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Abstract

This research examined the effect of inventory management activities on retailer satisfaction in manufacturing industries in Rwanda from the year of 2016 to 2021. The mixed approach of both qualitative and quantitative data were used as research design to collect results from 121 respondents from 174 who were expected as sample size of the study by the use of simple random and stratified sampling techniques. Before, the actual process of data collection the researcher pre-tested the questionnaire survey and the key informant interview, which were used later for collecting data from the field. Thus, the quantitative data were analyzed using both descriptive as percentage distribution and inferential statistics represented by multiple linear regressions. Thus, the regression coefficients demonstrated that $\beta 1 = .241$, with $p=0.002 < 0.05$ at sig. level of 5% which proves that IOP had a statistically positive and significant effect on the satisfaction of retailers; $\beta 2 = .311$ with $p=0.001 < 0.05$ at a sig. level of 5% implying that ISM had a positive and statistical significant effect on satisfaction of retailers; and $\beta 1 = .402$ with $p= 0.000 < 0.05$ at a sig. level of 5% implying that IDM had demonstrated a positive and statistical significant effect on retailers' satisfaction in IIL between 2016 and 2021. The respective coefficients further indicate that 24.1 %, 31.1% and 40.2% of the variability in retailers' satisfaction can be attributed to inventory order processing, inventory storage management and inventory distribution management respectively. The research recommends IIL to adopt JIT inventory practices all the time to avoid inventory costs while retailers need to accurately forecast demand and make orders before they experience stock-outs which affects the supply chain. It is hoped that this study will encourage IIL to sustainably adopt inventory management activities that will continue to sustain their retailer satisfaction. The study may also motivate other researchers to conduct research covering the whole country in order to improve its reliability.

Keywords: *Inventory Management Activities, Retailer Satisfaction, Manufacturing Industries, Rwanda*

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1.1 Introduction

The manufacturing sector in Rwanda has for a long time registered stable progress due to strong and favorable national policies. These policies include Vision 2020 which aims to realize 26%industrial contribution to GDP by 2020, EDPRS 2, which aims to achieve 20% industrial contribution to GDP by 2018, the Rwanda Industrial Policy of 2011 whose goal is to increase local factor productivity (Ministry of Trade and Industry, 2011), promoting the competitiveness of exports and an enabling environment for industrialization. This includes private sector development strategy, which focuses on building a more competitive manufacturing sector, fiscal and non-fiscal policies that favor manufacturers, serviced land in the economic zones and industrial parks, as well as export processing zones for export-oriented manufacturers (Rwanda Manufacturing Association, 2013). As a result of these favorable policies, various manufacturing firms have been established in the country.

The Inyange Industries Ltd (IIL), located in Kigali City, Gasabo district, Masaka Sector, is one of the largest manufacturing firms in Rwanda which handles large volumes of inventories. The firm specializes in the production, selling and distribution of various fruit products, dairy and dairy-related products. The firm's products are sold locally as the primary market as well as in other neighboring countries through certified distributors. Because of its high rate of inventories, strong inventory management activities are critical for IIL in satisfying its customer base and improving its market competitiveness. This study observes the effect of IM on customer satisfaction among manufacturing firms with emphasis on IIL as the case of study. The variables of IM covered by this study included inventory order processing management, inventory storage management and inventory distribution management. Inyange Industries Limited specializes in agro-processing which involves adding value to different agricultural outputs especially milk and fruits (Inyange Industries Limited, 2021). In order to ensure effective supply of raw materials, there is need for suppliers and vendors to have effective delivery and supply chains to ensure that Inyange Industries Ltd has constant supply of raw materials anytime and to ensure that vendors are able to effectively distribute the products to consumers. However, like everywhere in many developing countries, the suppliers to Inyange have poor inventory management activities which have sometimes resulted into delays in delivering raw materials to the factory thus delaying production targets and order fulfillment. Similarly, vendors' poor inventory management activities have in some cases resulted into product shortages thus leaving consumer demands unmet, thus resulting into customer dissatisfaction.

Effective inventory management activities that seamlessly connect all actors in the supply chain have a significant bearing on customer satisfaction" (Lee and Kleiner, 2001), Nevertheless, there is no available empirical study about Inyange Industries Limited that has been conducted to establish the effect of order processing, inventory storage and inventory distribution on retailers' satisfaction. The researcher sought to explore how different elements of supply chain management such as order processing, inventory storage and inventory distribution can be leveraged on by Inyange Industries to ensure that retailers have reliable access to the goods and services so that there is an effective supply chain system.

1.2 Objectives of the study

1.2.1 General objective

The general objective of this study was to examine the effect of inventory management activities on retailers' satisfaction in Inyange Industries Limited.

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1.2.2 Specific Objectives

The specific objectives are the following.

(i) To assess the effect of inventory order processing on retailers' satisfaction in Inyange Industry Limited.

(ii) To observe the effect of inventory storage management on retailers' satisfaction in Inyange Industry Ltd.

(iii) To determine the effect of inventory distribution management on retailers' satisfaction in Inyange Industry Limited.

1.2.3 Research Hypotheses

H_{01}: Inventory order processing has no statistically significant effect on retailers' satisfaction in Inyange Industry Limited.

H_{02}: Inventory storage management has no statistically significant effect on retailers' satisfaction in Inyange Industry Limited.

H_{03}: Inventory distribution management has no statistically significant effect on retailers' satisfaction in Inyange Industry Limited.

