence leading to improved performance of manufacturing companies (Arora and Ceccagnoli, 2016).

Just in time technique is a philosophy of the Japanese whose rationality is associated with the right things in the right quality and amount in the correct place as well as opportune time utilization of this techniques leads to increase in the quality, profitability and effectiveness within the manufacturing company. It also enhances correspondence in the reduction of expenses. The technique is characterized by the process that is prepared for the right moment response to the requests made without the necessity for any overstocking (Stierwald, 2010).

The major objective of Just in time concept is leading to accomplishment of zero stock at the end of the period may be a day throughout the whole production network, the technique is connected to the assembling procedure within the organization as well as administration association. The components of this techniques incorporate consistent change, taking out seven sorts of squanders among others. Just in time facilitates having the proper measures of stock control, whether rough materials or finished goods and ability to meet the needs of customers in time. It leads to reduction in storage costs and having less absolute quality to mark down and further culminates into serving the company's honest to goodness money (Anene, 2014).

In just in time concept, products arrive as they are ordered by customers and is largely based on the customer needs and behavior, companies therefore need to have sufficient information regarding analysis of the behavior of customers. It further involves searching buying patterns, seasonal demand and location based factors that show the picture of what exactly should be produced at the right time, in the right place and for the right customers. This technique allows meeting customer demands without necessarily keeping a lot of stock and incurring storage costs. The risks under this strategy may be misleading the market demand and having distribution problems that can lead to out of stock costs (Stierwald, 2010). Inventory includes materials and goods that businesses including manufacturing companies store and use in production of goods or as finished goods to fulfill or meet customer needs and demands. Management of inventory is very important in ensuring that production goes on uninterruptedly or customer needs and demands are effectively met in time with limited interruptions.

Management of stock or inventory includes activities like giving the merchandise to meet the client requests, to facilitate effective production process. In any manufacturing firm therefore inventory management is very important since it builds efficiency, improves production process, better and improved production planning as well as holding the necessary and required stock at the right time. It leads to better management of assets and stock as well as facilitating demand forecasting and avoiding in planned procurement activities (Anene, 2014).

### **ABC Approach on Financial Performance in Muhabura Multichoice Company Ltd.**

ABC analysis method classified inventory into three different categories which represents the values and cost significance of inventory of the goods in which category A represents high values and low quantity goods while category B represents modern value and moderate quantity goods and category C represents low value and high quantity goods (Appiah, 2014). The methods calls for an inventory management system to manage each category of inventory and emphasizes the need for knowing the importance of each category of stock and which stock should be kept in large quantities or not. For example, category A stock may take long to be sold but there may not be need to keep them in large quantities. The major advantage of this method of inventory management is that it provided

control over high value goods but also disadvantageous in that it requires considerable amount of resources to continuously analyze the inventory (Augustine and Agu, 2013)

Inventory management is a critical task that involves the tracking of the flow of goods and services in and out of the organization stock, inventory planners are charged with ensuring that warehouses are carrying enough stock that can be used to fulfill customer requirements and effective production flow. Every product within the manufacturing company has costs related or attached to its production or holding for example the costs of storage therefore inventory planners ensure that they reduce costs of storage, have the right stock in the right time and meet customer demands on time. In helping planners optimize the inventory, ABC analysis methods or techniques is used (Anene, 2014)

Every product in its life span goes through four different phases that include launch, growth, maturity and decline, when the product reaches maturity stage in the life span it is then bound to decline sooner or later and in this case customer demand plays an important role in the end of life management. The concept of ABC therefore helps inventory planners to make forecasts of demand for the different products and better management of stock before hand as well as future stock levels accordingly. The maturity and decline stages are different in different products meaning that in some products with the decrease in demand, sales will fall and therefore it is better to reduce inventory levels in order to minimize the carrying costs (Amuzu, 2010).

