Journal of Procurement & Supply Chain

Supply Chain Management and Cost Efficiency of the Food Manufacturing Industries in Gasabo District Rwanda

Kagina David & Dr. Richard KABANDA

ISSN: 2617-3581

Stratford Peer Reviewed Journals and Book Publishing
Journal of Procurement & Supply Chain
Volume 8||Issue 1||Page 1-12 ||January||2024|
Email: info@stratfordjournals.org ISSN: 2617-3581

Supply Chain Management and Cost Efficiency of the Food Manufacturing Industries in Gasabo District Rwanda

Kagina David[1] & Dr. Richard KABANDA[2]
[1] Master of Science in Procurement and Supply Chain Management, University of Kigali, Rwanda
[2] Senior Lecturer, University of Kigali, Rwanda

***How to cite this article*: Kagina D. & KABANDA R. (2024). Supply Chain Management and Cost Efficiency of the Food Manufacturing Industries in Gasabo District Rwanda. *Journal of Procurement & Supply Chain. Vol* 8(1) pp. 1-12** https://doi.org/10.53819/81018102t2304

Abstract

This research is aiming generally to examine the effects of supply-chain management on cost efficiency with emphasis on African Improved Food during the period from 2017 up to 2022. The management is being tasked with achieving greater financial returns despite a smaller headcount. This challenge is further compounded by the fact that many institutions are not entirely clear on how to attack them spend cube to achieve greater spend under management or compliance goals, particularly in supply-chain efficiency. The need for market data and intelligence has never been more important. The main challenge in supply chain management is the procurement fraud that can be distinct as dishonestly obtaining an advantage, avoiding an obligation or causing a loss to institutional property or various means during supply chain efficiency of procurement servants, contractors or any other person involved in the procurement. Poor risk management and less communication are the problems that hinder the effective procurement guidelines into organization. Indeed, lack of proper internal audit related to the procurement function and effective workforce engagement in institutions continue to be big challenges that has made organizations fail to achieve their intended objectives of being going concerns making surplus, delivering services to the institutions as well as satisfying the needs of all stakeholders. The study took theoretical references including strategic supplier agent theory; logistics management agent theory; information technology theory of change and the cost efficiency theory. The sample size is 210 respondents. Therefore, the questionnaire research technique was used during data collection, and SPSS was used during data analysis. During the collection of answered questionnaire sheets, findings showed a participation rate of 93% of responding to research questions means 196 respondents. The model summary indicates that R squared (R^2) equals to 0.806 means that up to 80.6% of long-run appreciation in cost efficiency is influenced by changes in strategic supplier integration; logistics management and information technology as implemented by AIF. The other remaining 19.4% can be explained by other factors not examined in this study. Basing on result the model for instance, a one-unit increase in Strategic supplier integration corresponds to a 0.258-unit increase of cost efficiency in Africa Improved Foods (AIF) (β=0.258 t=3.556 p value = 0.000). Similarly, a one-unit increase in logistics management corresponds to a 0.437 unit increase of cost efficiency in Africa Improved Foods (AIF) (β=0.437 t=7.678 p value = 0.000). And a one-unit increase in information technology corresponds to a 0.252 unit increase of cost efficiency in Africa Improved Foods (AIF) (β=0.252 t=3.496 p value = 0.001). Therefore, the p-values are less than 0.05 and there is significant determinant of cost efficiency in AIF means the study findings conclude that good cost efficiency in AIF scored is directly related to effective

independent variables. African Improved Foods is recommended to improve the way they sharing information about production and demand forecasts with suppliers in order to enhance quick production and reducing production costs.

1. Introduction

The supply chain management is being tasked with achieving greater financial returns despite a smaller headcount. This challenge is further supported by the fact that many institutions are not entirely clear on how to attack them spend cube to achieve greater spend under management or compliance goals, particularly in supply chain efficiency. The need for market data and intelligence has never been crucial. The main challenge in supply chain management is the procurement fraud that can be distinct as dishonestly obtaining an advantage, avoiding an obligation or causing a loss to institutional property or various means during supply chain efficiency of procurement servants, contractors or any other person involved in the procurement. Poor risk management and less communication are the problems that hinder the effective procurement guidelines into organization. Indeed, lack of proper internal audit related to the procurement function and effective workforce engagement in institutions continue to be big challenges that has made organizations fail to achieve their intended objectives of being going concerns making surplus, delivering services to the institutions as well as satisfying the needs of all stakeholders (Friedrich, 2020).