2.1. Empirical Literature Review

2.1.1 Effect of Inventory Order Processing on Retailer Satisfaction

It has been observed by various researchers that inventory order processing empirically affects client satisfaction. For example, using quantitative methods and ordinary least squares analysis, Kwadwo (2016) conducted a study on the effect of supply chain management in Singapore. The researcher found out that firms in Singapore that properly planned order management on behave of their customers were able to deliver quality products on time and in the right quantity which helped to improve customer satisfaction, retention and increase in market size." This suggests that manufacturing firms like IIL can effectively boost their customer satisfaction and sales through proper order processing systems.

Similarly Duncan and Elliot (2013) conducted a study using mixed methods analysis on order processing in EU firms. The study covered 76 manufacturing firms and 127 retailers. The results found that electronic point of sales (EPOS) used in order management and processing improved retailer satisfaction by increasing loyalty, retention, sales and market size. It was further revealed that the primary aim at this technology is to scrutinize and control information emanating from goods sold through the Electronic point of sales, the verification, checking and provision of immediate sales reports and changes in transactions and the sending out of intra-and-inter-stores messages is made possible. However, other variables of inventory management such as storage and warehousing were not covered by the study.

In a related development, Duncan and Elliot (2016) also conducted a study on the role of inventory management on efficiency of production processes in 67 manufacturing firms in Nigeria. The study used a multiple linear regression analysis and selected inventory planning, order processing, and warehousing as the predictor variables for the study. The regression coefficients revealed that inventory order management had statistically positive and significant association with production efficiency. Hence, it made able the stocks to be restricted to reduction of obsolescence risk, demand and stock deterioration that enhance the chances of limited theft and providing information to buyers upheld. Thus, it led to customer enriched service and improved performance of finance of the surveyed firms. However, inventory planning showed a weak relationship between with production efficiency in the same firms.

2.1.2 The Effect of Inventory Storage on Retailers' Satisfaction

The system of inventory management methods are aimed to control product accessibility, establish customer acquiring programs and recycle unsold or outdated products (Mintzer, 2018). Mintzer (2018) conducted a study on how storage management promotes customer loyalty in 89 randomly selected electronic firms in Germany between 2010 and 2017. The study found that good storage practices ensured the availability of product which is one of the ways in which inventory management enhances customer satisfaction. The regression coefficients found a statistically significant effect between inventory storage and customer loyalty among the affected firms. It can be argued that complete knowledge of the effect of inventory control on the satisfaction of customer demands enables the management among firms to establish an operational inventory management system to ensure steady flow of inventories across the supply chain.

The effect of inventory store management on customer satisfaction has been extensively investigated. Thus, demonstrating a positive association between management of stores and customer satisfaction (Eroglu & Hofer, 2015), which applied the empirical leanness indicator (ELI) as store management estimation. The creators contend that stock leanness is the best stock administration instrument, which lessens stock accumulation and make creation proficiency to fulfill client needs. Based on the principles of lean production, inventory creates waste which needs to be reduced and this approach has become identical with good inventory management. Using both qualitative and quantitative approaches to conduct a study in manufacturing firms in USA since 2003 to 2008 revealed that lean production had an important affirmative effect on production process client satisfaction, loyalty and retention. Similar results by Eroglu and Hofer (2015) revealed that firms become leaner than the industry on average if they adopted proper inventory management practices.

It has been observed that the nature of inventory investments determines a relationship which is positive between management of inventory and satisfaction of customer which has been reported among manufacturing firms (Lee, et al., 2018). Using mixed methods research, the authors conducted a study on store management during supply chain crisis. Findings revealed that proper management of inventories in the storehouses was an essential function to ensure supply continuity and customer satisfaction. Inventory's capital investment including warehouses, plant and equipment, information and communication technology tools, systems for logistics management helped to streamline supplies of goods to the customers. It was also revealed that better inventory allocation and better implementation of customer orders are born out of these capital investments in inventory, which increases inventory turns.

In another development, Kolias, *et al.* (2018) conducted a study on the Greek retail sector and found out that storing inventories had a helpful connection with customer satisfaction and, devotion and retention among the surveyed firms. The performance measurement in their study of Greek supermarkets was reported to be relatively higher compared to other sectors, thus demonstrating the importance of investment in inventory management processes. The availability of inventories to meet manufacturing and market demands was associated with the reduction in stock-outs and higher customer satisfaction.

By employing regression techniques, Sahari, Tingg and Kadri (2017) in their study on Inventory Management in Malaysian Construction Organizations found out that the result of managing inventory stores on monetary measures of the firms had an insignificant effect on

customer satisfaction. Nevertheless, the association between stores management and satisfaction of customer demands and expectations was found out to have a very significant positive. Stores management has been identified as an instrumental catalyst for facilitating the success of manufacturing and distribution firms. It can be argued that the achievement of stores management is strong-minded by the rate of success in which a company provides better customer services and influence customer satisfaction and devotion. An observed study by Cannon (2018) on inventory improvement and customer satisfaction in 30 Italian manufacturing firms between 2006 and 2008 demonstrated that minimizing the complexities in the supply chain through better storage management practices improves customer satisfaction, customer loyalty and business success.

The survey conducted in India to 683 manufacturing companies, have revealed that performance of manufacturing has improved continuous customer relation management is not a norm and firms got served well if they improve and measure specifically customer service (Chandra, 2019). The author notes that stores management systems need to be improved and aligned with customer demands. Therefore, it is worth to argue that manufacturing firms like IIL will greatly improve customer satisfaction if its store management processes are continuously aligned with the distribution needs of customers.

2.1.3 The Effect of Inventory Distribution on Retailer Satisfaction

Physical distribution management is a logistics management process involving stocking and transportation activities (Newton, 2016) which continues to influence customer satisfaction. For example, Croom and Romano (2017) studied the outcome of inventory distribution of customer satisfaction. Using the case of agro-processing firms in Italy, the researchers used simple linear regression analysis covering 123 agro-processing firms. The regression output showed that distribution of output had a statistically significant effect on retailer satisfaction. Similarly, Willet and Stephenson (2019) studied the importance of product distribution in influencing customer satisfaction and revealed that retailers preferred manufacturers who delivered quality and on time.

