

**THE IMPACT OF SUPPLY CHAIN INTEGRATION ON PERFORMANCE OF  
MANUFACTURING FIRMS :A CASE STUDY OF CENTURY BOTTLING  
COMPANY**

**JULIET AHUURA**

**J23B12/001**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS IN FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF A DEGREE OF BACHELOR OF PROCUREMENT  
AND LOGISTICS MANAGEMENT OF UGANDA CHRISTIAN UNIVERSITY**

**October, 2024**



**UGANDA CHRISTIAN  
UNIVERSITY**

*A Centre of Excellence in the Heart of Africa*

APPROVAL

**DECLARATION**

I certify that this research is submitted with my own initiative and is worth the award of a degree in the Department of Logistics Management  
I Ahuura Juliet declare that this research report is my own initiative and it has never been submitted to my university for any academic award of any kind.

*Ahuura Juliet*

Date *10/Sept/2024*

Signature.....*AJ*.....

Date.....*4<sup>th</sup> September 2024*.....

AHUURA JULIET

**ACKNOWLEDGMENT**

I certify that this research is submitted with my approval as the research supervisor and is worth the award of a bachelor's degree in Procurement and Logistics Management.

To begin with, sincere appreciation goes to my supervisor Mr. Kibuuka David for his guidance and support. His guidance and assistance have helped me in the successful completion of this research paper.

Academic Supervisor

Mr. Kibuuka David

Last but not least, my greatest appreciation goes to the Almighty God for giving me the strength, health and knowledge during this period.

## **ACKNOWLEDGEMENT**

In my quest to undertake this study and produce the findings within the context of my research, some people were of great value and help to me.

To begin with, my sincere appreciation goes out to my supervisor Mr. Kibuuka David for his guidance throughout the research process. His guidance, constructive criticism and patience helped me in the successful completion of this research paper.

The employees of Century Bottling Company in the procurement department who took time out of their busy schedules to attend to my questionnaires are highly appreciated.

Last but not least, my greatest appreciation goes to the Almighty God for giving me the strength, health and knowledge during this period.

# TABLE OF CONTENT

<b>DECLARATION</b> .....	ii
<b>APPROVAL</b> .....	iii
<b>ACKNOWLEDGEMENT</b> .....	iv
<b>TABLE OF CONTENT</b> .....	v
<b>ABSTRACT</b> .....	vii
<b>CHAPTER ONE</b> .....	1
<b>INTRODUCTION</b> .....	1
1.0 Introduction.....	1
1.1 Background of the study .....	1
1.3 General objective .....	2
1.4 Specific objectives .....	2
1.5 Research questions.....	2
1.6 Scope of the study.....	3
1.6.2 Geographical scope .....	3
1.6.3 Time scope .....	3
1.7 Significance of the study.....	3
1.8 Conceptual framework.....	4
<b>CHAPTER TWO</b> .....	5
<b>LITERATURE REVIEW</b> .....	5
2.0 Introduction.....	5
2.1 Concept of Supply Chain Integration.....	5
2.2 Concept of Performance.....	6
2.4 The barriers of supply chain integration in manufacturing firms.....	7
2.5 Remedies to the barriers of supply chain integration in manufacturing firms.....	9
<b>CHAPTER THREE</b> .....	10
<b>METHODOLOGY</b> .....	10
3.0 Introduction.....	10
3.1 Research Design .....	10
3.2 Area of study.....	10
3.3 Study population .....	10
3.4 Sampling.....	10

3.4.1 Sample size .....	10
3.4.2 Sampling method .....	12
3.5 Data collection tools.....	12
3.5.1 Questionnaire .....	12
3.6 Data management and control.....	12
3.6.1 Validity .....	12
3.6.2 Reliability.....	12
3.7 Data Analysis.....	13
3.8 Ethical considerations .....	13
CHAPTER FOUR.....	14
PRESENTATION AND INTERPRETATION OF FINDINGS .....	14
4.0 Introduction.....	14
4.1 Findings on demographic characteristics of respondents .....	14
4.1.1 Gender of respondents .....	14
4.1.2 Age of the respondents.....	14
4.1.3 Level of education .....	15
4.1.4 Years spent working .....	15
4.2 FINDINGS ON SUPPLY CHAIN MANAGEMENT PRACTICES .....	16
4.3 FINDINGS ON PERFORMANCE STIMULATED BY SUPPLY CHAIN.....	17
4.4 FINDINGS ON LIMITATIONS IN THE SUPPLY CHAIN .....	19
CHAPTER FIVE .....	21
DISCUSSION OF FINDINGS, SUMMARY, CONCLUSION AND .....	21
RECOMMENDATIONS .....	21
5.0 Introduction.....	21
5.1 Discussion of findings.....	21
5.1.1 Discussion on the findings of supply chain practices.....	21
5.1.2 Discussion on the findings of performance stimulated by supply chain .....	21
5.1.3 Discussion on the findings of limitations in supply chain.....	22
5.3 Conclusions.....	22
5.4 Recommendations.....	23
REFERENCES .....	24
APPENDICES .....	26

## **ABSTRACT**

The study examined the impact of supply chain integration on performance of manufacturing firms in Uganda: a case study of Century Bottling Company (Coca Cola). It specifically focused on; examining the drivers of supply chain integration in Century Bottling Company, finding out the remedies to barriers of supply chain integration in Century Bottling Company and suggesting the remedies to the barriers of supply chain integration in manufacturing firms in Uganda.

The study was carried out and data was collected using questionnaires. A sample size of 19 respondents who are managers and employees of Century Bottling Company (Coca Cola) were involved in the study. From the findings, it was revealed that Century Bottling Company had implemented various supply chain practices including just-in-time, inventory management and supplier relationships which had positively impacted their performance. These practices led to reduced inventory costs, improved production efficiency and enhanced customer satisfaction. However, the company faced limitations such as reliance on a single supplier for key raw materials which created vulnerabilities in their supply chain and transportation challenges.