Companies make money by negotiating with suppliers in the class A of products because 70%-80% of money in the company is spent on them. Some offers may look so lucrative from a far but can't accept the very first one, it is therefore better to make counter offers in return. Optimizing inventory is a benefit of ABC analysis which allows inventory planners to organize priority stock and align it with customer requirements, due to demand fluctuations, companies store inventory to cater for the future demand and reduction in carrying costs of low stock for un-desirable items (Arora and Ceccagnoli, 2016).

ABC method of analyzing inventory is important in helping the company to set price very strategically for the products that have more value in the company. The company monitors the products that are highly valuable to customers to ensure that their availability and supply is stable. Based on the gathered information about the value and importance of stock, manufacturing companies can increase prices of items by extra dollars leading to a huge impact on profits and the overall performance of the company. The company may also decide to consolidate supplier or transfer the business to a single supplier, the company policy of purchasing many goods from a single supplier may contribute to lowering the costs and reducing complexities associated with them (Amogoh, 2018). Treatment of products cannot be the same or achieve the same customer levels, the service levels for different products depend on different factors like the cost of items, the sold quantity as well as margin on the product, there is no need of crowding the store or warehouse with products of low margin which can be sold once in a while. This method of ABC analysis allows different planners to set different measures based on product classification allowing improvement of supply chain performance while carrying less safety stock (Stierwald, 2020).

#### **iv. The Conceptual Framework**

The researcher presented the conceptual framework showing the relationship between the dependent and independent variables.