In the same vein, using mixed methods research, Mentzer (2018) examined how different dimensions of product distribution management including quality, availability, access and timeliness would be incorporated into the general customer service management function to satisfy customer hopes and requirements. In another associated study of Fuller (2015), customer service and satisfaction are the physical distribution output that is the key drives of a competitive advantage of a firm. Thus, customers rate physical distribution service items as significant features that are provided by a firm. The importance of customer service and physical distribution also lays at causing influence to customer attitude, satisfaction and repurchase intent (Mintzer, 2016). Thus, the recommendation is made that more researches are required to look as the role of the expectations of customer pertaining the physical distribution service and the way it has effect on the assessment of satisfaction among customers (Fuller, 2015).

Similar findings by Varma (2016) provide a literature review on product physical distribution and ascertain the importance of the three measurements of distribution quality including correctness, condition and availability in manufacturing decision and client service. The author recommended that more investigations be conducted on assessing the relative significance of the recognized three measurements across different industries. A study of logistics service quality by Newton (2016) which used mixed methods research revealed that

customers valued different logistical aspects of service quality and called for more research on unearthing why client value was different across different customer parts in regard to product distribution. This reinforces the fact that inventory distribution is viewed differently by different customers based on individual-specific service needs.

Furthermore, majority of the researches on physical distribution and customer service focus on offline settings. Zhang (2015) broadened the research on inventory distribution by studying online settings and e-commerce distribution in the Asia-Pacific while evaluating the effect of factors like distribution on customer satisfaction and found out that customers preferred the convenience and speed with which online distribution management helped to improve service delivery. Similarly, Varma (2016) explored the effect of product distribution on customer satisfaction and found out that order fulfillment which is one of the components of distributions helped to greatly influence customer perceptions on the surveyed firms, thus indicating that product distribution has a positive influence on client satisfaction.

2.2 Research Gap

Most of the reviewed literature covered studies in both developed and developing countries' manufacturing sectors. For example, Kolias, *et al.* (2018) study focused on the Greek retail sector, Sahari, *et al.* (2017) study focused on Malaysian construction firms while Cannon's (2018) study concentrated on Italian manufacturing firms. Yet, there were no literatures existing on this research focusing on African manufacturing firms and Rwanda in particular. This research tries to explore how inventory management affects customer satisfaction based on the local context.

The guidelines for inventory management in the real world multifaceted, compartmentalized, often fragmented, lack documentation and are uncoordinated. Decisions made by different people in different departments of the organizations have great effect on the appropriateness of inventories (Mentzer, 2018). Therefore, it is cumbersome to attribute inventory shortage or higher than desired inventories on a single department or decision. This lack of proper accountability mechanisms within the organizational structures makes inventory management in large firms a challenging function. Similarly, it is often possible for managers to make decisions with best intentions for the firm, optimize their department goals while negatively affecting the performance of the firm as a whole which eventually result into a negative effect on customer satisfaction.

2.3 Conceptual Framework

The conceptual framework is well known as a diagram demonstrating the relation between variables of the study where the independent is inventory management activities whereas the dependent is retailer satisfactions as demonstrated in the Figure 1 where inventory management activities is dignified by order processing, inventory storage and inventory distribution and each of them has appropriate metrics as the figure 2.1 and the dependent variable known as retailer satisfaction is measured by order fulfillment, storage quality and product packaging.

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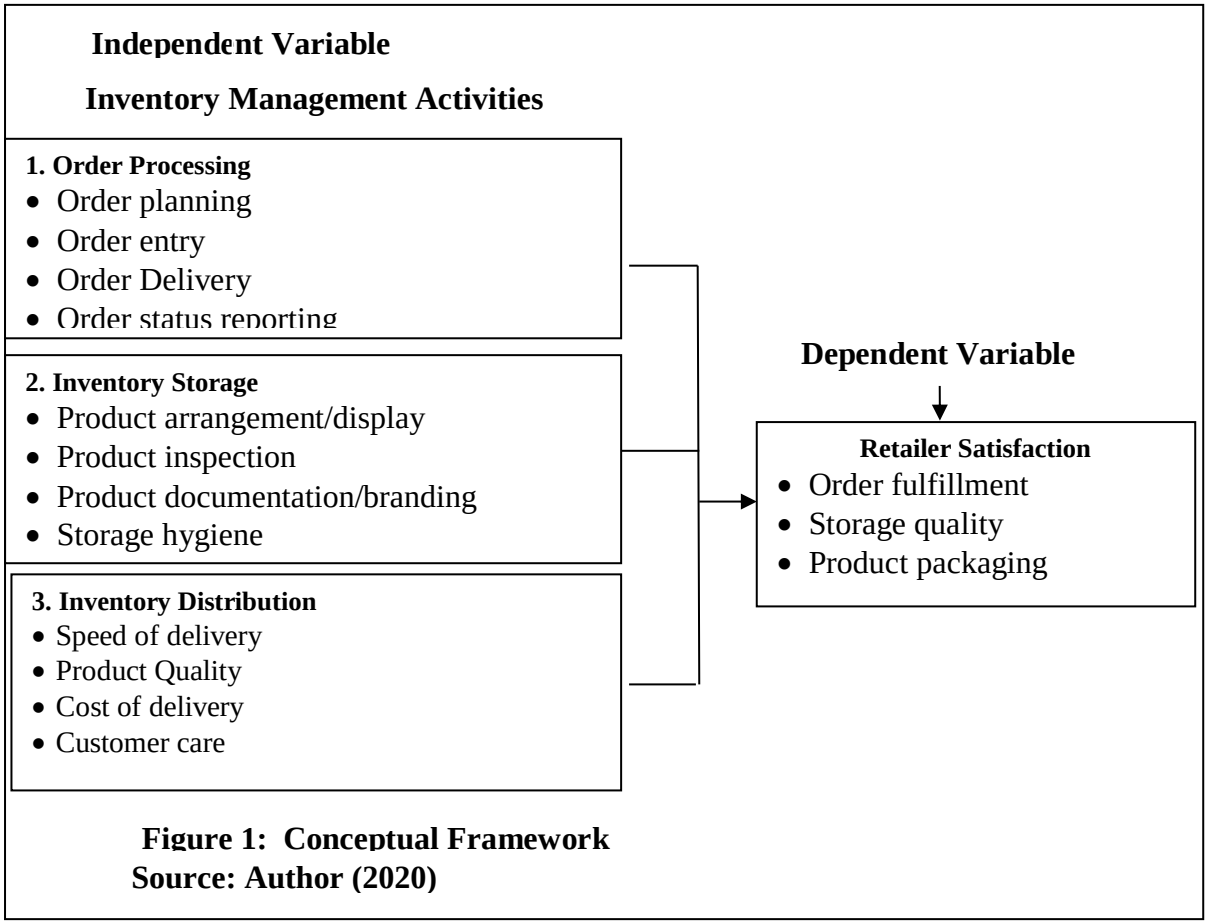