The inadequate legal provision to regulate effective contract management practices for procuring entities; several weaknesses in the management of procurement contracts for works were identified. From the looks of things, figuring out how to effectively manage contracts in order to improve public and private sector procurement is still a challenge that needs to be investigated so that policymakers and other interested parties can be given guidance.

The manufacturing sector's contributions to Gross Domestic Product (GDP) are about 10 percent (Economic Survey Report, 2021). Production increased by 3.4% in 2022, which is much lower than the 5.6% expansion seen in that year (Economic Survey Report, 2019). Studies by Monk (2006), Vorster (2019), Henry *et.al* (2020), Ambrose *et.al* (2019) and Macharia (2015) have observed varied effects resulting from implementation of various integrated manufacturing systems on supply chain supply management on cost efficiency in the manufacturing sector. It has been asserted that closer relationship among the supply chain members enables them to achieve cost reductions and profitability as well as flexibility in dealing uncertainties in supply chain and enables the cooperation among the members in the supply chain which leads to the improvement of performance in an industry through revenue improvement, cost reductions, operational flexibility and to cope with high demand uncertainties (Simatupang & Sridharam, 2005).

But manufacturing industry in Rwanda has been experiencing a lot of turbulence in the recent past including a drop in the GDP, an increasing imbalance of trade and the exiting of large multinationals (Magutu, Aduda & Nyaoga, 2015). In addition, industrial firms in Rwanda have seen diminishing returns on their investment in production and operations management (KAM Directory, 2019). For instance, in order to gain an edge over Kenyan Steel products, foreign competitors have made it a point to compete on a variety of fronts, including price, quality, innovation, and customer satisfaction. These foreign competitors hail from countries as diverse as China, Korea, Japan, the United States of America, and Russia but they are facing the challenges of high cost of raw materials, poor transport network, high taxation, price volatility and high cost of energy that hinder them to compete favorably (KAM, 2012. Even while many Rwandan manufacturers are investing heavily in cutting-edge production technologies, the

country's industrial sector as a whole is still struggling to reap the efficiency benefits of these investments (Ondiek & Odera, 2012).

This research aims to fill that void by investigating the impact of supply chain management on manufacturing cost effectiveness in Rwanda.

1.2 Objectives of the Study

The general objective of this study is to examine the effect of supply chain management on cost efficiency with emphasis on African Improved Food.

This study was guided by three specific objectives as follows:

1. To identify the effect of strategic supplier integration on cost efficiency in African Improved Food.
2. To determine the effect of logistics management on cost efficiency in African Improved Food.
3. To analyze the effect of information technology on cost efficiency in African Improved Foods.

1.3 Research hypotheses

$H0_1$: Strategic supplier integration has no significant effect on cost efficiency in African Improved Food.

Ha_1: Strategic supplier integration has significant effect on cost efficiency in African Improved Food.

$H0_2$: Logistics management has no significant effect on cost efficiency in African Improved Food.

Ha_2: Logistics management has significant effect on cost efficiency in African Improved Food.

$H0_3$: Information technology has no significant effect on cost efficiency in African Improved Food.

Ha_3: Information technology has significant effect on cost efficiency in African Improved Food.

2. Literature review

In this chapter, previous research on the supply chain management on cost efficiency and its determinants has been discussed.

2.1. Theoretical Review

2.1.1. Agency theory

According to agency theory (Jensen & Meckling, 1976; Ross, 1973; Eisenhardt, 1989), a principle and an agent form a relationship in which the principal entrusts the agent with certain responsibilities. Acts performed by an agent on behalf of a principle are similar to those of the principal's representative or employee (Mitnick, 1973). Eisenhardt (1989) highlights that despite the persistence of profit maximization and self-interest, agency theory primarily revolves around identifying the most efficient contract that regulates the principal-agent relationship. The notion of the contract is used here as a metaphor to describe the agency relationships (Jensen and Meckling, 1976) and it is designed based on the outcome (e.g., commissions) or behavior (e.g., salaries) of the agent (Eisenhardt, 1989). The principle's goal in an agency relationship is to reduce the costs associated with defining, rewarding, monitoring, and regulating the agent's behavior; the agent, meanwhile, strives to maximize benefits while decreasing principal control (Fleisher, 1991).