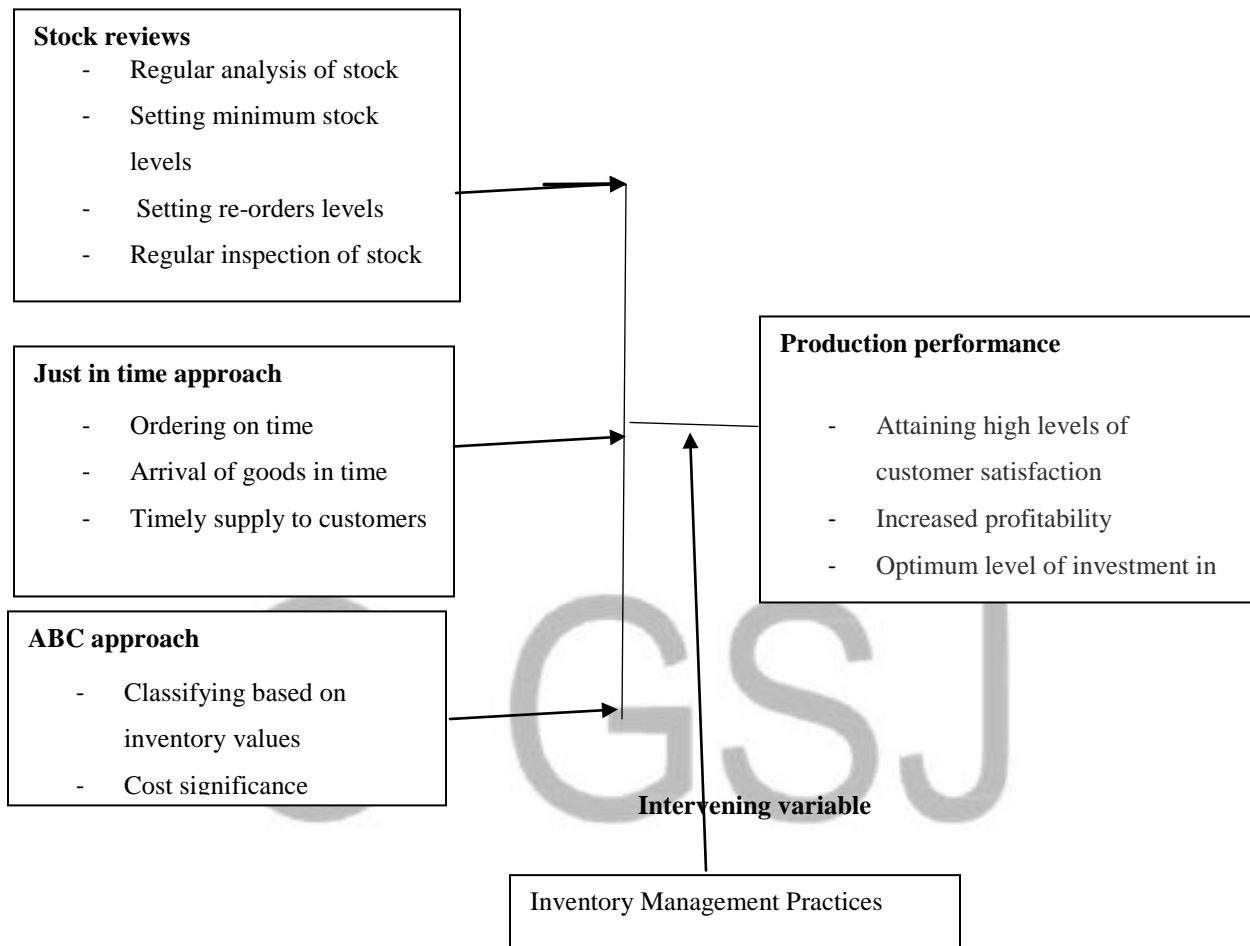
**Figure 1: The Conceptual Framework**

**Independent Variables**

**Dependent Variables**

**Inventory Management**

**Production Performance**



**Source: Author (2022)**

According to the above conceptual framework, inventory management through stock reviews, just in time approach and ABC approach could contribute to improve production performance through attaining high levels of customer satisfaction, increased profitability and optimum level of investment in inventory.

**v. Research Materials and Methods**

**Research Design**

Research design is defined as a "blueprint" for research, dealing with at least four problems: which questions to study, which data are relevant, what data to collect, and how to analyze the results. It is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure or a conceptual. A descriptive research design will be used so as to provide a thorough description and analysis of the information related to the study variables. The design was based on both qualitative and quantitative data.

**Target Population**

Population refers to the total members of a defined class of people, objects, places or events selected because they are relevant to the research question. The way one defines the study population depends on the problem to be investigated and on the objectives of the study. The population of this research was 40 employees of Muhabura

Multichoice Company Ltd. In determining the population, the researcher considered all companies employees with sufficient information on production performance.

### **Sampling Techniques**

Kombo & Delno (2006) defined sampling as a procedure the researcher uses to gather people, places or things to study. It is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative characteristics found in the entire group. The study used both probability and non-probability sampling techniques.

### **Data Collection Methods**

Data are primarily collected to provide information regarding a specific topic. A formal data collection process is necessary as it ensures that data gathered is both defined and accurate and that subsequent decisions based on arguments embodied in the findings are valid. For this research, the researcher used questionnaires and interviews for primary data while documentary review was used for secondary data

### **Data Collection Instruments**

The researcher collected primary data from respondents using questionnaires. A questionnaire is a set of questions intended to help the researcher acquire views from the respondents selected. The researcher designed a set of questions concerning inventory management and production performance. The questions were given to the respondents to express their views about the issues raised. The questionnaires included both open and closed questions. Interview guide, the researcher held short interviews with respondents that were not having enough time to fill questionnaires.

The researcher collected secondary data from written documents using documentary review. This involved the review of written documents from different libraries and internets. The researcher reviewed literature from journals, textbooks and reports. The researcher also looked at different documents from Muhabura Multichoice Company regarding inventory reports and production performance

### **Data collection Procedures**

Following Mount Kenya University's approval of the proposal, the researcher obtained a letter of introduction to the management of Muhabura Multichoice Company requesting authorization to distribute the research instruments to their employees. The questionnaire was a key research instrument given to subject matter experts to get their opinions and remarks. The mode of questionnaire and interview administration was through physical interaction and probing.

## **vi. Results**

### **Response Rate**

In this section, the researcher presents the findings of the research extracted from the data collection instruments that included questionnaires and interviews.