Figure 1: Conceptual Framework
Source: Author (2020)

3.1 Materials and Methods

This study used mixed survey approach that combined both a quantitative and qualitative approach. Quantitative approach included descriptive and correlation designs. Correlation design is preferred because it can help researchers measure the relationship between inventory management practices and retailer satisfaction. Additionally, the qualitative approach involved a case study design. Descriptive design was necessary to describe the status of inventory management activities in Inyange Industries Limited. The population target is 309 people composed of 78 employees of Inyange Industries Ltd and 231 retailers who operate in Kigali City. Therefore, the research calculated overall sample size of 174 respondents using Yamane formula (1967). However, in order to get sample from each population strata, the researcher also calculated the subsample size for each population category using Kothari's (2004) stratified sampling where 44 staff of Inyange Industries Ltd and 130 retailers of Inyange Industries Ltd from Remera sector (Gasabo District) were sampled for this study.

In this research, data were collected using different research instruments including questionnaire and interview guide. The data collected were first edited, coded and put in tables by use of SPSS version 26.0. Therefore, the analysis of data used both descriptive statistics (percentage distribution) and inferential statistics (multiple linear regression analysis). For descriptive statistics, the descriptive statistics explains the primary characteristics of research data in order to provide the summary of response and measurements items. Thus, in other words, descriptive statistics are chosen since they present

a large number of quantitative measures/descriptions in a logical manner. For example, the researcher used percentage tables to describe the nature of responses on each of the response items under the study variables (inventory order processing, inventory storage management, inventory distribution management and level of retailer satisfaction).

For the inferential statistics, to find out the association between inventory management activities and satisfaction of retailers, the inferential statistics will be used in the sense of linear regression with regression model: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$. Where: Y is retailers' satisfaction as dependent variable, $\beta_0$is constant, $\beta_1 \ldots \beta_3$ are regression coefficients for predictor variables under inventory management activities. X1, X2 and X3 are the predictors of independent variables known as inventory management activities, which are inventory order processing, inventory storage management and inventory distribution management and ε as Error term

4.1 Research Findings

4.1.1 The effectiveness of Order Processing Management

Table 1 shows how respondents rated their level agreement with order processing and management functions in IIL. The response items were constructed on a five-point lickert scale where: 1=Strongly Agree, 2= Agree, 3=Neutral, 4= Disagree, 5= Strongly Disagree.

Table 1: Response on Order Processing

Response Item	1	2	3	4	Mean	Std. Dev.
Order transmission and reception is effective	80%	16%	-	4%	3.78	1.876
Retailers' orders are prepared effectively	76%	11%	7%	6%	3.21	.417
Order entry is quick	91%	-	9%	-	3.07	.812
Order filling is done properly	66%	19%	5%	11%	3.16	.456
Order delivery is prompt	89%	4%	7%	-	3.40	.784
Order status reporting is effective	77%	9%	8%	6%	3.59	1.615

Source: Primary Data, 2021

As Table 1 item 4 shows, it is observed that 96% IIL's order reception and transmission process was effective while only 4% disagreed with the statement. This was attributed to the fact that orders are received from clients with full requirements information and immediately sent to the inventory manager for action which ensures speed of service delivery. However, it was also revealed that some retailers delayed to submit orders and this leads to unplanned stock outs in their businesses.

Regarding order preparation, item 5 shows that 87% of respondents agreed that retailer' orders were prepared effectively, 6% of respondents disagreed with the statement while 7% were undecided. This response was corroborated by interviews with IIL's inventory manager who revealed that products are picked from the warehouse according to specified instructions and transport documentation is prepared which enable clients keep business records. However, it was also reported that some retailers quote their requirements poorly which leads to mismatch between actual demanded products and what is selected. Item 6 covered order entry, where 91% agreed that order entry was quick while 9% remained neutral. Similarly, interviews with IIL management also revealed that order entry enabled service accuracy and

speed so that the customers get their order in as very quick time and marketed determine the working best promotions.