The study recommended that Century Bottling Company should leverage technology to further enhance supply chain automation, visibility and analytics to stay ahead of the competition. Century bottling company should form strategic partnerships with additional suppliers and customers to increase collaboration and drive mutual benefits. Furthermore should encourage a culture of ongoing creativity, innovation, and process improvement to stay agile and responsive to changing market conditions. And lastly Century bottling company should establish a comprehensive risk management plan to mitigate potential supply chain disruptions because in the end supply chain does affect organizational performance either positively or negatively.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Introduction**

This study was about examining the impact of supply chain integration on performance of manufacturing firms in Uganda: a case of Century Bottling Company. This chapter presented the Background of the study, Statement of the problem, Objectives of the study, Research questions, Scope of the study, Significance of the study and the conceptual frame work.

#### **1.1 Background of the study**

For manufacturing firms to thrive there is a need to incorporate an extensive collaboration between suppliers and customers. Supply chain integration refers to the co-existence between manufacturers and their supply chain such as the customers, employees, stakeholders and distributors in order leverage internal and external resources and performance across the supply chain. As stated by (Kumar et al.2017) Members of the supply chain ought to work in teams and collaboration to improve performance positively resulting in to profitability while meeting customer demands. Supply chain integration can affect an organization's performance in two ways that is directly and indirectly. Performance is directly enhanced by the strong cooperation amongst the businesses in the supply chain. Supply chain integration indirectly assists businesses in identifying and getting rid of operations that don't improve the supply chain as a whole. This can improve product quality and lower production costs, which will increase customer happiness.

In 2018, Century Bottling Company implemented a new supply chain integration strategy aimed at improving efficiency and reducing costs. Between 2019 and 2020, the company experienced significant growth and expansion, which put pressure on its supply chain operations. In 2021, the company faced a major supply chain disruption due to the COVID-19 pandemic, which highlighted the need for effective supply chain integration. By 2022, the company had implemented various measures to mitigate the effects of the pandemic and improve its supply chain resilience but were still lacking in some areas such as lead-time, changing technologies and customer needs.

Manufacturing enterprises now operate in a complex global context. Success is dependent on efficient and effective supply systems. This study looks into the impact of supply chain integration on the performance of manufacturing enterprises, utilizing Century Bottling Company as a case study. Existing research indicates that a well-integrated supply chain, in which information and resources move effortlessly between internal and

external partners, can result in significant performance gains. These enhancements may include lower costs, greater manufacturing flexibility, increased responsiveness to client demands and higher product quality.

With the help of Century Bottling Company, a well-known beverage manufacturer and distributor. We may learn important lessons about how integration techniques result in observable results by looking at their supply chain procedures and performance indicators. With an emphasis on inventory control, customer happiness and production efficiency, this study attempts to pinpoint the precise elements of supply chain integration that Century Bottling Company has adopted and examine how these have affected important performance metrics through a more thorough examination of their example, we can advance knowledge about the crucial role supply chain integration plays in manufacturing companies' performance.

## **1.2 Statement of the problem**

Manufacturing companies or firms are no different when it comes to the importance of supply chain integration in business. The lack of supply chain integration in Ugandan manufacturing companies, such as Century Bottling Company, makes it more difficult for them to adapt to shifting market conditions which results in lost opportunities, resource waste, and dwindling customer loyalty. Nevertheless, these businesses can achieve increased productivity, lower costs, greater visibility, and better quality control by putting supply chain integration into practice. Ultimately leading to increased customer satisfaction, competitiveness, profit maximization and business growth. It is essential for Century Bottling Company to adopt supply chain integration so as to remain competitive and achieve its organizational objectives.

## **1.3 General objective**

The purpose of the study was to examine the impact of supply chain integration on performance of manufacturing in Uganda: a case of Century Bottling Company

## **1.4 Specific objectives**

To examine the drivers of supply chain integration in Century Bottling Company.

To find out the barriers of supply chain integration in Century Bottling Company.

To suggest the remedies to barriers of supply chain integration in Century Bottling Company.

## **1.5 Research questions**

What are the drivers of supply chain integration in Century Bottling Company?

What are the barriers of supply chain integration in Century Bottling Company?

What are the remedies to the barriers of supply chain integration in Century Bottling Company?

## **1.6 Scope of the study**

The scope of the study covered three dimensions that is; content, geographical and time and these are discussed in detail below.

### **1.6.1 Content scope**

The study focused on examining the drivers of supply chain integration in century bottling company, finding out the barriers of supply chain integration in century bottling company and suggesting remedies to the barriers of supply chain integration on performance in century bottling company.

### **1.6.2 Geographical scope**

The study was conducted at Century Bottling Company located on Plot 964, Namanve Industrial Area, Jinja road, Kampala-Mukono, Uganda. It is approximately 15 kilometers east of downtown Kampala.

### **1.6.3 Time scope**

The study was conducted for a period of time that is from July to August 2024.

## **1.7 Significance of the study**

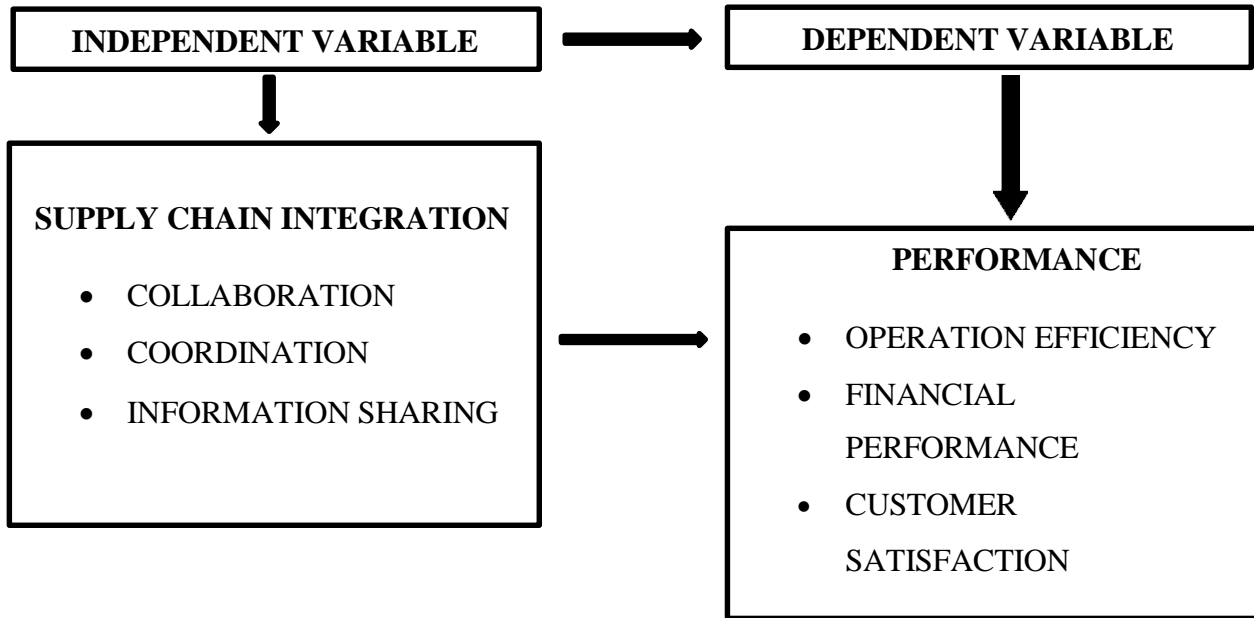
It is hoped that this study will inform strategic decision making, resource allocation and process improvement initiatives within manufacturing firms as follows;

