**OPERATIONS MANAGEMENT AND ORGANIZATIONAL PERFORMANCE**

**BY**

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**DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTERS IN BUSINESS ADMINISTRATION IN LANDMARK UNIVERSITY, OMU-ARAN**

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 DECLARATION

I, ADEOTI Sarah Bunmi (20PGDC000114), thus declare that my Master of Science dissertation titled “Operations Management and Organizational Performance”, was completed by me under the supervision of Dr. ENIOLA Anthony and Dr. SAJUYIGBE Ademola. The research provided in this dissertation has never been presented, in whole or in part, for any degree whatsoever. All academic sources cited in this dissertation were properly cited and referenced.

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CERTIFICATION

 This is to clarify that this dissertation has been read and approved as meeting the requirements of the department of Business Studies, Landmark University, for the award of Masters of Science (M.Sc) in Business Administration.

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DEDICATION

This dissertation is dedicated to my lord and savior Jesus Christ. He alone deserves my praise!!! Also to my family who has always been there for me

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TABLE OF CONTENTS

[DECLARATION………………………………………………………………………………..ii](#_Toc113289934)

[CERTIFICATION……………………………………………………………………………...iii](#_Toc113289935)

[DEDICATION………………………………………………………………………………….iv](#_Toc113289936)

[ACKNOWLEDGEMENTS……………………………………………………………………..v](#_Toc113289937)

[TABLE OF CONTENTS……………………………………………………………………….vi](#_Toc113289938)

[LIST OF TABLES……………………………………………………………………………...ix](#_Toc113289939)

[LIST OF FIGURES……………………………………………………………………………..x](#_Toc113289940)

[ABSTRACT……………………………………………………………………………………xi](#_Toc113289941)

[CHAPTER ONE………………………………………………………………………………...1](#_Toc113289942)

[INTRODUCTION………………………………………………………………………………1](#_Toc113289943)

[1.1 Background to the Study………………………………………………………………….1](#_Toc113289944)

[1.2 Statement of Research Problem…………………………………………………………..2](#_Toc113289945)

[1.3 Objectives of the Study…………………………………………………………………...3](#_Toc113289946)

[1.4 Research Questions……………………………………………………………………….3](#_Toc113289947)

[1.5 Research Hypotheses……………………………………………………………………..4](#_Toc113289948)

[1.6 Significance of the study……………………………………………………………….....4](#_Toc113289949)

[1.7 Scope of the Study………………………………………………………………………..5](#_Toc113289950)

[1.8 Definition of Terms……………………………………………………………………….6](#_Toc113289951)

[CHAPTER TWO………………………………………………………………………………..7](#_Toc113289952)

[LITERATURE REVIEW……………………………………………………………………….7](#_Toc113289953)

[2.1 Conceptual Review……………………………………………………………………….7](#_Toc113289954)

[2.1.1 Concept of Operations Management…………………………………………………7](#_Toc113289955)

[2.1.2 Concept of Procurement Management……………………………………………….9](#_Toc113289956)

[2.1.3 Concept of Production Management………………………………………………..22](#_Toc113289957)

[2.1.4 Concept of Supply Chain Management……………………………………………..37](#_Toc113289958)

[2.1.5 Concept of Information Communication Technology (ICT)……………………….42](#_Toc113289959)

[2.1.6 Concept of Organizational Performance……………………………………………48](#_Toc113289960)

[2.1.7 Conceptual framework…………………………………………………………...…58](#_Toc113289961)

[2.2 Theoretical framework………………………………………………………………….59](#_Toc113289962)

[2.2.1 Theory of Constraints (TOC)……………………………………………………….59](#_Toc113289963)

[2.2.2 The Theory of Swift, Even Flow……………………………………………………64](#_Toc113289964)

[2.3. Empirical Review……………………………………………………………………….66](#_Toc113289965)

[2.3.1. Operations management and performance variables……………………………….66](#_Toc113289966)

[2.3.2. Procurement management and performance variables……………………………..68](#_Toc113289967)