**Table 1: Age of Respondents**

<b>Age</b>	<b>Frequency</b>	<b>Percent</b>
Less than 30 years	8	20
31 – 40 years	19	48
41 – 50 years	10	25
Above 50 years	3	7
Total	40	100.0

**Source:Primary data, 2022**



According to Table 1, respondents contacted 20% were found to be aged below 30 years while 48% were aged between 31 – 40 years and 25% were aged between 41 – 50 years. Only 7% were aged above 50 years. This led the researcher to the understanding that the respondents contacted were of reasonable age and could therefore be relied upon in making necessary and relevant conclusion related to the study topic. Therefore the collected data in this research is more reliable in as far as making conclusions is concerned.

**Table 2: Gender of Respondents**

Gender	Frequency	Percent
Male	21	51
Female	19	49
Total	40	100

**Source:Primary data, 2022**

Results in Table 2, most of the contacted respondents 51% were found to be male as compared to their female counterparts who were only 49%. This led the researcher to the understanding that the gender differences were in relation to the nature of work done in Muhabura Multichoice company Ltd, it may also depend on the choice of employers. The views given in this research were therefore from both male and female employee respondents, are therefore multiple, and diversified enough to be relied upon in making relevant conclusions.

**Table 3: Respondents Level of Education**

Level of education	Frequency	Percent
Certificate	7	17
Diploma	11	27
Bachelors degree	18	46
Masters degree and above	4	10
Total	40	100.0

**Source:Primary data, 2022**

Results in Table 3, respondents contacted 46% were holders of bachelor’s degrees while 27% of respondents were qualified with diplomas of education, 17% of respondents had certificates of education and 10% were qualified with master’s degrees. This led the researcher to the realization that most of the respondents contacted had at least certificates of education and considered knowledgeable enough to understand issues related to inventory management and performance of institutions. The views they gave were considered to have paramount significance in making conclusions related to the study.

**Table 4: The period respondents have worked in Muhabura Multichoice Company Ltd**

Period (Years)	Frequency	Percent
Less than 2	9	23
2 – 4	10	25
5 – 7	18	45

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Above 7	3	7
Total	40	100.0

**Source: Primary data, 2022**

According to Table 4, respondents contacted 23% revealed that they had worked in MMC Ltd for the period less than 2 years while 25% said for the period between 2 – 4 years and 45% had worked in MMC Ltd for the period between 5 – 7 years. 7% had worked in MMC Ltd for the period above 7 years. This led the researcher to the understanding that they had worked with MMC Ltd for the period long enough to make them have enough information regarding the contribution of inventory management on the performance of institutions

**Analysis of Specific Objectives**

**Assessment of the contribution of stock review on performance of Muhabura multichoice company Ltd.**

The researcher sought to assess the contribution of stock review on performance of manufacturing firm in Rwanda. The strategies at hand include; Stock review, JIT approach and ABC analysis, research findings are as in the Table 4.1

**Table 4.1 Assessment of the contribution of stock review on performance of muhabura multichoice company Ltd.**

Response Item	1	2	3	4	Mean	Std. Dev.
There is regular analysis of the stock as the contribution of the stock review	70%	26%	-	6%	4.254	.451
There is streamlining activities as the indicators of the performance of the firm	56%	15%	9%	4%	4.253	.874
There is improvement in production and operations on the performance of the firm	21%	-	7%	-	4.124	.652
Facilitating planning and forecasting of raw materials and goods necessary	66%	16%	7%	6%	3.985	.461
Contribute to specify the quantity and amount of stock of goods and raw materials required	59%	5%	5%	-	3.641	.658
Helps improving the firm’s total performance as contribution of stock reviews on the performance of the firm	72%	8%	9%	11%	3.487	.823

**Source: Primary Data, 2022**

From the findings in the above table shows that the respondents agreed to a great extent ( $3.487 \leq \text{mean} \leq 4.254$ , with a significant standard deviation) that stock review enhances performance of the company, stock reviews contribute to performance of manufacturing companies such as MMC Ltd. When asked to give reasons for their answers, to a great extent with an overall mean of (3.95), respondents said stock reviews help companies to know the available stock, when to replace stock and how much stock to be ordered, it also helps to reduce stock holding costs. This led the researcher to the understanding that stock reviews contribute to the performance of manufacturing companies through enhancing stock management, monitoring and use.