To the customers, the findings of this study are hoped to improve supply chain performance leading to better customer service delivery and satisfaction. By tracking the movement of goods and information throughout the supply chain, firms can provide more accurate delivery dates and better communication if any issues arise.

To the suppliers, the findings of this study are hoped to provide suppliers with more accurate demand forecasts and delivery dates hence helping suppliers better manage their own inventory and production schedules.

To the academia, the findings of this study are hoped to contribute to the academic literature on supply chain management, particularly in the area of supply chain integration and performance.

### 1.8 Conceptual framework



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter presents the literature that was reviewed on the basis of the study objectives. The chapter presentation is under three sections namely; review of various theories, highlighting the objectives of the study, synthesis of literature and the research gap analysis. Literature sources include books and journals aimed at providing insight on what has already been done within this area of study.

#### 2.1 Concept of Supply Chain Integration

Supply Chain Integration refers to the level of strategic collaboration and management of inter and intra-organizational processes in the supply chain (Flynn et al., 2016). Most previous studies have considered Supply Chain Integration as an approach to integrate information among suppliers, manufacturers, distributors, and customers (Pagell, 2004). Supply Chain Integration has many benefits for manufacturing firms, including improvement in financial performance (Flynn et al., 2010; Kim, 2009; Oghazi, 2009), increase in customer satisfaction (Kim & Chai, 2016), and rise in the market share (Oghazi, 2009).

In general, Supply Chain Integration is divided into internal and external integration (Droge et al., 2004; Li, 2015). Internal integration refers to when the manufacturer organizes his internal activities, processes and strategies to meet the needs of his customers. This involves collaboration and coordination across organizational functions through information sharing in order to better understand and address the needs of his customers (Flynn et al., 2016). External integration refers to collaboration and coordination between the firm and its external supply chain partners (Zhao et al., 2013). The supply chain integration construct consists of three dimensions including internal, vendor and client integration to catch multidimensionality (Wong et al., 2011).

Interior integration is the degree to which a producer re-engineers his own organizational strategies and processes right into synchronized processes to please his clients' needs (Zhao et al., 2011). The expansion of cross-functional groups that often tend to concentrate on their process requires a seamless flow of resources and pertinent details in supply chains and elimination or minimization of barriers between useful boundaries to surmount the imperfections of specialization (Askarany et al., 2010; Sgro et al., 2020).

## **2.2 Concept of Performance**

According to contingency theory, the effects of organizational practices on a firm's performance are conditioned by the organization's strategic posture. Nelson and Winter (1982) proposed that organizational capabilities are embedded in the daily routines of operations. In a large sample study, Dean and Snell (1996) found little support for the positive effects of best organizational practices such as Just in time on firms performance citing a lack of consideration for strategic contingency as the main reason thus, caution should be exercised in examining the performance relationship from a universal perspective.

The performance effects of organizational practices are contingent on the strategy (Ketokivi and Schroeder, 2004). The contingent view is also suited to the performance effects of Supply Chain Integration practices. The ultimate goal of any organization is to create customer value, which is defined by the ratio of quality to cost (Jacobs and Chase, 2011). Thus organizations can achieve competitive advantage through cost reduction or product premium.

For both the people who work for an organization and the organization as a whole, individual performance is crucial. Performance is made up of both an outcome-focused and behavioral component. It is a dynamic idea with multiple dimensions. It explains how contemporary shifts in the nature of work such as the emphasis on lifelong learning and proactive teamwork, enhanced technology and globalization trends have an effect on the performance concept and subsequent performance.

High performers are essential to an organization's ability to satisfy objectives, produce specialized goods and services and ultimately gain a competitive edge. Getting things done and doing well can bring satisfaction and Poor performance and failing to meet objectives could be interpreted as disappointing or even as an indictment of oneself and the organization. Furthermore, performance that receives recognition from other members of the business is frequently rewarded with cash and other advantages.

## **2.3 Drivers of supply chain integration in manufacturing firms**

Customer demands and expectations: Meeting customer demands and expectations is a significant driver for supply chain integration. As customers increasingly expect shorter lead times, customized products and higher service levels, manufacturing firms need to align their supply chains to effectively respond to these demands. Integration enables better performance, flexibility and responsiveness allowing firms to meet customer requirements more effectively (Fawcett et al., 2007).

Competitive pressures: The competitive landscape and market dynamics can drive manufacturing firms to pursue supply chain integration. In highly competitive industries, integration offers opportunities for cost reduction, improved efficiency and enhanced customer service all of which contribute to gaining a competitive advantage. By integrating supply chain activities, firms can streamline operations, optimize inventory levels and respond more quickly to changes in the market (Lambert et al., 2016).

Globalization and market expansion: Globalization has led to increased complexity and interconnectedness in supply chains. Manufacturing firms expanding their operations into global markets often face challenges related to distance, cultural differences and diverse regulatory environments. Supply chain integration can help mitigate these challenges by improving coordination, standardizing processes and enhancing communication across geographically dispersed partners (Gereffi et al., 2005).