[2.3.3. Production management and performance variables……………………………….70](#_Toc113289968)

[2.3.4. Supply chain management and performance variables…………………………….71](#_Toc113289969)

[2.3.5. Information technology and performance variables………………………………..75](#_Toc113289970)

[2.4 Methodological Review…………………………………………………………………77](#_Toc113289971)

[2.5 Gap identified in Literature……………………………………………………………...77](#_Toc113289972)

[CHAPTER THREE……………………………………………………………………………80](#_Toc113289973)

[METHODOLOGY…………………………………………………………………………….80](#_Toc113289974)

[3.1 Introduction……………………………………………………………………………...80](#_Toc113289975)

[3.2 Research Design…………………………………………………………………………80](#_Toc113289976)

[3.3 Research Instrument…………………………………………………………………..…80](#_Toc113289977)

[3.4 Population of the Study………………………………………………………………….81](#_Toc113289978)

[3.5 Sample Size……………………………………………………………………………...81](#_Toc113289979)

[3.6 Sampling Technique…………………………………………………………………….82](#_Toc113289980)

[3.7 Validity and Reliability of the Instrument………………………………………………83](#_Toc113289981)

[3.8 Methods of Data Analysis……………………………………………………………….83](#_Toc113289982)

[3.9 Ethical Consideration……………………………………………………………………83](#_Toc113289983)

[CHAPTER FOUR……………………………………………………………………………...84](#_Toc113289984)

[DATA PRESENTATION AND ANALYSIS…………………………………………………84](#_Toc113289985)

[4.1 Introduction……………………………………………………………………………..84](#_Toc113289986)

[4.2 Presentation and Interpretation of data………………………………………………….84](#_Toc113289987)

[4.3 Test of Hypotheses………………………………………………………………………98](#_Toc113289988)

[4.4 Discussion of findings………………………………………………………………….103](#_Toc113289989)

[CHAPTER FIVE……………………………………………………………………………..104](#_Toc113289990)

[SUMMARY, CONCLUSION AND RECOMMENDATION……………………………….104](#_Toc113289991)

[5.1 Introduction…………………………………………………………………………….104](#_Toc113289992)

[5.2 Summary of the Study…………………………………………………………………104](#_Toc113289993)

[5.3 Conclusion……………………………………………………………………………..105](#_Toc113289994)

[5.4 Recommendations…………………………………………………………………..106](#_Toc113289995)

[5.5 Contributions to knowledge……………………………………………………………107](#_Toc113289996)

[5.6 Limitation of the study…………………………………………………………………107](#_Toc113289997)

[5.7 Suggestions for further study 108](#_Toc113289998)

[REFERENCES 109](#_Toc113289999)

[APPENDIX ONE 126](#_Toc113290000)

[APPENDIX TWO: 134](#_Toc113290001)

LIST OF TABLES

[Table 4. 1: Distribution of Respondents by Gender 84](#_Toc112054329)

[Table 4. 2: Distribution of Respondents by Educational Qualification. 85](#_Toc112054330)

[Table 4. 3: Distribution of Respondents by Grade level. 85](#_Toc112054331)

[Table 4.4: Distribution of Respondents by Department. 86](#_Toc112054332)

[Table 4.5: Distribution by Years in the Establishment. 87](#_Toc112054333)

[Table 4.6: Distribution by Annual Sales Turn Over in millions. 87](#_Toc112054334)

[Table 4.7: Procurement Management (Item analysis) 88](#_Toc112054335)

[Table 4.8: Production management (Item analysis) 90](#_Toc112054336)

[Table 4.9: Supply chain management (Item analysis) 91](#_Toc112054337)

[Table 4.10: ICT (Item analysis) 93](#_Toc112054338)

[Table 4.11: Organizational performance (Item analysis) 95](#_Toc112054339)

[Table 4. 12: Relationship between variables 97](#_Toc112054340)

[Table 4. 13: Procurement management and organizational performance 98](#_Toc112054341)

[Table 4.14: Production management and organizational performance 99](#_Toc112054342)