Item 7 focused on order filing. It is observed that 85% of respondents agreed that order filing was done properly while 11 percent disagreed with the statement, while 5% were undecided. The high level of satisfaction with this variable was corroborated by an interview with the IIL inventory manager who revealed that order filing enabled IIL to keep documents in a safe place and being able to find them easily and quickly. Knowing the identity and purchase patterns of retailers improved coordination. It was further observed in item 8 that 93% agreed that order delivery was prompt while 7% remained neutral to the statement. In an interview with the IIL inventory manager, it was also revealed that through this system, IIL was able to transfer of goods to the retailers in the required time, safe requirements and specified quantity. However, increased fuel prices have led to increased transport costs for the firm. Lastly, item 9 covered order status reporting as the last process of order processing management. According to the results, 86% agreed that the method was effective, 6% disagreed, and 8% were neutral. This is consistent with findings from the interview with the IIL inventory management where it was revealed that this report enables retailers to retrieve and document their past transactions with the company.

4.2 The Effectiveness of Inventory storage management

Table 2 shows how respondents rated their level of agreement with the effectiveness of inventory storage in IIL. The response items were constructed on a five-point lickert scale where: 1=Strongly Agree, 2= Agree, 3=Neutral, 4= Disagree, 5= Strongly Disagree.

Table 2: Response on Effectiveness of Inventory Storage

Response Item	1	2	3	4	Mean	Std. Dev.
Product display facilitates movement	93%	4%	-	3%	4.89	1.067
Products are properly inspected	86%	10%	-	4%	4.13	.755
We do product packaging and branding	80%	13%	4%	3%	4.09	.831
We observe storage hygiene	76%	14%	6%	4%	4.33	1.345
We control product shelf life	61%	22%	7%	10%	4.84	1.613

Item 10, Table 2 indicates that 97% of respondents agreed that product arrangement and display by IIL facilitates movement only 3% were dissatisfied with this function. This was corroborated by interviews where the IIL inventory manager revealed that proper product display helped customers to visually identify products of their choice thus creating better purchasing convenience. However, it was revealed that some customers were unable to differentiate different branded products and product arrangement increased storage costs. Furthermore, item 11 shows that 96% also agreed that products were properly inspected by IIL while 4% disagreed with the statement. Further information from the interview with the IIL inventory manager revealed that product inspection helped to ensure quality of products which adds value to retailers' experiences. However, it was revealed that inspection reduced labor productivity time of the firm.

Item 12 also found that 93 percent agreed that IIL conducted effective product packaging and branding, while 3 percent disagreed and 4 percent were undecided. The nature of this reaction was linked to the fact that packaging facilitates goods transportation and distribution, as well

as product differentiation, which is beneficial to retailers. Item 13 further shows that 90% of the respondents agreed that IIL observed storage hygiene practices, and 4% disagreed with the statement while 6% chose to remain neutral. Further information from the interview revealed that storage hygiene helps in maintaining product quality and safety for human consumption which is vital for retailers' credibility in the eyes of consumers. However, IIL incurred high costs of product refrigeration to maintain product quality. Item 14 focused on controlling the product shelf life. It is observed that 83% agreed that IIL had an effective system for controlling product shelf life, 10% disagreed while 7% remained neutral. Interview also corroborated this observation by revealing that managing the product shelf life was important to retailers because it protects the products from getting expired and harmful for consumption.

4.3 The Effectiveness of inventory distribution management

Table 3 shows how respondents rated their level of agreement with the effectiveness of inventory distribution function in IIL. The response items were constructed on a five-point likert scale where: 1=Strongly Agree, 2= Agree, 3=Neutral, 4= Disagree, 5= Strongly Disagree.

Table 3: Response on Effectiveness of Inventory Distribution

Response Item	1	2	3	4	Mean	Std. Dev.
There is speed of product delivery	83%	9%	4%	5%	3.45	.890
Product quality is observed	92%	2%	6%	-	4.07	1.643
Cost of delivery is low	61%	28%	6%	5%	3.91	.701
Customer care is provided	75%	19%	-	6%	3.82	.325
We give after-sales service	69%	23%	5%	3%	4.19	1.239

Source: Primary Data, 2021

As Table 3, item 15 shows, it is observed that 92% of the respondents agreed that there was speed in product delivery of IIL, 5% disagreed, while 5% remained neutral. The finding was corroborated by the inventory manager who revealed that IIL's speed of service delivery improves customer service convenience. Additionally, item 16 shows that 94% agreed that product quality in IIL was prioritized while 6% remained neutral. The inventory manager of IIL also confirmed that the high quality of IIL products improves customer value for money and loyalty which is responsible for their high level of satisfaction.

Item 17 also shows that 89% agreed that the cost of service delivery was low, 5% disagreed while 6% remained undecided. This result was confirmed by the inventory manager who revealed that cost of delivery were managed to reduce cost of goods purchased on behalf of customers. Similarly, item 18 revealed that 94% of the respondents agreed that a customer care service was effectively provided by IIL while 6% were disagreed with the statement. This was attributed to the fact that caring about customers improves customer purchase experience and improves business to business relationships. Lastly, item 19 shows that 92% of respondents agreed that IIL provided good after-sales-services, 3 percent disagreed, while 5% remained neutral. Further interview with the IIL inventory manager revealed that customers were satisfied because after-sales-service provided them with customer's post-purchase experiences.

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4.4 Retailer Satisfaction

Table 4 shows that retailers were requested to rate their level of satisfaction with various customer service and satisfaction variables on the services provided by IIL. The response items were constructed on a five-point lickert scale where: 1= Extremely Satisfied, 2= Satisfied, 3=Neutral, 4= Dissatisfied, 5= Extremely Dissatisfied.