Improvement in costs and efficiency: Supply chain integration is primarily motivated by cost savings and operational effectiveness. The goals of integration programs are to reduce duplication, maximize inventory and simplify supply chain procedures. Manufacturing companies can realize cost reductions and increased operational performance through information sharing, partner collaboration and the use of economies of scale (Cagliano et al., 2020).

Risk management and resilience: Another factor driving supply chain integration is the requirement for risk management and resilience. Supply chains can be significantly impacted by disruptions such as supplier failures, natural disasters and geopolitical unpredictability. Improved risk detection, mitigation and recovery tactics are made possible by integration. Manufacturing companies can strengthen their capacity to foresee and react to disturbances by increasing supply chain visibility, diversifying their suppliers and fostering collaborative connections (Ivanov, 2020).

Technical developments: The integration of supply chains is greatly aided by technological developments. New avenues for data exchange and process automation are made possible by the advent of digital technologies like cloud computing, the Internet of Things and advanced analytics. These innovations make it easier to integrate information systems, enhance collaboration and allow for more effective decision-making throughout the supply chain (Chopra & Meindl, 2021).

#### **2.4 The barriers of supply chain integration in manufacturing firms**

Lack of information technology: This is a significant barrier to manufacturing firms as it hinders efficient data management, visibility and communication. Without adequate information technology systems firms rely on manual processes leading to increased labor costs, reduced accuracy and decreased productivity. Information

technology limitations also make it challenging to track inventory, analyze data and make informed decisions ultimately reducing competition and increasing errors.

**Lack of information sharing:** The lack of information sharing is a significant challenge to manufacturing firms as it leads to siloed departments and poor collaboration. Without shared information, teams may work with outdated or inaccurate data leading to errors, delays and reduced productivity. Information sharing enables real-time visibility into production processes, inventory levels and supply chain operations hence facilitating data-driven decision-making and improved responsiveness to changing market conditions.

**Lack of trust:** Trust issues between departments, suppliers and customers lead to hesitant collaboration, reduced sharing of information and increased monitoring costs. Without trust, Century Bottling Company may struggle to implement collaborative initiatives such as shared inventory management with its suppliers and customers. This can result in reduced flexibility, increased costs and decreased customer satisfaction. Furthermore, trust issues can lead to a focus on short-term gains rather than long-term partnerships, hindering Century Bottling Company's ability to build strong relationships and drive innovation in the industry.

**System incompatibility:** System incompatibility hinders the seamless exchange of information and data between different systems leading to errors and delays. When systems are incompatible, data may need to be manually entered or converted leading to increased labor costs and reduced accuracy. Incompatibility can also limit visibility, traceability and real-time tracking making it challenging to manage inventory shipments and orders. Ultimately restricting the ability of manufacturing firms to achieve streamlined supply chain operations and efficient collaboration with suppliers, customers and logistics providers.

**Cost integration:** As the firm struggles to align costs across its supply chain operations. The company faces challenges in standardizing costs, allocating resources and optimizing pricing strategies leading to increased costs, reduced profitability and decreased competitiveness. Century Bottling Company's inability to integrate costs limits its ability to implement efficient transportation management systems, vendor-managed inventory and other cost-saving initiatives, resulting in higher logistics costs, inventory holding costs and reduced supply chain efficiency.

**Traditional management philosophy:** Traditional management philosophy often prioritizes individual departmental performance over collective supply chain efficiency. This traditional mindset hinders the adoption of integrated supply chain practices such as collaborative planning, shared inventory management and joint product development limiting the company's ability to respond to changing market conditions, improve customer satisfaction and achieve sustainable competitiveness.

## **2.5 Remedies to the barriers of supply chain integration in manufacturing firms**

**Information sharing:** Effective communication and information sharing among supply chain partners is crucial for integration. Sharing real-time data on demand forecasts, inventory levels, production schedules and quality information enables better coordination and decision making. This factor emphasizes the use of integrated information systems, such as enterprise resource planning (ERP) systems and electronic data interchange (EDI) platforms, to facilitate seamless data exchange between partners (Christopher, 2016).

**Collaborative relationships:** Building and maintaining strong collaborative relationships with supply chain partners is essential. Firms need to foster trust, open communication and mutual understanding to establish a foundation for effective collaboration. Collaborative relationships enable joint planning, risk sharing and coordinated problem solving hence leading to improved overall supply chain performance (Lambert et al., 2016).

**Supply chain performance and control:** Achieving positive performance and control over the supply chain network is critical. This involves having to track and monitor inventory shipments and show accountability progress at various stages. By implementing technologies such as radiofrequency identification (RFID) and barcode scanning, firms can gain real-time visibility enabling them to respond quickly to changes and disruptions (Chopra & Meindl, 2021).

**Process standardization:** Standardizing processes and procedures across the supply chain helps streamline operations and enhance integration. This includes developing common performance metrics, quality standards and operating procedures. Process standardization reduces variability, improves coordination and enables smoother information flow.

**Supplier relationship management.** Effective supplier relationship management is essential for supply chain integration. Long-term collaborations with dependable suppliers build trust, increase supplier loyalty and support collaborative improvement projects. Early engagement of suppliers in the product development process and decision-making can result in cost savings, quality improvements and innovation (Handfield & Nichols, 2002).

**Technology and infrastructure.** Investing in appropriate technology and infrastructure is essential for successful supply chain integration. This includes implementing advanced planning and optimization tools, warehouse management systems, transportation management systems and other digital solutions. Utilizing technologies like cloud computing, big data analytics and artificial intelligence enables efficient data processing and decision making (Cagliano et al., 2020)

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This chapter covers the methods used to capture data for research. That includes the research design, area of the study, study population, sample size, sampling methods or techniques and data collection tools. This research methodology presents the overall framework on how to achieve research findings through data collection, analysis and presentation.

#### **3.1 Research Design**

This study used a cross-sectional research design. Under this design, data from respondents was collected at a single point in time without repetition from the representative population. The study adopted quantitative approaches. Under the quantitative methods, the researcher used questionnaires that were filled by respondents and she analyzed the data using proceedings and then presented the data in narrative quotations.