**Assessment of contribution of JIT approach on performance of Muhabura Multichoice Ltd**

This section sought to assess the contribution of JIT approach on performance of Muhabura Multichoice Ltd. The research findings are as in the Table 4.2

**Table 4.2 Assessment of contribution of JIT approach on performance of Muhabura Multichoice Ltd**

Response Item	1	2	3	4	Mean	Std. Dev.
Reduction of stock holding costs as indicators of JIT importance	80%	16%	-	4%	4.347	.685
The right time line from the time Customer place the order	76%	11%	7%	6%	4.225	.464
Better handling wastes as indicators of JIT	91%	-	9%	-	4.201	.541
The quality production as indicators of project performance	66%	19%	5%	11%	3.984	.320
Turning company assets with improved quality products,	89%	4%	7%	-	3.968	.396
Helps organization to reveal activities which add no value to the firm	77%	9%	8%	6%	3.862	.321

**Source: Primary Data, 2022**

The respondents agreed to a very great extent ( $4.354 \leq \text{mean}$ , with a significant standard deviation) that there is a significant contribution of JIT approach, When asked to give reasons for their answers, respondents said to a great extent with an overall mean of (4.02), JIT time approach facilitates cost reduction since is bought only when it is needed. This led the researcher to the understanding that JIT approach leads to reduction of costs related to holding stock since the company only acquires stock when it is needed which leads to increase in performance. This led the researcher to the understanding that JIT approach is important in enabling companies to accomplish the set targets in time since all activities are timely done.

**Determination of contribution of ABC analysis on the performance of Muhabura multichoice company Ltd.**

The researcher sought to determine the contribution of ABC analysis on the performance of Muhabura multichoice company Ltd. The research findings are as in the Table 4.3

**Table 4.3 Determination of contribution of ABC analysis on the performance of Muhabura multichoice company Ltd.**

Response Item	1	2	3	4	Mean	Std. Dev.
Different products and better management are relevant for ABC analysis	50%	32%	-	8%	4.621	.682
Set price strategically for the products of high value as indicators of ABC analysis	46%	13%	9%	6%	4.600	.667
Different planners to set different measures based on product classification as indicators of ABC analysis	31%	-	7%	-	4.411	.545
Facilitates increase of the company performance based on product as indicators of ABC analysis	86%	19%	7%	11%	4.354	.354
Setting strategic price for the company as indicators of ABC analysis are relevant	56%	8%	5%	-	4.324	.564
Classification and value of the organization for different measures as indicators of ABC analysis	57%	4%	9%	6%	4.251	.524

**Source: Primary Data, 2022**

From the findings in the above table shows that the respondents agreed to a very great extent ( $4.411 \leq \text{mean} \leq 4.621$ ), with a significant standard deviation on the response, respondents said helping inventory planners to make forecasts of demand for the different products and better management of stock as indicators of ABC analysis is relevant in company performance because forecasts facilitate reduction in shortages. This led the researcher to the understanding that helping inventory planners to make forecasts of demand for the different products and better management of stock as indicators of ABC analysis is relevant in company performance.

#### **Inferential Statistics and Analysis**

The inferential statistic and analysis shows how changes in independent variables result into changes in the dependent variable. The Pearson correlation and multiple linear regression analysis were used to determine the relationship and the significance of inventory management practices on financial performance of Muhabura multichoice company Ltd between 2018 and 2021. The multiple linear regression model helps to demonstrate how much of the changes in the satisfaction rate of MMC Ltd's performance between 2018 and 2021 is attributed to

stock review ( $X_1$ ), Just in time approach ( $X_2$ ) and ABC analysis ( $X_3$ ) which are the predictor variables for this research.

### Pearson Correlation Analysis

The analysis of the findings in this research constituted descriptive and inferential statistics. Correlation analysis is one of the inferential statistics that the study conducted. Correlation analysis involves determining the degree and direction of association between two variables. This study conducted correlation between the three Inventory management practices and production performance.