The success of any principal-agent relationship depends on the effective management of agency problems like information acquisition (or communication), preference mismatch (or conflict of interest), effort (or moral hazard), and capability (or adverse selection), all of which

are typically associated with the agent (Fleisher, 1991). Agency theory is relevant because it explains how cooperation of two parties: principals and agents collaborate to minimize the costs and maximize the profit and focuses on the survival of an organization in the event of rapid changes. The agency theory summed the need for procurement as a business strategy for company performance (Keith and Handley, 2017).

2.1.2. Logistics management agent theory

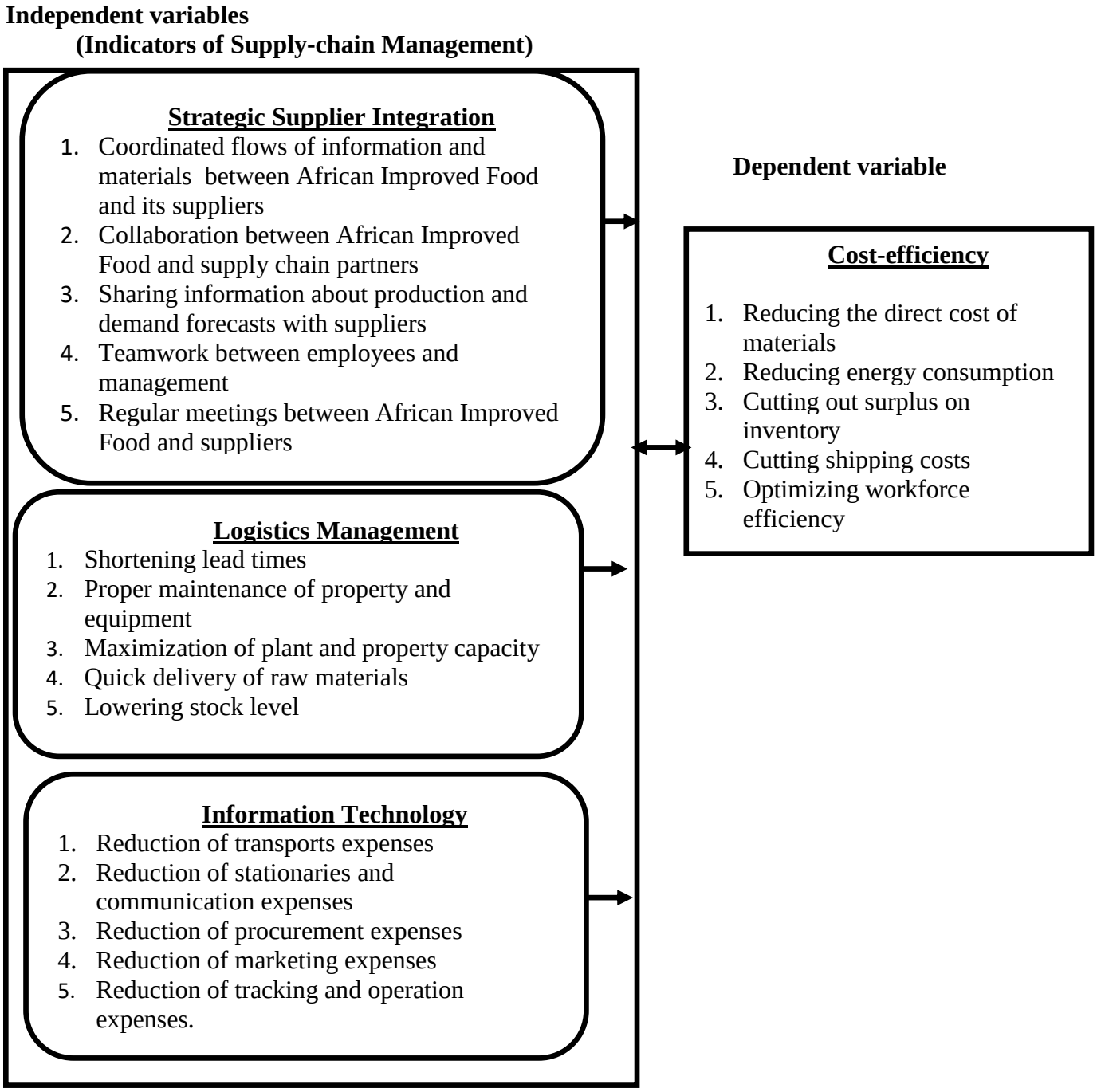
One among theories related to logistics styles is the logistics management agent theory that is a specific type of methodology for organizational controlling, participation and evaluation of goods and services in the companies. Organizational control is backtracked using a control map based on the long-term objectives defined by logistics management agent theory. By detailing the initiative's short-term, intermediate, and long-term outcomes, logistics management agent theory provides an explanation for the transformational process. The "outcomes pathway" is a diagram of the detected alterations, which displays the leadership and dependency relationships between the various outcomes and their chronological progression. Justifications for why one result is regarded to be necessary for another are called "rationales" and are used to clarify the relationships between outcomes (Miles & Miles, 2019).