#### **3.2 Area of study**

The study was conducted at Century Bottling Company located on plot 964, Namanve Industrial Area, Jinja road, Kampala Uganda Mukono. It is approximately located 15 kilometers east of downtown Kampala. Namanve is boarded by Seeta to the east, Namilyango to the southeast, Lake Victoria to the south, Kirinnya to the southwest, and Bweyogerere to the west and northwest.

#### **3.3 Study population**

This section of the research portrays the particular group of respondents that the researcher was interested in the field of the study. Century Bottling Company (Coca Cola) has around 700 employees from the different departments in its main branch and other plants in Uganda according the HRM report 2022. However, the main branch has around 100 employees as the population that comprised of employees in the different departments with 20 from procurement and logistics department as the population that was included in the study.

#### **3.4 Sampling**

##### **3.4.1 Sample size**

Singh, (2007) defined sample size as finite part of a statistical population whose properties are used to make estimates about a population as a whole. For this research study, simple random sampling was used to select and draw research responses that gave a true picture of the research phenomena. Using Krejcie and Morgan table 1970 we used a sample size of 19 from a population of 20 employees.

## Krejcie and Morgan Table

Krejcie & Morgan (1970) developed a table for figuring out sample size for a given population in order to close the gap that was there. The sample size calculation table contains all the necessary elements to determine your sample size, so there's no need to use the formula. (Morgan & Krejcie, 1970).

Table 1: Krejcie and Morgan Table

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

### **Here is how the table works:**

Determine the population size: This is the total number of individuals in the group you want to study.

Locate the corresponding row: Find the row in the table that matches your population size.

Read the sample size: The value in the intersecting cell of the row and column will give you the recommended sample size for you

### **3.4.2 Sampling method**

The study was carried out using random sampling method. Simple random sampling is where each and every member of a population has the same chance of being included in the sample and where all possible samples of a given size have the same chance of selection.

### **3.5 Data collection tools**

#### **3.5.1 Questionnaire**

The researcher used closed-ended questionnaires in the study. Closed ended questions were used because they are easy and quick to answer and because they help in improved consistence of the responses. The questionnaires were administered to the employees of Century Bottling Company.

### **3.6 Data management and control**

#### **3.6.1 Validity**

Validity of research instruments ensure scientific usefulness of the findings arising from data collection (Williams, 2016). The researcher ensured that the right questions for the study were guided by the objectives of study.

#### **3.6.2 Reliability**

Reliability seeks to establish whether an assessment instrument gives the same results each time it is used in the same setting with the same type of subjects and thus it essentially means consistent or dependable results (Wildemuth, 2016). Cronbach's Alpha determines the internal consistency (reliability) of test scores such that the more research item scores are in agreement with the total scores, the more reliable is the test (Kothari et al., 2017).

### **3.7 Data Analysis**

The information was assessed and edited to eliminate errors, the data was then be encoded and grouped according to the study to ease analysis and then will be analyzed. The findings were interpreted in light of the research objective and then reviewed to attach meaning to the data collected.

### **3.8 Ethical considerations**

The researcher obtained an official letter from the school of business to introduce the researcher to case study. The researcher provided assurance to the respondents that the findings would help them on how to benefit from better supply chain integration.

The researcher cited all the sources she used in the study either in the literature or appendices and also accessed data through official channels.

### **3.9 Limitations of the study**

During the study, the researcher faced a problem of not finding all respondents in the time of the study due to their busy work schedules. The researcher however planned an appropriate time table that favorably suited all the respondents during the process of data collection for reliable and valid information.

Most organizations feared that the material supplied by them to researchers would be misused and as such they were reluctant to supply the needed information to researchers.

## CHAPTER FOUR

### PRESENTATION AND INTERPRETATION OF FINDINGS

#### 4.0 Introduction

This chapter presents and discusses the results of analysis that has been done to look at the specific objectives of the study in relation to the reviewed literature. The study was carried out using questionnaires with 19 employees of Century Bottling Company (Coca Cola). The findings are presented with the help of tables for purposes of clarity and interpretation.

#### 4.1 Findings on demographic characteristics of respondents

This section presents the general background information about the respondents in relation to their gender, age, highest level of education and period spent working with Century Bottling Company as shown in the table below;

##### 4.1.1 Gender of respondents

Gender	Frequency	Percentage
Male	10	53%
Female	9	47%
Total	19	100%

According to the table above, the male respondents were 53% and the female respondents were 47%. This shows a gender balance and inclusivity at Century Bottling Company.

##### 4.1.2 Age of the respondents

Age	Frequency	Percentage
21-30	6	31%
31-40	10	53%
41-50	3	16%
Total	19	100%

The table above shows that 31% of the respondents are between 21-30 years, followed by those with 31-40 years represented by 53%, whereas those who are between 41-50 years were represented by 16%. This therefore implies that there was no age discrimination since information was gotten from people of different age groups.

**4.1.3 Level of education**

Academic qualification	Frequency	Percentage
Masters	5	26%
Degree	12	63%
Diploma	2	11%
Total	19	100%

According to the table above concerning the level of education at Century Bottling Company, 26% have a master's, 63% have a bachelor's degree and 11% have a diploma. This indicates that the respondents are well equipped and know what they are doing and hence a high rate of work productivity.

**4.1.4 Years spent working**

Years	Frequency	Percentage
Above 10 years	2	11%
6-10 years	4	21%
1-5 years	11	57%
Less than 1 year	2	11%
Total	19	100%

Finally, the table above indicates respondents represented by 11% have spent between above 10 years working in Century Bottling Company, followed by those who have spent 6-10 years working in Century Bottling Company represented by 21%, the majority were represented by 57% that have spent 1-5 years whereas those who have spent less than a year working with Century Bottling Company represented 11% of the total population. The findings imply that the respondents have the necessary and efficient knowledge about the topic

under study since majority of the respondents have spent reasonable time working with Century Bottling Company.