Table 4.4: Retailers Level of Satisfaction with IIL

Response Item	1	2	3	4	Mean	Std. Dev.
Quality of product ingredients	33%	54%	8%	5%	4.08	1.890
Taste of final products	63%	26%	7%	4%	3.91	.812
Product packaging	22%	64%	6%	8%	3.47	.634
Order fulfillment	64%	19%	8%	9%	4.12	1.760
Quality of product storage	48%	41%	4%	7%	3.86	.845
Product distribution	27%	65%	6%	2%	3.99	.981

Source: Primary Data, 2021

As item 20, in Table 4 shows, it is observed that 87% of retailers were satisfied with quality of product ingredients used by IIL. Only 5% were dissatisfied while 8% were neutral. This suggests that IIL selects the best quality ingredients that are used as contents to produce and distribute the products to the company retailers. Furthermore, item 21 shows that 89% of retailers were also satisfied with the taste of final products produced by IIL. Only 4% were dissatisfied while 7% were neutral. This suggests that IIL has optimized the perceived sensory attributes of their products, thus helping to increase its perceived value among consumers and generating high rates of customer satisfaction. In item 22, it is revealed that 86% agreed that they were satisfied with IIL's product packaging, 8% were dissatisfied while 6% were neutral. Based on this response, it is worth to note that IIL uses packaging as a marketing communication tool to influence the purchase behavior of the consumers.

This research recognizes that packaging plays a very significant role in engaging the customer's attention thus influencing their choice of purchase. Similarly, item 23 shows that 83% were satisfied with IIL's order fulfillment. On the other hand, 9% expressed dissatisfaction while 8% remained neutral to the statement. The nature of this response suggests that IIL has a well-designed network and processes that enable the firm to satisfy customer requests while minimizing the total delivery costs. Regarding product storage, it is observed in item 24 that 89% of retailers were also satisfied with the quality of product storage by IIL. However, 7% were dissatisfied with the storage while 4% remained neutral. The research finds that IIL recognizes storage as critical function in the inventory management function since it helps to ensure good delivery times and reduce warehouse losses, making it possible for the company to offer better services, satisfy customer needs, occupy a position ahead of competitors and, ultimately, to increase profit.

In terms of the quality of distribution, item 25 shows that 92% expressed satisfaction with the effectiveness of IIL's product distribution system. On the other hand, 2% expressed dissatisfaction with distribution while 6% remained neutral. The nature of this response suggests that IIL prioritizes the minimization of lead time to ensure quick delivery of goods to customers/retailers.

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4.5 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 the effect of inventory management activities on retailers' satisfaction in IIL between 2016 and 2021. The multiple linear regression model helps to demonstrate how much of the changes in the satisfaction rate of IIL's retailer between 2016 and 2021 is attributed to inventory order processing (X_1), inventory storage management (X_2) and inventory distribution management (X_3) which are the predictor variables for this research.

4.5.1 Pearson Correlation

The researcher also conducted a Pearson correlation test to determine the relationship between inventory order processing (IOP), inventory storage management (ISM) and inventory distribution management (IDM) on one hand and retailer satisfaction (RS) on the other. Table 5 shows the results.

Table 5: Pearson Correlations for IOP, ISM, IDM and RS

		IOP	ISM	IDM	RS
IOP	Pearson Correlation	1			
	Sig. (2-tailed)	.			
	N	121			
ISM	Pearson Correlation	.029*	1		
	Sig. (2-tailed)	.000	.		
	N	121	121		
IDM	Pearson Correlation	.032*	.047*	1	
	Sig. (2-tailed)	.000	.000	.	
	N	121	121	121	
RS	Pearson Correlation	.497*	.582*	.504*	1
	Sig. (2-tailed)	.000	.000	.000	.
	N	121	121	121	121

*. Correlation is significant at the 0.05 level (2-tailed).

From the correlation coefficients in Table 5, it can be observed that inventory order processing (IOP) is positively correlated with retailer satisfaction (RS) with a correlation coefficient of r=.497; p<.05. Similarly, inventory storage management (ISM) is positively correlated with retailer satisfaction with a correlation coefficient of r=.582; p<.05. Further observation also shows that inventory distribution management (IDM) is positively correlated with retailer satisfaction with a correlation coefficient of r=.504; p<.05. The above data shows that as IOP, ISM and IDM functions in IIL change, the level of retailer satisfaction also changes. However, this association does not indicate a causal relationship between the variables.

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4.5.2 Regression Model Summary

This model explains the bond between the variables and the contribution of the independent variable to the dependent variable as indicated in table 6.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	SE of the Estimate
1	.590[a]	.341	.331	.425

a. Predictors: (Constant), Inventory management activities
b. Dependent Variable: Retailers' satisfaction

From the model summary in Table 6, it is demonstrated that inventory management activities have a significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021. This is statistically explained by the Adjusted R Square (.331) which indicates that holding other factors constant, a 33.1% change in IIL retailers' satisfaction between 2016 and 2021 can be explained by the effectiveness of inventory management activities.

4.5.3 Analysis of Variance

The analysis of variance (ANOVA) in Table 7 shows whether the regression model predicts the outcomes very well.

Table 7: Analysis of Variance (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18267.764	3	6089.255	12.118	.000[b]
	Residual	58793.825	117	502.511		
	Total	77061.589	120			

a. Dependent Variable: Retailers' satisfaction
b. Predictors: (Constant), Inventory management activities

The ANOVA is used to describe the total variation in the dependent variable that is described by the model. Therefore, from the ANOVA Table 7, it is observed that the regression ($F=12.118$ with $p=.000<.05$) shows that the regression model explains about 63.8% of the variability in the data set at 5 percent significance level. This means that the regression model used for this study fits the data and significantly predicts the outcome appropriately.

4.5.4 Regression Coefficients

The regression coefficients results indicated in Table 8 are used to determine the significance of the effect of inventory order processing (X_1), inventory storage management (X_2) and inventory distribution management (X_3) on retailers' satisfaction in IIL between 2016 and 2021.