[Table 4.15: Supply chain management and organizational performance 100](#_Toc112054343)

[Table 4.16: Path Analysis – Direct Effect (without mediation) 101](#_Toc112054344)

[Table 4.17: Structural Equation Modeling with mediator (Indirect Effect) 102](#_Toc112054345)

LIST OF FIGURES

[Figure 2.1: Life-Cycle of a Record 15](#_Toc112054405)

[Figure 2.2: Conceptual Framework 58](#_Toc112054406)

ABSTRACT

This study sought to examine the influence of operations management on organizational performance in the manufacturing sector. The management and staff of Tuyil pharmaceutical limited Ilorin, filled out questionnaires that were used to collect data. Survey questionnaires were utilized to obtain data from the respondents, of whom only 200 (98 percent) responded. The results of structural equation modeling (SEM) indicate that procurement management has a positive and a statistical significant relationship with organizational performance. Positive and strong correlation exists between production management and organizational performance. In addition, the results demonstrate a direct relationship between supply chain management and organizational performance. In addition, it was discovered that ICT partially mediates the relationship between procurement management and organizational performance, but not between production and organizational performance. Moreover, ICT mediates the connection between the supply chain and organizational performance. The results indicate that ICT is related bi-directionally to compulsory supply chain management and organizational performance. The recommendations are that Tuyil pharmaceutical industries limited as a manufacturing firm should continue to improve on operations management in order to promote general organizational performance.

**Keywords: Organization, Performance, Operations, Management, Resources, Employees**

# CHAPTER ONE

INTRODUCTION

## 1.1 Background to the Study

Activities undertaken to ensure that businesses utilize fewer resources required to meet customer needs while at the same time ensuring business operations are efficient is referred to as operations management. In the recent century, organizations have found themselves performing in a highly changing business conditions characterized by scarcity of resources and where uncertainty in business opportunities reigns (Sobratee and Bodhanya 2018). This situation makes it mandatory for organizations to ensure careful optimization of internal resources in order to achieve desirable objectives through efficient utilization of the existing organizational resources. According to Pooja and Pallawi (2019), operations management is regarded as a branch of management that focuses on planning, implementation and improvement of businesses performance in the development of labour, goods and related services. Operations management considers aspects such as defect rates, creation dependability, cost of value, efficiency, season of conveyance, scrap minimization, and the pattern of creation, labour, and product development in terms of procurement, production and supply chain activities.

Organizations spent a lot of effort into maintaining high efficiency, and these efforts typically included all of the procedures in place to reduce the cost of administrations and goods (Rane and Narvel, 2018). Werunga (2016) articulated that, organizations typically focus on operations management in order to meet and remain on top of market demands while working with limited resources. The development of good functional practices and their application are fully dependent on effective operational management practices. However, for organizations to be efficient enough to be able to achieve overall cost reduction through operations management, adequate attention must be accorded to the areas of procurement management, production management, supply chain management and information communication technology leads to the achievement of operations management goals.

The manufacturing industries makes use of large quantity of resources (men, money, machines, materials, management etc). Since the products produced are meant for saving human lives, the quality of the materials procured must be ensured through effective procurement management, while production processes must also be free of errors, timeous, as well as include minimal or no damages, all of these are only possible through production management.

Another dimension of operations management is supply chain, as the effective delivery of the products produced to the target customers is also of utmost importance. The use of Information and communication technology also contribute in ensuring that organizational performance is achieved through operations management, since technology improvement in the operations system is expected to enhance achievement of operations management goal. Based on this, a discussion of operations management will be incomplete without considering procurement management, production management, supply chain management and information and communication technology which are its essential elements as affirmed by (Elisa, Andrea, Andrea and Massimiliano 2013).

## 1.2 Statement of Research Problem

Most Operations Management (OM) initiatives should include companies in the manufacturing industry (Spring, 2017). This is because there are numerous benefits a manufacturing company can derive from the implementation of operations management (OP) especially in achieving performance. But despite all benefits attached to operations management implementation on manufacturing sector to achieve its objectives of establishment, some manufacturing firms are still not taking these numerous advantage of operations management to their own advantage through the implementation of tools and technique for the purpose of their quality products; management and organizational business performance.