One of logistics management agent theory's novelties is its insistence that stakeholders model their intended outcomes before deciding on kinds of intervention to accomplish those results. A common error in describing logistics management agent theory is the belief that it is simply a methodology for store and delivering. Logistics management agent theory is instead a form of critical theory that ensures a transparent distribution of power dynamics. Further, the process is necessarily inclusive of many perspectives and participants in achieving solutions. Logistics management agent theory can begin at any stage of an initiative, depending on the intended use. A theory developed at the outset is best at informing the stocking of products. Once a change model has been developed, practitioners have a better basis for making strategic and tactical choices. The logistics management agent theory can be developed by reading leadership documents, talking to stakeholders, and analyzing data in general (Draulans & Volberda, 2018).

As the origins of logistics management agent theory lie in the field of management in organizations, developments over the years have ensured that logistics management agent theory continues to be an invaluable method to conduct evaluations of many different types of leadership management (Wieselquist *et al*., 2019).

2.2. Conceptual framework

The conceptual framework is written or visual representation of an expected relationship between variables. The conceptual framework is generally developed based on a literature review of existing theories and studies about the topic; therefore, it presents the main variables and their indicators as follows:



3. Research methodology

This chapter encompasses the research design, target population, sample size and sampling procedure, data collection instruments and procedure, validity and reliability as well as the data analysis methods.

3.1 Research design

This study applied the descriptive and cross sectional research design. Research design refers to a specific procedure involved in the research process: data collection, data analysis, and report writing" (Creswell, 2014).

The primary objective of this research is to systematically collect data on the elements that influence the cost effectiveness of supply chain management in Rwanda. The study utilized

qualitative research approaches. Descriptive analysis analyzed to access the perceptions of the respondent.

3.2 Study population

Jill and Roger, (2013) define population as a body of people or any collection of items under consideration from which samples are taken for measurement. Target population for this research was 290 employees and suppliers of African Improved Foods. It is from this population that a sample for the purpose of this study was drawn.

3.3 Sample size and sampling method

The technique of simple random sampling was applied to draw the sample from the population.

$$n = \frac{x^2 N P (1-P)}{e^2 (N-1) + X^2 P (1-P)}$$

$N = 290$
$X^2 = 3.841$
$P = 0.5$
$e = 0.05$

$n = 210$
Where:
n= Sample size
N= Population size
E= Acceptable sampling error
X^2= Chi-square of degree of freedom 1 and confidence 95%= 3.841
P= Proportion of population (0.5)

3.4. Data Collection Instruments

Several methods were relied upon for data gathering. Questionnaires in this study, the researcher developed closed-ended questions. This study applied the questionnaire method because its administration is comparatively inexpensive and easy even when gathering data from many people spread over a wide area; it reduces the chance of evaluator bias because the same questions are asked of all respondents. Moreover, many people are familiar with surveys and feel more comfortable responding to a survey than participating in an interview.