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Table 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	SE	Beta		
1	(Constant)	.606	.501		1.210	.230
	Inventory order processing (X_1)	.241(β_1)	.282	.231	.232	.002
	Inventory storage management (X_2)	.311(β_2)	.113	.284	3.151	.001
	Inventory distribution management (X_3)	.402(β_3)	.112	.415	3.929	.000

a. Dependent Variable: Retailers' satisfaction

As shown by the multiple linear regression coefficients in Table 8, it can be concluded that test of significance results contradict the three hull hypotheses because all the independent variables: inventory order processing (X_1), inventory storage management (X_2) and inventory distribution management (X_3) had a significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021

4.5.5 Hypothesis Testing

For Hypothesis 1

The first null hypothesis ($H_0$1) states that inventory order processing (X_1) has no statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021. However, hypothesis test based on the multiple linear regression produced a coefficient of β_1=.241, with p=0.002<.05 at a 5 percent level of significance as in Table 4.10 which shows that inventory order processing (X_1) had a statistically significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021. Therefore, the researcher rejects the stated first null hypothesis ($H_0$1) as false by adopting the alternative hypothesis (H_a1) that: *H_a1: Inventory order processing has a statistically significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021.*

For Hypothesis 2

The second null hypothesis ($H_0$2) stated that inventory storage management (X_2) has no statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021. However, the regression coefficient (β_2=.311, with p=.001<.05 at a 5% level of significance) in Table 4.10 shows that inventory storage management (X_2) had a positive and statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021. Thus, the researcher rejects the second null hypothesis and adopts the second alternative hypothesis (H_a2) by stating that: *H_a2: Inventory storage management (X_2) had a positive and statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021.*

For Hypothesis 3

The third null hypothesis ($H_0$3) stated that inventory distribution management has no statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021. However, the regression coefficient (β_3=.402; with p=0.000<0.05 at a 5 percent significance level) shows that inventory distribution management (X_3) had a positive and statistically significant effect on retailers' satisfaction in IIL 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: *H_a3: Inventory distribution management has a statically significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021.*

4.6 Discussion

Inventory management has been commended by this study for improving customer satisfaction through better order processing, better storage and distribution functions. However, the findings are varied. Some empirical literature (Ondiek, 2019; Monday, 2018) suggest that IM has not worked in isolation of other factors. While Zsidisin and Ellram (2011) suggested that IM functions are costly to most manufacturing firms as they involve high inventory holding and handling costs. This section provides a discussion of the main findings from the research and links them with findings from the selected empirical literature.

The first objective focused on assessing the effect of inventory order processing on customer satisfaction in IIL. Findings show that customers were satisfied with IIL's order reception and transmission process because it improved service delivery and distribution of their product requests. This observation is consistent with Lee and Kleiner (2011) who revealed that the speed with which customer orders are received and acted upon will determine the level of their satisfaction and loyalty to their suppliers. It was also observed that retailers were satisfied with IIL's order preparation which enables product arrangement ready for distribution. The findings by Ondiek (2019) are corroborate this results by demonstrating that order preparation enables warehouse managers to prepare goods for dispatch to the customers' premises which also improves record keeping and monitoring. High satisfaction for order delivery was also reported among IIL retailers. This observation is corroborated by Monday (2018) whose study demonstrated that order delivery is one of the most important functions in order processing that creates trust between the suppliers and customers thus promoting customer loyalty and retention.

The second objective concentrated on examining the effect of inventory storage on customer satisfaction in IIL. It is observed that retailers were satisfied with product arrangements and displays by IIL which enables retailers to visually identify products of their choice thus creating better purchasing convenience. This finding is corroborated by Rotch (2005) who revealed that proper product displays were responsible for 89% of customer attractions among the surveyed firms. However, disputed this finding arguing that product displays increases inventory management costs. Furthermore, it was revealed that retailers expressed high satisfaction with product packaging and branding by IIL. This observation is corroborated by Zhang (2015) who argued that product branding and packaging improved differentiation which helped customers to easily select their preferred products for purchase, thus improving their choices. In regard to storage hygiene practices, findings show that there was high satisfaction among IIL retailers concerning this function. This is corroborated by Tracy and Lim (2015) who found out that proper product storage and hygiene improved that safety and quality of products thus making them more demanded by customers.

The third objective drew attention towards determining the effect of inventory distribution on customer satisfaction in IIL. It was observed that retailers were satisfied with speed of service delivery by IIL which reduces wastage and stock out problems in their retail operations. This corroborates the findings by Ondiek (2019) who demonstrated that most retail businesses prefer suppliers who are reliable and quick in responding to supply demands. Furthermore, there was high retailer satisfaction with the cost of service delivery by IIL because of its convenience. This is consistent with Atkinson (2015) who revealed that lower costs of service delivery by suppliers helps their retailing customers to minimize the cost of goods purchased and sold. However, Duncan and Ellioth (2016) revealed that costs of service delivery are unavoidable as they usually increase with increasing quality demands by consumers. Lastly, it was also observed that retailers were satisfied with customer care services of IIL which

improved their loyalty to the firm. This finding is also consistent with a study conducted by Croom and Romano (2017) who revealed that customers who are treated well will be more satisfied, make repeat purchases and become loyal to the organization.

5.1 Conclusion

In conclusion, the study focused on the effect of inventory management on retailers' satisfaction in manufacturing companies in Rwanda using the case study of IIL in Masaka Sector, Kicukiro district. Focus was on the period between 2016 and 2021. The results were generated from the data collected from 37 IIL staffs and 84 retailers of IIL products who were randomly selected from Kigali City. The objectives of the study were to find out the effect of IOP management on retailer satisfaction, effect of inventory storage management on retailer satisfaction, and effect of inventory distribution management on retailers satisfaction in IIL. It is observed from the descriptive analysis that with the exception of few retailers who lived far from distribution points which increases transport costs and delivery time, majority of the retailers were satisfied with IIL's products and inventory management systems.