**4.2 FINDINGS ON SUPPLY CHAIN MANAGEMENT PRACTICES.**

Statements	Extent of agreement and disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
We work closely with our suppliers to ensure timely delivery of high-quality materials	14 74%	5 26%	00	00	00
Our inventory levels are optimized to minimize waste and maximize efficiency	10 53%	7 37%	2 10%	00	00
We use technology to track and manage our shipments in real-time	4 21%	15 79%	00	00	00
We collaborate with our customers to forecast demand and prevent stock outs	6 32%	9 47%	4 21%	00	00
Quality control is a top priority throughout our entire supply chain	9 47%	10 53%	00	00	00
We continuously monitor and improve our supply chain to reduce costs and environmental impact	00	19 100%	00	00	00

The table above represents the descriptive statistics of the supply chain management practices of manufacturing firms in Uganda. According to century bottling company, 74% of the respondents strongly agreed that they work closely with their suppliers to ensure timely delivery of high-quality materials whereas 26% of the respondents agreed to the same. The study established that 53% of the respondents strongly agreed that the inventory levels are optimized to minimize waste and maximize efficiency, 37% respondents agreed to the

same whereas 10% of the respondents were not sure about inventory levels being optimized to minimize waste and maximize efficiency. Furthermore, the study found out that 79% agreed to using technology to track and manage shipments in real-time, 21% respondents strongly agreed to the same. Also 47% respondents strongly agreed and 32% agreed to collaborate with their customers to forecast demand and prevent stock outs whereas 21% of the respondents were not sure. Quality control was a top priority throughout century bottling company’s entire supply chain, 53% of the respondents agreed and 47% of the respondents strongly agreed. Finally, the findings established that 100% of the respondents agreed that century bottling company continuously monitored and improved their supply chain to reduce costs and environmental impact. This indicates that most of the employees at Century Bottling Company believe in the supply chain practices above to influence positive impact on performance because most agreed and strongly agreed.

**4.3 FINDINGS ON PERFORMANCE STIMULATED BY SUPPLY CHAIN**

Statements	Extent of agreement and disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
Supply chain integration enables us to deliver products to customers on time increasing delivery performance	00	19 100%	00	00	00
By integrating our supply chain, we are able to decrease inventory levels resulting in significant cost savings	00	17 89%	2 11%	00	00
Supply chain integration ensures consistent quality production standards and improving overall product quality	00	19 100%	00	00	00
Supply chain integration helps us build and maintain stronger supplier relationships resulting in reduction of procurement costs.	19 100%	00	00	00	00
Integrated supply chain data improves demand forecasting accuracy, reducing stock outs and overstocking.	19 100%	00	00	00	00

Streamlined processes and improved communication enable us to reduce production cycle times, increasing operational efficiency.	00	19 100%	00	00	00
---	----	------------	----	----	----

The table above represents the descriptive statistics on performance stipulated by the supply chain integration in manufacturing firms in Uganda. According to the study in table, 100% of the respondents agreed that supply chain integration enables century bottling company to deliver products to customers on time hence increasing delivery performance across the company's supply chain. Also 89% of the respondents agreed that by integrating the supply chain, century bottling company was able to decrease inventory levels resulting in significant cost savings whereas 11% of the respondents were not sure about the supply chain integration having an impact on inventory levels. The study illustrated that 100% of the respondents agreed that supply chain integration ensured consistent quality production standards and improved overall product quality within century bottling company. The study established that 100% of the respondents strongly agreed that supply chain integration helped build and maintain stronger supplier relationships resulting in reduction of procurement costs that could have been extra costs. The study further noted that 100% of the respondents strongly agreed that integrated supply chain data improved demand forecasting accuracy, reducing stock outs and overstocking. Lastly 100% of the respondents agreed with the statement put across that streamlined processes and improved communication enabled in reducing production cycle times and increased operational efficiency. Therefore, the findings of the study illustrated that the activities practiced in the supply chain do stimulate organizational performance.

#### 4.4 FINDINGS ON LIMITATIONS IN THE SUPPLY CHAIN

Statements	Extent of agreement and disagreement				
	SA	A	NS	D	SD
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
The cost of implementing supply chain integration technologies and processes is prohibitively expensive and limits our ability to invest in other areas.	00	14 74%	00	5 26%	00
Integrating disparate systems and technologies has introduced complexity and technical challenges causing delays and disruptions	00	12 63%	00	7 37%	
Some employees and supplier's resistance to changes brought by supply chain integration has hindered its effectiveness	00	19 100%	00	00	00
Sharing data across the supply chain has increased concerns about data security and intellectual property protection	00	12 63%	00	7 37%	00
Supply chain integration has made us more vulnerable to disruptions from key suppliers potentially impacting our ability to meet customer demand	19 100%	00	00	00	00
Different cultural and organizational norms among supply chain partners have created challenges in aligning goals and processes	19 100%	00	00	00	00

The table above provides data on the limitations faced by Century Bottling Company in implementing supply chain integration. According to the table, 74% of the respondents agreed on the cost of implementing supply chain integration technologies and processes being prohibitively expensive and limiting the company's ability to invest in other areas and 26% of the respondents disagreed. In addition, 63% of the respondents agreed that integrating disparate systems and technologies introduced complexity and technical challenges causing delays and disruptions whereas 37% of the respondents disagreed with the same statement. 100% of the respondents agreed that some employees and supplier's resistance to changes brought by supply chain integration hindered its effectiveness. Furthermore, 63% of the respondents agreed that sharing data across the supply chain increased concerns about data security and intellectual property protection as 37% of the respondents disagreed. In addition, 100% of the respondents strongly agreed that supply chain integration has made manufacturing firms more vulnerable to disruptions from key suppliers potentially impacting their ability to meet customer demand. Lastly 100% of the respondents strongly agreed with the statement that the different cultural and organizational norms among supply chain partners created challenges in aligning goals and processes. This shows that Century Bottling Company as an organization faces a lot of challenges in integrating the supply chain at the organization.

## **CHAPTER FIVE**

### **DISCUSSION OF FINDINGS, SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter summarizes all findings reported in chapter four according to questions of the study, draws conclusions and suggests recommendations.