Also, many industrial sectors in Nigeria lacks systematic and methodological analysis in the area of operations management and this serves as a major weakness and setback to them in terms of procurement, production and supply chain practices (Okafor, Ani and Ugwu, 2021). Mbolonzi, (2016) penned that operations administration enables organizations to explore operations management procedures and execute them by selecting appropriate methods and policies but when organizations are not willing to implement effective operations management and level, it will only make such organizations to go backward, thereby spending millions of dollars to survive (Al-Kaseem, In’airat and Al-Bakri, 2013)

Over time, some scholars such as Anil and Suresh (2017), Werunga 2016, King’oo (2019) all pointing that relationship exist between operations management and organizational performance in various environments. Literature reviews that problems of operations management has not being given much attention and so it still remain unresolved (Thomé, Scavarda and Scavarda, 2016). The problem of operations management ranging from low level of procurement, high production management cost and poor supply chain management practices will make the achievement of overall organizational performance an illusion. Thus, this research aims to add to the current few existing literature by laying out a connection between operations management and organizational performance.

## 1.3 Objectives of the Study

The main objective of the study is to examine the influence of operations management on organizational performance. The specific objectives are to;

1. Examine the effect of procurement management on organizational performance.
2. Investigate the extent to which production management influences organizational performance
3. Ascertain the extent to which supply chain management influences organizational performance.
4. Investigate the extent in which the information communication and technology (ICT) mediates between operations management and organizational performance.

## 1.4 Research Questions.

The research questions to be answered by this study are:

1. To what effect does procurement management influence organizational performance?
2. To what degree does production management influences organizational performance?
3. Does supply chain management influences organizational performance?
4. Does information and communication technology (ICT) mediates between operations management and organizational performance.

## 1.5 Research Hypotheses

The following research hypotheses were formulated for the purpose of this study and stated in null form:

**H1:** Procurement management has significant influence on organizational performance.

**H2:** Production management has significant influence on organizational performance.

**H3:** Supply chain management has significant influence on organizational performance.

**H4:** There is a significant relationship of information and communication technology (ICT), mediating the relationship between operations management and organizational performance.

## 1.6 Significance of the study

The exposition from this work would be of extreme benefit to various stakeholders such as policymakers in government, business owners, organizations, researchers and the academia as well as students of Business Administration and allied disciplines in the management sciences.

Policymakers in government will be exposed to the efficacy of operations management and organizational efficiency. Such awareness will be instrumental to their management of inventories in public corporations. Besides the application of operations management to the management in public corporations, various government parastatals such as health, education, among others would find it useful.

 Business Owners and intending owners of businesses will be sensitized about the influence of operations management and organizational efficiency towards productivity and sustainability of the business. Such awareness would serve to redirect their thinking to strategize towards taking measures in terms of management operations in increasing profitability. It will also help them to eliminate waste as well as reduce costs by simplifying production processes in the best way possible that could lead to productive efficiency as well as improved response time.

This study would influence and encourage organizations to achieve unique goals while effectively converting resources into quality products and services. It also helps organizations to increase profits while reducing costs and ensures maximum productivity. This will serve to situate their thinking and strategizing and thus enable them to add greater value to the business in particular and the industry in general.

The results of this study will constitute data that will be useful to researchers and the academia because the results will trigger further researches among this group. Some of the research will look to determine if the results of this study are right and valid, while others will seek to repeat the study in different situations to see if the results are consistent. A series of investigations targeted at determining the work's validity and consistency will lead to theory development, which will aid in the refinement of supply chain management studies.

The results of this study will also be useful to Students of Business Administration and allied disciplines in the management and social sciences. Some of the students may be persuaded to adopt the research problem as their project topics and thus use the opportunity to contribute to extant studies on the research problem.