Based on the inferential statistics, it is reasonable to conclude that all predictor variables under inventory management: IOP (X1), ISM (X2) and IDM (X2) have a positive and statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021. The regression coefficient of $\beta 1=.241$, with $p=0.002<0.05$ at a 5 percent level of significance shows that IOP had a statistically significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021. In other words, 24.1% of the variability in retailer satisfaction can be attributed to IOP while holding other factors constant. Similarly, the regression coefficient of $\beta 2=.311$, with $p=0.001<0.05$ at a 5 percent level of significance shows that ISM had a statistically significant and positive effect on retailers' satisfaction in IIL between 2016 and 2021. This indicates that ISM contributes up to 31.1% of the variability in retailer satisfaction while holding other factors constant.

Furthermore, the regression coefficient of $\beta 3=.402$; with $p=0.000<0.05$ at a 5 percent level of significance shows that IDM had a positive and statistically significant effect on retailers' satisfaction in IIL between 2016 and 2021. This signifies that holding other factors constant, 40.2% of the change in customer satisfaction during the period under study was explained by inventory distribution management. It is observed that IIL is committed towards continuous and satiable improvement in retailers' purchasing experiences through further improvement in order processing, storage management and distribution management. However, it is important for retailers who lived far from distribution points to always make orders in advance to ensure that supplies can reach their premises before they run out of stock.

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REFERENCES

Atkinson, C. (2015). Today's inventory management. *Inventory Management Review, 11*(3), 67-75.

Chandra, P. (2019). *Competitiveness of Indian manufacturing: findings of the third National Manufacturing survey*. Report Submitted to the National Manufacturing Competitiveness Council, March 2019. .

Croom, S., & Romano, P. (2017). Supply chain management: An analytical framework for critical literature review. *European Journal of Purchasing and Supply Management*, 6 (1), 67-83. https://doi.org/10.1016/S0969-7012(99)00030-1

Duncan, E, & Elliott, G. (2013). Customer Service Quality and Financial Performance among Australian retail, Financial Institutions. *Journal of Financial Service Marketing, 7*(5), 21-46.

Duncan, E., & Ellioth, G. (2016). Efficiency, Customer Service and financial performance among Australian Farmers Institutions. *The International Journal of Bank Marketing, 22*(5), 319-342. *https://doi.org/10.1108/02652320410549647*

Eroglu, C., & Hofer, C. (2015). Lean, Leaner, Too Lean? The Inventory-Performance Link Revisited. *Journal of Operations Management, 29*(7), 356-359. https://doi.org/10.1016/j.jom.2010.05.002

Fuller, J.B. (2015). Tailored logistics: the next advantage. *Harvard Business Review, 71*(3), 87-98.

Inyange Industries Limited (2021) About Inyange Industries, Products [Online]. Available at: https://www.inyangeindustries.com/about (Accessed September 6, 2021).

Kolias, G.D., Dimelis, S.P. & Filios, V.P. (2018). An Empirical Analysis of Inventory Turnover Behavior in the Greek Retail Sector. *International Journal of Production Economics, 133*(1), 143–153. https://doi.org/10.1016/j.ijpe.2010.04.026

Kothari, C.R. (2004), *Research Methodology: Methods and Techniques, (Second Edition*). New Age International Publishers.

Kwadwo, B.P. (2016). The Impact of Efficient Inventory Management on Profitability: Evidence from Several Manufacturing Firms in Ghana Industrial. *Journal of Finance and Accounting, 5*(1)22-26.

Lee, A., Rodionova, O.L., & Shashnikova N.K. (2018). *Production and Production Management*. Study guide Tomsk Polytechnic University Publishing House.

Lee, H., & Kleiner, B. (2011). Inventory management in women's retail clothing industry. *Management Research News, 24*(3/4), 40-45. https://doi.org/10.1108/01409170110782595

Mentzer, J.T. (2016). Logistics service quality as a segment-customized process. *Journal of Marketing, 65* (3), 82-104. https://doi.org/10.1509/jmkg.65.4.82.18390

Mentzer, J.T. (2018). Physical distribution service: a fundamental marketing concept? *Journal of the Academy of Marketing Science, 17*(1), 53-62. https://doi.org/10.1007/BF02726354

Ministry of Trade and Industry (2011). *Rwanda National Industrial Policy* [Online]. http://www.minicom.gov.rw/fileadmin/minicom_publications/policies/Industrial_Policy-2.pdf (Accessed: September 25, 2021).

Newton, C.J. (2016). Home delivery can make or break a B2C. *Supply Chain Management Review, 5*(1), 21-24.

Rwanda Manufacturers' Association (2012). Draft Strategic Plan 2013-2015 [online]. http://www.ram.org.rw/wp-content/uploads/2015/04/ram_strategic_lan_2013-2015_-_v_july2013.pdf (Accessed September 25, 2021).

Sahari, S., Tinggi, M. & Kadri, N. (2017). Inventory Management in Malaysian Construction Firms: Impact on Performance. *International Journal of Management, 2*(1), 61-73.

Varma, S. (2016). Implementing supply chain management in a firm: Issue and remedies. *Asia Pacific Journal of Marketing, 18*(3), 56-68. https://doi.org/10.1108/13555850610675670

Zhang, Q. (2015). Logistics Flexibility and its impact on Customer satisfaction. *International Journal of Logistics Management, 3*(16), 71-95. https://doi.org/10.1108/09574090510617367