#### **5.1 Discussion of findings**

##### **5.1.1 Discussion on the findings of supply chain practices**

The study conducted at Century Bottling Company revealed that the company has effectively implemented several supply chain management practices. These practices align with the principles outlined by renowned supply chain management experts like Orlicky (1975), who emphasized the importance of inventory optimization and Lambert, Cooper and Pagh (1998), who advocated for strategic partnerships with suppliers. The majority of respondents agreed or strongly agreed that the company works closely with suppliers for timely delivery of high-quality materials, optimizes inventory levels to minimize waste, uses technology for real-time shipment tracking, collaborates with customers for demand forecasting, prioritizes quality control throughout the supply chain and continuously monitors and improves processes to reduce costs and environmental impact. These findings indicate that Century Bottling Company is successfully implementing a comprehensive supply chain management approach, as suggested by Fawcett Ellram and Ogden (2013) in their work on supply chain management implementation. The positive responses from the employees further support the effectiveness of these practices in positively influencing the company's performance.

##### **5.1.2 Discussion on the findings of performance stimulated by supply chain**

The study at Century Bottling Company revealed that supply chain integration has significantly stimulated organizational performance. Supply Chain Management Review article "Creating Value through Supply Chain Integration" by Lee and Billington (2000) emphasizes the importance of efficient supply chain integration for improving overall business performance and operational efficiency. The results demonstrated that supply chain integration enabled timely product delivery, reduced inventory

levels, improved product quality, strengthened supplier relationships plus increased demand forecasting accuracy. These positive outcomes align with the research of Beamon and Lin (2003), who emphasized the importance of supply chain integration for achieving competitive advantage and improving customer satisfaction. By effectively connecting and coordinating the various stages of the supply chain, Century Bottling Company was able to optimize its operations, reduce costs and meet customer demands more efficiently.

### **5.1.3 Discussion on the findings of limitations in supply chain**

The findings from Century Bottling Company highlighted several key limitations to supply chain integration. The company's employees and suppliers expressed resistance to change hence hindering the effectiveness of integration efforts. Integrating disparate systems and technologies introduced complexity and technical challenges leading to delays and disruptions. Data security concerns and intellectual property protection issues arose due to increased data sharing within the supply chain. Furthermore, the high cost of implementing supply chain integration technologies and processes limited the company's ability to invest in other areas. Finally, cultural and organizational differences among supply chain partners created challenges in aligning goals and processes. These challenges collectively impacted the company's capability to achieve its full benefits of supply chain integration.

## **5.2 Summary of findings**

The study at Century Bottling Company demonstrated the company's commitment to effective supply chain management. By implementing supply chain management practices aligned with established principles, the company achieved significant improvements in operational efficiency, product quality and supplier relationships. Although challenges such as resistance to change and technical complexities persisted, the company's dedication to continuous improvement and strategic partnerships enabled it to overcome these obstacles and reap the rewards of successful supply chain integration.

## **5.3 Conclusions**

Century Bottling Company's supply chain integration practices demonstrate a clear positive impact on overall performance. The implementation of strategies such as just-in-time, inventory management and strategic supplier relationships led to significant cost reductions, improved operational efficiency and enhanced customer satisfaction. However, the company's reliance on a single supplier for key raw materials and the challenges posed by fluctuations in transportation costs highlight the need for continued diversification and risk mitigation efforts. To further optimize performance Century Bottling Company needs to explore opportunities for increased supply chain visibility, collaboration with

partners and extensive training and sensitization about supply chain integration.

#### **5.4 Recommendations**

Based on the study, below are some recommendations to Century Bottling Company:

Continue to invest in technology. Century bottling company should leverage technology to further enhance supply chain visibility, automation, and analytics to stay ahead of the competition.

Expand strategic partnership. Century bottling company should consider forming strategic partnerships with additional suppliers and customers to increase collaboration and drive mutual benefits.

Foster a culture of continuous improvement. Century bottling company should encourage a culture of ongoing learning, innovation, and process improvement to stay agile and responsive to changing market conditions.

Develop a risk management plan. Century bottling company should establish a comprehensive risk management plan to mitigate potential supply chain disruptions and ensure business continuity.

## REFERENCES

- Barasa, P. W., Simiyu, G. M., & Iravo, M. A. (2014). The Impact of Supply Chain Collaboration Practice on the Performance of Steel Manufacturing Companies in Kenya. *European Journal of Logistics Purchasing and Supply Chain Management*, 3(2), 28-39.
- Barratt, M., Barratt, R., (2011). Exploring internal and external supply chain linkages: evidence from the field. *Journal of Operations Management*. 29 (5), 514–528.
- Bavarsad, B., Rahimi, F., Salimifard, A., & Ghalambor, M. (2017). Investigating the impact of social capital on performance in mehr-eqtasad banks from employee's perspective. *Quarterly Journal of Social Development (Previously Human Development)*, 11(3), 211– 242.
- Bechtsis, D., N. Tsolakis, E. Iakovou., Vlachos, D., (2021). Data-driven secure, resilient and sustainable supply chains: Gaps, opportunities, and a new generalized data sharing and data monetization framework. *International Journal of Production Research*.
- Bowersox, D. J. & Closs, D. J. (2006), *Logistical Management: The Integrated Supply Chain Process*. New York: McGraw-Hill.
- Brandon-Jones, E., Squire, B., Autry, C.W., Petersen, K.J., (2014). A contingent resource-based perspective of supply chain resilience and robustness. *Journal of Supply Chain Management*. 50 (3), 55–73.
- Calatayud, A., J. Mangan, Christopher, M., (2019). The self-thinking supply chain. *Supply Chain Management: An International Journal*. 24, 22–38.
- Caridi, M., Moretto, A., Prego, A., Tumino, A., (2014). The benefits of supply chain visibility: A value assessment model. *International Journal of Production Economics*. 151, 1–19.
- Das, A., Narasimhan, R., & Talluri, S. (2006). Supplier integration-Finding an optimal configuration. *Journal of Operations Management*, 24(5), 563–582.
- Devaraj, S., Krajewski, L., & Wei, J. C. (2007). Impact of eBusiness technologies on operational performance: the role of production information integration in the supply chain. *Journal of Operations Management*, 25(6), 1199-1216.
- Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 28(1), 58–71.