## 1.7 Scope of the Study

The study was limited to operations management and organizational performance. The study population was limited to the staff of Tuyil Pharmaceutical Industries Ltd., Ilorin Kwara State which is a manufacturing organization. The organization is considered as the study area because Elisa, Andrea, Andrea and Massimiliano (2013) affirmed that only an assessment of manufacturing organization can capture the true nature of operations management. 

Furthermore, the conceptual scope of this study was restricted to the evaluations of operations management, procurement management, production management, supply chain management and organizational performance which are the main variables considered in this study. In addition, data used in this study was limited to those gathered within the period of ten (10) years of evaluation of the Tuyil Pharmaceutical Industries Ltd, Ilorin, Kwara State, covering 2012 to 2022.

## 1.8 Definition of Terms.

**Organization:**  A well-coordinated group of people with a common goal in mind, such as business or government, that divides and represents roles, obligations, and power to carry out specified responsibilities. An organization is an open framework since it can be affected and impacted by its current situation.

**Performance**: The way and manner at which organizational task are carried out, ability to produce something without wasting material, time and energy.

**Operations:** Are the business processes that transform unrefined components into semi-endlessly finished products. Activities and decisions made by business members and individuals have an impact on creation, dissemination, and the board.

**Management:** The process of dealing with or controlling resources and people in other to meet organizational needs.

**Resources:** these includes all stock, materials, men, machines or supply of money and other assets used by an organization in order to adequately carry out organizational activities.

**Employees:** This refers to workforce or soul of an organization.

# CHAPTER TWO

LITERATURE REVIEW

## 2.1 Conceptual Review

Product creation, development, production, and distribution are among the most common activities undertaken by manufacturing and service companies to improve their overall performance. The increased level of business competition has enabled manufacturing companies to improve their operational levels in a way that leads to effective organizational performance. When it comes to operations management, raw materials, semi-processed goods, and finished products that are ready for sale can all be seen as examples of how this discipline is applied.

2.1.1 Concept of Operations Management

Many authors have given various insights to operations management. According to Anil and Suresh (2017), operations management is a method and procedure by which the recorded targets of a working framework are accomplished. As also defined by Bellgran and Safsten (2009) as the management of frameworks or cycles that produce things and provide various forms of assistance, operations management is a broad term, it is seen as a management area that establishes and controls the course of creation, as well as updates commercial activities in terms of labor and product developments (Galvin, 2009).

Operations management as defined by Gunether (2018), encompasses the planning, organizing, and controlling of all of an organization's labor and product resources. This includes overseeing the various assets involved in the development of labor and products. For example, operations management is defined by Stevenson (2002) as the management of all business activities that is such as creation of goods and services. Operations management is also described by Radoslaw (2020) as the central core function of every company and the procedures by which resources are jointly used into the transformation and production system into modernized products and services according to the policies of the organization. On the other hand, according to Werunga (2016), operations management refers to an organization's involvement in converting varieties of inputs into the products and services it needs.

According to Elisa et al. (2013), the ability of business to function in terms of it conversion of resources into finished goods (or services) while establishing a well organized, controllable and repeatable operating strategies falls under the definition of value stream mapping. According to, King'oo and Muli (2019), production is the process by which resources flows within a specific system, combined and transformed to add value as it relate to management policies. Pooja and Pallawi (2019) also viewed operations management as the administration of all processes involving the transformation of resources that that provide optimum value to customers.

In a more in-depth look at what operations management is all about in Petra and Marcela's (2011), viewed operations management as a process by which inputs (resources) are being transformed into outputs (services or product). In their view they explained the term "transformed resources" to be resources such as materials and information whose various conversion process changes it state. In contrast, transforming resources refer to the various inputs such as workers, machineries, equipments and buildings that are used during conversion process but still remain in it state after the conversion process. As a result, it is clear that there is no universal definition of operations management from the definitions above. The general consensus, on the other hand, is that it entails the acquisition of input, the transformation of input into desired output, and the creation of value for the satisfaction of customers. Operations management is known to be a field of study that deals with the acquisition of production, input their transformation into outputs through value creation, and their delivery to customers. Adequately meeting the needs of the target market so as ensure organizational goals are achieved.