3.5 Descriptive Analysis

The study sought to establish the strongest effects of strategic supplier integration, logistic management and information technology on cost efficiency. This was done by comparing the means of the variables describing the indicators of independent variables. To achieve this, the respondents were asked to rate their opinions on the statement on independent variables according to their level of knowledge on a scale of 1 to 5. Whereby 1=Strongly disagree, 2=Disagree, 3=Neutral (either agree nor disagree), 4=Agree, 5=Strongly agree. The frequencies; mean and standard deviations was also applied for the study objectives. Statistical Package for Social Sciences (SPSS) that generated frequencies, percentages, means and standard deviation was further used. An item analysis was done to illustrate the strengths and weaknesses based on the indicators in terms of scales and standard deviation.

Inferential statistics

The study therefore established the statistical relationship between these variables through inferential statistics. The main measures that were used included the R squared (R^2) and the P-value and Beta Coefficients. Beyond only presenting the results of a study, inferential analysis

reveals the statistical link between the variables and illustrates how the independent variable influence or affects the dependent variables (young, 2020). This was done by using ANOVA test and correlation analyses in order to make effective measurement of variables; it is required to present the regression analysis model that researcher used by calculating; analyzing and interpreting the relationship among variables through the collected data.

Multiple Regression

To forecast the value of one variable based on the values of two or more other variables, statisticians employ multiple regression, which is an extension of ordinary linear regression. The "dependent variable" denotes the target of the prediction or the desired outcome, while "independent variables," also referred to as explanatory variables, regressor variables, or predictor variables, are the variables used for making predictions about the dependent variable. Researchers often use multiple regression to evaluate both the overall model fit, which measures the explained variance, and the individual contributions of each predictor (Bobko, 2011).

Model specification

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Y = Dependent variable That Is Cost efficiency (CE)
X = Independent Variables and X_1 is Strategic Supplier Integration (SSI); X_2 is Logistics Management (LM); X_3 is Information Technology (IT);
β_1; β_2 *and* β_3 are coefficients; β_0 is Constant; ε_t is error term

Therefore, the regression equation is $CE = \beta_0 + \beta_1 SSI + \beta_2 LM + \beta_3 IT + \varepsilon$

4. Research findings

This chapter presented the findings of a study of supply chain management and cost-efficiency of the Food Manufacturing Industries in Rwanda at African Improve Food, Kigali. It represents the empirical findings and results of the application of the variables using techniques mentioned in chapter three. Specifically, the data analysis was in line with specific objectives where patterns were investigated, interpreted and implications drawn by referring to study data from African Improved Foods.

4.1 Correlation analysis

Correlation is only appropriate for examining the relationship between meaningful quantifiable data rather than categorical data.

Stratford Peer Reviewed Journals and Book Publishing
Journal of Procurement & Supply Chain
Volume 8||Issue 1||Page 1-12 ||January||2024|
Email: info@stratfordjournals.org ISSN: 2617-3581

Table 1: Correlations

		Strategic Supplier Integration	Logistics Management	Information Technology	Cost efficiency
Strategic Supplier Integration	Pearson Correlation	1	.807**	.891**	.842**
	Sig. (2-tailed)		.000	.000	.000
	N	196	196	196	196
Logistics Management	Pearson Correlation	.807**	1	.797**	.851**
	Sig. (2-tailed)	.000		.000	.000
	N	196	196	196	196
Information Technology	Pearson Correlation	.891**	.797**	1	.837**
	Sig. (2-tailed)	.000	.000		.000
	N	196	196	196	196
Cost efficiency	Pearson Correlation	.842**	.851**	.837**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	196	196	196	196

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS, June 2023

The table 1, provides a correlation matrix that examines the relationships between Strategic Supplier Integration, Logistics Management, Information Technology and cost-efficiency in African Improved Food. These correlations are represented by Pearson correlation coefficients, along with their significance levels (Sig.) and sample sizes (N).