#### Correlation between Trust and Production Performance

The researcher conducted correlation between Stock review and Production performance by computing Pearson's correlation coefficient. The findings indicated Pearson's correlation value of 0.75 with a significance value of 0.01. This implied that there is a strong positive significant association between Stock review and Production performance.

**Table 4.5: Correlation between stock review and Production performance.**

		Stock review	Production performance
Stock review	Pearson Correlation	1	.750**
	Sig. (2-tailed)	.	.001
	N	150	150
Production performance	Pearson Correlation	.0*	1
	Sig. (2-tailed)	.000	.
	N	150	150

Source: Primary data,(2022)

Correlation between Just in time approach and Production performance .This was assessed by computing the Pearson's correlation coefficient. From the findings, the Pearson's correlation coefficient for just in time approach and Production performance was found to be 0.71. The significance value was reported as 0.01. This is an indication of a strong positive correlation between just in time approach and Production performance. The findings are summarized in the following table.

**Table 4.6: Correlation between just in time approach and Production performance.**

		just in time approach	Production performance
just in time approach	Pearson Correlation	1	.710**
	Sig. (2-tailed)	.	.001
	N	150	150
Production performance	Pearson Correlation	.710**	1
	Sig. (2-tailed)	.001	.
	N	150	150

Source: Primary data,(2022)

**Correlation between ABC analysis and Production performance**

Lastly the researcher conducted correlation analysis between ABC analysis commitment and production performance. The Pearson’s correlation coefficient was found to be 0.68 with a significance value of 0.01. This is an indication that there is a strong positive significant relationship between ABC analysis and production performance. The results are summarized in the following table.

**Table 4.7: Correlation Between ABC Analysis and Production Performance.**

		ABC analysis	Production performance
ABC analysis	Pearson Correlation	1	.680**
	Sig. (2-tailed)	.	.001
	N	150	150
Production performance	Pearson Correlation	.680**	1
	Sig. (2-tailed)	.001	.
	N	150	150

Source: Primary data,(2022)

**Relationship of Variables**

**Table 4.6: Regression Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE	Beta		
(Constant)	3.544	.425		8.545	.045
1 Stock review (X <sub>1</sub> )	.541(β <sub>1</sub> )	.154	.656	5.574	.035
JIT approach(X <sub>2</sub> )	.644(β <sub>2</sub> )	.874	.241	2.486	.049
ABC analysis(X <sub>3</sub> )	.148(β <sub>3</sub> )	.441	.282	1.031	.038

a. Dependent variables: Production Performance

The following regression result was obtained:

$$Y = 3.544 + 0.541X_1 + 0.644X_2 + 0.148X_3 \quad P=0.039a$$

From the model, when other factors stock review based on Partnership are at zero, the performance of manufacturing firms will be 3.544. Holding other factors constant, a unit increase in would lead to 0.541 (p=.035) increase in performance of manufacturing firms. However, holding other factors constant, a unit increase in JIT approach would lead to a 0.644 (p=0.049) increase in production performance of manufacturing firms. The table above also shows that holding other factors constant, a 30 unit increase in ABC analysis to Suppliers would lead to a 0.148 (p=0.038) increase in performance of large manufacturing firms.

The study sought to assess the contribution of inventory management and financial performance of manufacturing firm in Rwanda and was carried out in Muhabura Multichoice Company Ltd. The researcher conducted a regression analysis to assist explain this contribution. The study adopted the following linear regression model to depict the expected relationship between the variables:  $Y=(X_1, X_2, X_3)$ :

Whereby: Y represents Production performance, which was measured using the responses on the effect of inventory management – manufacturing firm variables. ; x1 is stock review; x2 JIT approach; and x3 is ABC analysis to manufacture and inventory management; B0 is the model’s constant, and  $\beta_1 - \beta_3$  are the regression coefficients while  $\epsilon$  is the model’s significance from f-significance results obtained from analysis of variance (ANOVA). All the three independent variables were also measured using the responses on each of the variables obtained from the respondents. The results are illustrated and explained next.