- Flynn, B. B., Koufteros, X., & Lu, G. (2016). On theory in supply chain uncertainty and its implications for supply chain integration. *Journal of Supply Chain Management*, 52(3), 3–27.
- Francis, V., (2008). Supply chain visibility: lost in translation? *Supply Chain Management: An International Journal*. 13 (3), 180–184.
- Huo, B., Qi, Y., Wang, Z., & Zhao, X. (2014). The impact of supply chain integration on firm performance: The moderating role of competitive strategy. *Supply Chain Management: An International Journal*, 19(4), 369–384.
- Kim, M., & Chai, S. (2016). Assessing the impact of business uncertainty on supply chain integration. *The International Journal of Logistics Management*, 27(2), 463–485.
- Kim, S. W. (2009). An investigation on the direct and indirect effect of supply chain integration on firm performance. *International Journal of Production Economics*, 119(2), 328–346.
- Pagell, M. (2004). Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics. *Journal of Operations Management*, 22(5), 459–487.

## APPENDICES

### APPENDIX 1: QUESTIONNAIRE

#### FOR STAFF OF CENTURY BOTTLING COMPANY (COCA COLA)

Dear sir /madam

My name is Ahuura Juliet, J23B12/001 a student at Uganda Christian University carrying out a study on the “THE IMPACT OF SUPPLY CHAIN INTERGRATION ON PERFORMANCE IN MANUFACTURING FIRMS”, a case on Century Bottling Company, Namanve Branch as a partial requirement for the award of a Bachelor's degree in Procurement and Logistics Management. You have been selected as my target population to participate in this study, your genuine reply will be significantly appreciated and contribute to the accuracy of this research. All information collected is mainly for academic purposes and shall be treated with strict Confidentiality. thank you for your cooperation.

#### SECTION A. BIO DATA

(Please tick/ fill in the appropriate option)

##### 1. Gender of the respondent

a) Male b)  Female

##### 2. Age group

a) 21-30 years  b) 31-40 years

c) 41-50 years

##### 3. Highest level of education

a) Diploma  b) Degree

c) Masters

##### 4. How long have you been working at Century Bottling Company?

a) Less than 1-year

b) 1-5 years

c) 6-10 years

d) Above 10 years

**SECTION B: SUPPLY CHAIN MANAGEMENT PRACTICES.**

Rate your degree of agreement on the supply chain management practices at Century bottling company using a scale of 5(Strongly Agree), 4(Agree), 3(Not sure), 2(Disagree) and 1(Strongly Disagree) by ticking in box.

No.	Supply chain management practices	SA	A	NS	D	SD
1	We work closely with our suppliers to ensure timely delivery of high-quality materials					
2	Our inventory levels are optimized to minimize waste and maximize efficiency					
3	We use technology to track and manage our shipments in real-time					
4	We collaborate with our customers to forecast demand and prevent stockouts					
5	Quality control is a top priority throughout our entire supply chain					
6	We continuously monitor and improve our supply chain to reduce costs and environmental impact					

**SECTION C: PERFORMANCE STIMULATED BY SUPPLY CHAIN.**

Rate your degree of agreement on the factors of performance stimulated by supply chain integration at Century bottling company using a scale of 5(Strongly Agree), 4(Agree), 3(Not sure), 2(Disagree) and 1(Strongly Disagree) by ticking in the box.

No	Performance stimulated by the supply chain	SA	A	NS	D	SD
1	Supply chain integration enables us to deliver products to customers on time increasing delivery performance					
2	By integrating our supply chain, we are able to decrease inventory levels resulting in significant cost savings					
3	Supply chain integration ensures consistent quality production standards and improving overall product quality					
4	Supply chain integration helps us build and maintain stronger supplier relationships resulting in reduction of procurement costs.					
5	Integrated supply chain data improves demand forecasting accuracy, reducing stockouts and overstocking.					
6	Streamlined processes and improved communication enable us to reduce production cycle times, increasing operational efficiency.					

**SECTION D: LIMITATIONS IN THE SUPPLY CHAIN.**

Rate your degree of agreement on the limitations in the supply chain integration at Century bottling company using a scale of 5(Strongly Agree), 4(Agree), 3(Not sure), 2(Disagree) and 1(Strongly Disagree) by ticking in the box.

No.	Limitations in the supply chain	SA	A	NS	D	SD
1	The cost of implementing supply chain integration technologies and processes is prohibitively expensive and limits our ability to invest in other areas.					
2	Integrating disparate systems and technologies has introduced complexity and technical challenges causing delays and disruptions.					
3	Some employees and supplier's resistance to changes brought by supply chain integration has hindered its effectiveness					
4	Sharing data across the supply chain has increased concerns about data security and intellectual property protection					
5	Supply chain integration has made us more vulnerable to disruptions from key suppliers potentially impacting our ability to meet customer demand					
6	Different cultural and organizational norms among supply chain partners have created challenges in aligning goals and processes					

**Thank you for your cooperation**



**UGANDA CHRISTIAN  
UNIVERSITY**

A Centre of Excellence in the Heart of Africa

**SCHOOL OF BUSINESS**

19<sup>th</sup> Aug, 2024

**TO WHOM IT MAY CONCERN**

Name: **AHUURA JULIET**

Reg. No J23B12/001

A bachelor's student who is seeking permission from your office to collect data for her dissertation titled

**The Impact Of Supply Chain Integration On Performance Of Manufacturing Firms. A Case Of Century Bottling Company**

We shall be grateful if you could render assistance to her in collecting the necessary data for her dissertation

The Uganda Christian University School of Business thanks you in advance

.....  
Mukisa Simon Peter  
Research coordinator

A Centre of Excellence in the Heart of Africa

---

P.O. Box 4, Mukono, Uganda (East Africa), Plot 67-173, Bishop Tucker Road, Mukono Hill, Tel: +256 (0) 31 235 0800, [www.ucu.ac.ug](http://www.ucu.ac.ug)  
Ugandachristianuniversity @UCUniversity, Founded by the Province of Church of Uganda, Chartered by the Government of Uganda.