 **Scope of Operations Management**

After acquiring all of the materials needed to be transformed, the next step is the actual transformation. Creating a new operating system, as well as the associated planning and control processes and improvements are all part of the transformation process. A business operates in other to produce goods and services to satisfy customers’ needs and to achieve certain business strategic objectives so that it can continue to compete favourably in the market. On the basis of these findings, Elisa *et al*. (2013) defined the scope of operations management as encompassing procurement, manufacturing, and supply chain management.

2.1.2 Concept of Procurement Management

The definition of procurement must first be established before moving on to the topic of procurement management. Procurement is defined in the Tanzania Public Procurement Act (2005) as the purchase of goods and services, it includes all business functions related to acquiring all these goods and services such as the description and requirements, selection of tenders, preparation and awarding of contracts. The acquisition of any type of work, service, or supply by any contractual means or combination was also defined by Makabira and Waiganja (2014) as procurement.

In this context, procurement management is defined as the process of creating consistency in the alignment and action while establishing an overall strategy for a set objectives while a course of action fills it procurement actions (Caleb, 2017). Whenever organizational aims and objectives are translated into activities that can be measured, they can be used in the managing and planning of procurement activities. It is a strategy that an organization employs to procure its goods and services needed to gain a competitive edge in accordance with a company's stated goals and objectives, this is in accordance with Aaron's (2011) definitions. Procurement management can include both purchases from outside vendors and those provided by the company's own employees. According to Lyson and Farrington (2012), the process encompasses all aspects of the asset's lifecycle, the options, evaluation, and a critical make-or-break decision are all part of the process. The management of reducing expenses to a large extent and making sure the goods produced are of high standard is a major responsibility of procurement management.

For the institution's long-term success, efficient and effective procurement practices are critical. In an effort to improve quality and reduce costs, procurement practices were implemented. It enhances the firm’s appropriate allocation of resources, procurement and budgetary savings, high quality and time management and increases profitability in the company. “Quality, productivity, market share, growth in customer base, profitability, return on equity, customer satisfaction, management efficiency, and branch network expansion are some of the metrics used to determine the best company performance" (Akubuko, Obodo, Musa and Jimoh, 2019).

**Dimensions of Procurement Management Practices**

The Aspects of Purchasing and Procurement Management discussed by Akubuko, Obodo, Musa and Jimoh (2019) are supplier relationship management, record management, and cost management are identified below

**Supplier Relationship Management**

Management of Supplier Relationships SRM “also known as Vendor Relations Management” It entails techniques and tools that assist businesses in getting the most out of their supplier relationships while spending the least amount of money maintaining such connections. The relationship between buyers and suppliers could also be a result of the formation of a strategic alliance. Supplier relationship management (SRM) is a strategy for buyers and suppliers to acquire a competitive advantage in the marketplace by forming alliances and partnerships.

According to Zhang and Cao (2018), supplier relationship management (SRM) refers to the active management of buyer to supplier relationships in order to procure at a minimum from the actual suppliers in the correct quantities at the right time. Forkmann *et al*. (2016) describe “supplier relationship management as a long-term cooperative arrangement between the firm and its suppliers that is critical for the success of the entity that wishes to remain competitive, this includes engagements in product design, material selection, innovation, information sharing, technology investments and long-term cooperative arrangements”. The goal of supplier relationship management is to help companies interact with their sellers such that it addresses the preferences of their customers in the most effective way.

Furthermore, while suppliers and customers have been given a lot of attention, the goods and services that the company purchases are what really matters when it comes to determining how the company interacts with these parties. According to Teller, Kotzab, Grant, and Holweg (2016) Understanding and appreciating this triangulation would therefore add value to the company. increasingly, competitive global supply chain collaborative practices between suppliers and sellers are becoming increasingly important in order to gain access to valuable raw materials, enhance flexibility, reduce costs, ensure quality, implement technology successfully, and improve overall supply chain performance in the (Lii and Kuo, 2016). In view of this, the concept of supplier relationship management often entails that procurement work closely with other departments within the organization. Supplier relationship management is viewed as part of procurement practices in the that help businesses to remain competitive. According to Mamorena and Olumide (2017), many organizations have difficulty building strong relationships with the suppliers, they work within their supply chain.