**Table 4.7: Model's Goodness of Fit Statistics**

**Table 4.7: Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	SE of the Estimate
1	.734 <sup>a</sup>	.539	.503	.1752

a. Predictors: (Constant), Inventory management practices

b. Dependent Variable: Production performance

Predictors: (Constant), Stock review, JIT approach and ABC analysis to inventory management.

Table 4.7 Shows that there is a linear association between the dependent and independent variables as shown by a correlation (R) coefficient of 0.734. The determination coefficient as measured by the adjusted R-square presents a moderately strong relationship was 0.50, depicting that the model accounts for 50.3% of the total observation.

**Table 4.8: Analysis of Variance (ANOVA<sup>a</sup>)**

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	2.164	4.541	11.657	12.118	0.039a
1	Residual	9.775	115	0.085		
	<b>Total</b>	<b>11.939</b>	<b>119</b>			

a. Predictors: (Constant), Stock review, JIT approach, and ABC analysis to inventory.

b. Dependent Variable: Production Performance

The ANOVA statistics presented in the table above show the model was significant as  $p = 0.039$  was established.

### Hypotheses Testing

#### Hypothesis 1

The first null hypothesis ( $H_01$ ) states that Stock review ( $X_1$ ) has no statistically significant effect on Production performance in Muhabura Multichoice Company Ltd between 2018 and 2021. However, hypothesis test based on the multiple linear regression produced a coefficient of  $\beta_1=.241$ , with  $p=0.002<.05$  at a 5 percent level of significance as in Table 4.1 which shows that stock review ( $X_1$ ) had a statistically significant and positive effect on production performance in MMC Limited between 2018 and 2021. Therefore, the researcher rejects the stated first null hypothesis ( $H_01$ ) as false by adopting the alternative hypothesis ( $H_a1$ ) that: *Ha1: Stock review has a statistical significant and positive effect on production performance in Muhabura Multichoice company Ltd between 2018 and 2021.*

#### Hypothesis 2

The second null hypothesis ( $H_02$ ) stated that JIT approach ( $X_2$ ) have no statistically significant effect on Production performance in Muhabura Multichoice company Ltd between 2018 and 2021. However, the regression coefficient ( $\beta_2=.311$ , with  $p=.001<.05$  at a 5% level of significance) in Table 4.2 shows that JIT approach ( $X_2$ ) had a positive and statistically significant effect on production performance in Muhabura Multichoice company Ltd between 2018 and 2021. Thus, the researcher rejects the second null hypothesis and adopts the second alternative hypothesis ( $H_a2$ ) by stating that: *Ha2: JIT approach ( $X_2$ ) had a positive and statistical significant effect on production performance in Muhabura Multichoice Company Ltd between 2018 and 2021.*

### Hypothesis 3

The third null hypothesis ( $H_03$ ) stated that ABC analysis has no statistically significant effect on production performance in Muhabura Multichoice Company Ltd between 2018 and 2021. However, the regression coefficient ( $\beta_3=.402$ ; with  $p=0.000<0.05$  at a 5 percent significance level) shows that ABC analysis ( $X_3$ ) had a positive and statistically significant effect on production performance in Muhabura Multichoice Company Ltd in the period covered by this study. Hence, the researcher rejects the third null hypothesis and adopts the third alternative hypothesis ( $H_a3$ ) by stating that: *Ha3: ABC analysis has a statical significant and positive effect on production performance in Muhabura Multichoice Company Ltd between 2018 and 2021.*