In summary, the findings in this table underscore the significant positive relationships between supply chain management and cost-efficiency, including Strategic Supplier Integration ($r=0.842$, $p=0.000<0.05$), Logistics Management ($r=0.851$, $p=0.000<0.05$) and Information Technology ($r=0.837$, $p=0.000<0.05$), These correlations are consistent with prior research that has highlighted the importance of these factors in enhancing cost-efficiency in African Improved Food.

The findings align with the conclusions of Bimha, Hoque, and Munapo (2020), who emphasized that the implementation of supply chain management (SCM) in manufacturing firms enhances the efficient management of their supply chains. Organizations adopt supply chain management as a means to gain a competitive advantage by promoting the effectiveness of their supply chain operations, improving overall supply chain efficiency, and achieving higher levels of performance.

4.2. Regression analysis

The purpose of this section is to find the relationship between supply chain management and cost-efficiency in AIF during the period from 2017 up to 2022, where the statistical (numerical) data allow researcher to highlight the direct relationship between variables, as follows:

4.2.1. Model summary

Table 2: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	.806	.803	.2833975

a. Predictors: (Constant), Information Technology, Logistics Management, Strategic Supplier Integration

Source: SPSS, June 2023

The Table 2 indicates high R value of 0.898 which shows a strong relationship between the predictors (Strategic supplier integration; logistics management and information technology) and cost-efficiency in Africa Improved Foods (AIF). This indicates that the combination of these predictors collectively plays a significant role in determining the overall cost-efficiency in Africa Improved Foods (AIF). R-squared (R^2) equals to 0.806 (or 80.6%) and adjusted R-squared equals to 0.803 (or 80.3%); the results show the goodness of fit of the estimated model. Up to 80.6% of long-run appreciation in cost-efficiency is influenced by changes in strategic supplier integration; logistics management and information technology as implemented by AIF. The other remaining 19.4% can be explained by other factors not examined in this study. The findings align with Mathivathanan *et al.* (2017) emphasis on the crucial role of supply chain management in addressing future needs. Mathivathanan et al. indicate the importance of developing supply chain management to effectively meet evolving requirements. This is consistent with the study's results, which indicate that changes in strategic supplier integration, logistics management, and information technology significantly contribute to long-term improvements in cost-efficiency in Africa Improved Foods (AIF), emphasizing the importance of strong supply-chain management practices.

4.2.2. Analysis of variance

The following table presents the findings from ANOVA table:

Table 3: ANOVA table results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.925	3	21.308	266.312	.000[b]
	Residual	15.420	192	.080		
	Total	79.345	195			

a. Dependent Variable: Cost-efficiency

b. Predictors: (Constant), Information Technology, Logistics Management, Strategic Supplier Integration

Source: SPSS, June 2023

The results of ANOVA as the very high F value of 266.312 indicates that the regression model, which incorporates strategic supplier integration; logistics management and information technology as predictors, significantly contributes to explaining the variability observed in Cost-efficiency. The results as p-value are less than 5%, this specifies that the cost-efficiency in AIF was significantly driven by at least one or all independent variables under this study. The findings align with Yu *et al*. (2018) emphasis on the importance of disaggregating supply chain management into different capacities, such as customer relationship management, IT management, agility management, and responsiveness management. Yu et al. highlight that these dimensions collectively contribute to a firm's ability to meet customer needs and gain a competitive advantage in a dynamic environment. This perspective aligns with the study's results, which demonstrate the significance of strategic supplier integration, logistics

Stratford Peer Reviewed Journals and Book Publishing
Journal of Procurement & Supply Chain
Volume 8||Issue 1||Page 1-12 ||January||2024|
Email: info@stratfordjournals.org ISSN: 2617-3581

management, and information technology in explaining Africa Improved Foods (AIF)' cost-efficiency in alignment with supply chain management principles.

Table 4: Presentation of regression summary

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.242	.119		2.031	.044
	Strategic Supplier Integration	.258	.073	.266	3.556	.000
	Logistics Management	.437	.057	.432	7.678	.000
	Information Technology	.252	.072	.256	3.496	.001

a. Dependent Variable: Cost-efficiency

Source: Researcher; Primary Data, SPSS, June 2023

Model specification

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Y = Dependent variable That Is Cost-efficiency (CE)
X = Independent Variables and X_1 is Strategic Supplier Integration (SSI); X_2 is Logistics Management (LM); X_3 is Information Technology (IT);
$\beta_1; \beta_2 \; and \; \beta_3$ are coefficients; β_0 is Constant; ε_t is error term
Therefore, the regression equation is $CE = \beta_0 + \beta_1 SSI + \beta_2 LM + \beta_3 IT + \varepsilon$
Based on the model coefficient result the model becomes:

CE = 0.242+0.258 SSI+0.437LM+0.252IT+εt;
In Table 4, the Coefficients section provides information about the regression coefficients for each predictor variable, along with their statistical significance. The constant value is 0.242. This denotes the anticipated value of the dependent variable, which is "Cost-efficiency," when all the predictor variables (Strategic supplier integration, logistics management, and information technology) are set at zero. The unstandardized coefficients signify the alteration in the dependent variable (Cost-efficiency) associated with a one-unit change in the predictor variables, while keeping the other predictors constant. For instance, a one-unit increase in Strategic supplier integration corresponds to a 0.258 unit increase of cost-efficiency in Africa Improved Foods (AIF) (β=0.258 t=3.556 p value = 0.000). Similarly, a one-unit increase in logistics management corresponds to a 0.437 unit increase of cost-efficiency in Africa Improved Foods (AIF) (β=0.437 **t**=7.678 p value = 0.000). And a one-unit increase in information technology corresponds to a 0.252 unit increase of cost-efficiency in Africa Improved Foods (AIF) (β=0.252 t=3.496 p value = 0.001). From the findings, while holding other factors constant, an increase in strategic supplier integration; logistics management and information technology causes an improvement in cost-efficiency in AIF. Therefore, the p-values are less than 0.05 and there is significant determinant of cost-efficiency in AIF means the study findings conclude that good cost-efficiency in AIF score is directly related to effective independent variables.
The findings align with Sanders (2014) emphasis on the importance of dynamic supply chain management. Sanders highlights that effective supply chain management fosters collaborative relationships with various stakeholders and enables precise market demand predictions, enhancing supply chain responsiveness to meet customer and supplier needs. This parallels the study's results, which demonstrate that strategic supplier integration, logistics management,

and information technology significantly impact cost-efficiency in AIF, indicating the crucial role of these factors in supply chain management.

4.3 Hypothesis results

The results, as reflected in Table 4.9, indicate that strategic supplier integration and logistics management have significant positive effects on cost-efficiency, as both null hypotheses (H01 and H02) were rejected in favor of the alternative hypotheses (Ha1 and Ha2) as the p values are less than 0.05. Conversely, the null hypothesis (H03) concerning information technology was rejected as p value is less than 0,05, suggesting that it indeed has a significant positive effect on cost-efficiency in AIF, aligning with the alternative hypothesis (Ha3). These findings indicate the vital importance of strategic supplier integration, effective logistics management, and modern information technology in enhancing cost-efficiency within the food manufacturing sector in Rwanda, particularly in the case of AIF.

5. Conclusion

Basing on result the model for instance, a one-unit increase in Strategic supplier integration corresponds to a 0.258-unit increase of cost efficiency in Africa Improved Foods (AIF) (β=0.258 t=3.556 p value = 0.000). Similarly, a one-unit increase in logistics management corresponds to a 0.437 unit increase of cost-efficiency in Africa Improved Foods (AIF) (β=0.437 t=7.678 p value = 0.000). And a one-unit increase in information technology corresponds to a 0.252 unit increase of cost-efficiency in Africa Improved Foods (AIF) (β=0.252 t=3.496 p value = 0.001). From the findings, while holding other factors constant, an increase in strategic supplier integration; logistics management and information technology causes an improvement in cost-efficiency in AIF. Therefore, the p-values are less than 0.05 and there is significant determinant of cost-efficiency in AIF means the study findings conclude that good cost-efficiency in AIF score is directly related to effective independent variables.