### vii. Discussion of Findings

Inventory management is a critical task that involves the tracking of the flow of goods and services in and out of the organization stock, inventory planners are charged with ensuring that ware houses are carrying enough stock that can be used to fulfill customer requirements and effective production flow. Every product within the manufacturing company has costs related or attached to its production or holding for example the costs of storage therefore inventory planners ensure that they reduce costs of storage, have the right stock in the right time and meet customer demands on time. Inventory management facilitates better planning and forecasting of raw material and stock needs within the organization. It facilitates optimal management of stock levels and forecasting predictable adjustments in these tock levels so that performance can be guaranteed through efficient and effective performance within the organization. The first objective focused on assessing the contribution of stock review on performance of muhabura multichoice company Ltd. Findings show that the company will be able to produce all the good needed by customers hence leading to improved performance. This led the researcher to the understanding customer needs are easy to be met when the company has all the available stock required and this is facilitated by stock reviews, through stock reviews companies are able to improve meeting the targets set in production. The meeting production target is facilitated by the fact that review facilitate ascertainment of all requirements to meet the set targets.

The second objective concentrated on assessing the contribution of JIT approach on performance of Muhabura Multichoice Ltd. JIT time approach facilitates cost reduction since is bought only when it is needed. This led to the understanding that JIT approach leads to reduction of costs related to holding stock since the company only acquires stock when it is needed which leads to increase in performance. JIT approach is important in enabling the company to reduce wastages through timely ordering which in the end promotes performance and that JIT approach contributes to performance of companies through reduction in wastages..

The third objective drew attention towards determining the contribution of ABC analysis on the performance of Muhabura multichoice company Ltd. Inventory planners to make forecasts of demand for the different products and better management of stock as indicators of ABC analysis is relevant in company performance because forecasts facilitate reduction in shortages. Helping inventory planners to make forecasts of demand for the different products and better management of stock as indicators of ABC analysis is relevant in company performance the company to set price very strategically for the products that have more value in the company as indicators of ABC analysis is relevant in company performance. This led to the understanding that setting the price for strategic products is more important in improving performance.

This part presents the summary of the research findings in view of the objectives of the research. The researcher found out that stock reviews help companies to know the available stock, when to replace stock and how much stock to be ordered, it also helps to reduce stock holding costs, through stock reviews, the company is able to know the available stock, how long it has been kept and when the next order should be made and well trucking the state of the available stock in the store, stock reviews facilitate putting company work in order and having Cleary streamlined activities which in the end lead to improvements in performance, respondents said production will have to flow smoothly since there will be clear monitoring and use of stock as well as its storage, planning and forecasting in production is made possible through stock reviews since monitoring of stock movement is possible which in the end leads to improved performance of the institution and that specifying the quantity and amount of stock to be ordered is made possible through stock reviews hence leading to performance improvements.

It was also found out that JIT approach is important in improving performance of companies through reduction in wastages as well as meeting customer targets, JIT approach leads to reduction of costs related to holding stock since the company only acquires stock when it is needed which leads to increase in performance, JIT approach looks at the need for stock in relation to when good are needed or orders placed it facilitates performance through customer



satisfaction and fulfillment of orders, JIT approach is important in enabling the company to reduce wastages through timely ordering which in the end promotes performance and that since production and stock management are done timely there is limited expiry of good hence leading to improved performance.

### viii. Conclusion

The researcher concluded that the contribution of stock reviews on production performance in Muhabura Multichoice Company Ltd is that it facilitates regular analysis of stock. facilitates streamlining of activities, improving production and operations of the company, facilitates planning and forecasting of raw material, specifying the quantity and amount of stock of goods and raw materials required and that it leads to improved the firms total performance

JIT approach to contribute to performance of Muhabura Multichoice company Ltd through reduces costs of holding stock, the right time line from the time customers place the order, better handling of wastes, quality production, turning company assets, with improved quality products, helps manufacturing firms to reveal the activities which add no value to the firm, right things in the right quality and amount in the correct place as well as opportune time and leading to accomplishment of zero stock at the end of the period. The role of ABC analysis on production performance in Muhabura Multichoice Company Ltd is that it facilitates identifying importance of each category of stock, it involves the tracking of the flow of goods and services, reduce costs of storage, classifying products on the value of importance, helps inventory planners to make forecasts of demand for the different products and better management of stock, helping the company to set price very strategically for the products that have more value in the company and that it allows different planners to set different measures based on product classification.

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