R-squared (R^2) equals to 0.806 (or 80.6%) and adjusted R-squared equals to 0.803 (or 80.3%); the results show the goodness of fit of the estimated model. Up to 80.6% of long-run appreciation in cost-efficiency is influenced by changes in strategic supplier integration; logistics management and information technology as implemented by AIF. The other remaining 19.4% can be explained by other factors not examined in this study. The results of ANOVA as p-value are less than 5%, this specifies that the cost-efficiency in AIF was significantly driven by at least one or all independent variables under this study.

6. Recommendations

African Improved Foods is recommended to improve the way they sharing information about production and demand forecasts with suppliers enhance quick production and reduces production costs. To develop logistics management by reducing costs that incurred by company through proper maintenance of property and equipment. To strengthen the information technology and implement the strategies to be used by cutting costs of the company in order to reduce marketing expenses in general.

Acknowledgement

I thank the Almighty God for His blessings, which has empowered me and other people who supported me in various ways in finishing this proposal. I would like to extend my sincere thanks to my institution for its incalculable support during my academic struggle. I would also like to extend my grateful thanks to my supervisor Dr. Richard KABANDA for his close assistance, guidance and constructive criticism that have ignited me to complete my thesis and ready for further steps to make this research study.

References

Ambrosini V. & Bowman C., (2019) What are supply chain management and are they a useful construct in strategic management? *International Journal of Management Reviews*, 11, 1, 29–49, 2009.

Bimha, H., Hoque, M., & Munapo, E. (2020). The impact of supply chain management practices on industry competitiveness: A mixed-methods study on the Zimbabwean petroleum industry. *African Journal of Science, Technology, Innovation and*

Draulans, J., deMan, A-P. & Volberda, H.W. (2018) '*Building alliance management'*, Management Techniques for Superior Alliance Cost-efficiency in Long Range Planning, Vol. 36, pp.151–166.

Eisenhardt, K.M. & Martin, J.A. (2018) 'Dynamic management: what are they?' *Strategic Management Journal*, Vol. 21, Nos. 10–11, pp.1105–1121.

Ellinger, A.E., Daugherty, P.J. & Keller, S.B. (2018). 'The relationship between marketing/logistics interdepartmental Information Technology and cost-efficiency in US manufacturing firms: an empirical study', *Journal of Business Logistics*, Vol. 21, No. 1, pp.1–22.

Ettlie J.E., Bridges, W. P., & O'Keefe R. D. (2018). *Organization strategy and structural differences for radical versus incremental innovation*, Management Science, 30, 6, 682–695, 1984

Miles, R.E., Snow, C.C. & Miles, G. (2019) *Collaborative Entrepreneurship*. How Groups of Networked Firms Use Continuous Innovation to Create Economic Wealth? Stanford, CA: Stanford University Press, Forthcoming.

Mohr, J. & Spekman, R. (2017) 'Characteristics of Integration success: Integration attributes, communication behavior, and conflict resolution techniques', *Strategic Management Journal*, Vol. 15, No. 2, pp.135–152.

Neely A., Filippini R., Forza C., Vinelli A. & Hii J (2019). *A framework for analyzing business performance, firm innovation and related contextual factors*: Perceptions of managers and policy makers in two European regions, Integrated Manufacturing Systems, 12, 2, 114–124, 2001

Nzeyimana A. & Dr. Njenga Gitahi (2022) Supply chain Management Practices and Performance of Public Institutions in Rwanda: A Case of Rwanda Biomedical Center. *Stratford Peer Reviewed Journals and Book Publishing Journal of Procurement & Supply chain*

Weiss, S.E. (2016) '*Analysis of complex negotiations in international business*: the RBC perspective', Organization Science, Vol. 4, No. 2, pp.269–300.

Wieselquist, J., Rusbult, C.E., Foster, C.A. & Agnew, C.R. (2019) 'Commitment, pro-relationship behavior, and trust in close relationships', *Journal of Personality and Social Psychology*, Washington, Vol. 77, No. 5.

Wong C.Y., Boon-itt S. & Wong C. W. Y., (2021) The contingency effects of environmental uncertainty on the relationship between supply chain Information Technology and cost-efficiency, *Journal of Operations Management*, 29, 6, 604–615, 2011