Effective supply chain management and implementation of procurement and production systems are dependent on strong relationships with suppliers. Keeping the lines of communication between buyers and suppliers open and flexible has long been thought to have a positive impact on how well operations run. Maintaining timely delivery may necessitate working with suppliers who have a reputation for both quality and timely performance. Companies must strive to create an integrated supply chain with well-coordinated suppliers and relationships with customers.

It is essential that organizations maintain a long-term relationship with its suppliers. A long-term relationship with suppliers allows companies for costs reduction while still maintaining a competitive environment even if they only have a few suppliers. Furthermore, Christoph, Herbert, David and Christina (2016), maintains that an effective supply chain is in stages, the result of an effective relationship with suppliers, which leads the competitiveness of the supply chain as a whole (Christoph *et al*., 2016).The benefits from long-term relationships with strategic suppliers lead to financial performance of businesses. According to Zhang and Cao (2018), a company's ability to effectively communicate with and maintain a relationship with suppliers is enhanced when it relies on a small number of suppliers. Well-integrated industrial relations lead to faster delivery and higher quality of goods, which in turn increases the financial performance. Suppliers participation in new product design and development becomes easier when there are fewer suppliers, as dealing with multiple suppliers for a single product line is more expensive than monitoring a single supplier. Different suppliers and components of supplier relationship management can be used by companies to make sure relationships are well managed throughout the life cycle using various tools.

When it comes to supplier relationship management, Onyango (2020) it is an approach that focuses on both the buyer and the supplier. All of this is done to make sure that the organization gets something in return for its investment of resources, including time. Onyango (2020) identifies the identification and contracting of suppliers as one of the critical dimensions of supplier relationship management. This is largely realized through the process of sourcing. It involves suppliers in the product development process, they help the company in making the most use of its suppliers strength, including technologies, resulting in competitive final products.

Supplier relationship management, according to Mitra and Datta (2014), includes cordinating activities at business level of operations as seen through the joint plans creation. This brings numerous advantages to the company, including the need to uphold quality products and lead times, which reduces uncertainty. Sourcing Relationship Management (SRM) seeks to add value for the business, build open channels of communication, and work with suppliers on the company's behalf. According to Oghazi *et al* (2016), the goal of supplier relationship management is to assist the purchasing organization in better utilizing the capabilities of their suppliers. This is due to the fact that companies lack the resources to fund all of their activities, and thus must rely on suppliers. Globalization is putting pressure on companies that are doing their best to blend in with their surroundings.

Additionally, end users changing perceptions, a shorter product lifecycle, and mounting pressure to reduce costs all contribute to various outcomes. As a result of outsourcing, management of suppliers and the procurement of goods and services have become strategic functions in the company (Satyendra and Bhat, 2014).

Suppliers relationship management is in two forms: a mutually agreed-upon commitment between the buyer and the seller, codify dealings and objectives. Good Supplier Relationship Management (SRM) practices enables an organization to identify strategic suppliers based on their relative importance (supplier stratification), it sets operational expectations, and establish a governance structure and process for internal and supplier interactions throughout the lifecycle of the supplier relationship. Additionally, it aids in the establishment of procedures for efficient performance management and the successful definition of formal processes for management engagement in the relationship.

**Record Management (RM)**

A good place to start with the concept of record management is by defining exactly what it means. Dzifa, Reindolf and Prosper (2015) state that a record can be defined in two ways: by its physical, tangible format or by the data it holds. It's important to keep in mind that records can have a variety of formats and sizes, as well as different content. In light of the fluidity of the term and the increasing complexity of the work being done by the profession, any definition of "record" must be pragmatic. Any kept document that a person or organization creates or receives throughout the course of business is referred to as a record. Records are also seen by Langomo (1995) as the memory of the organization, a source of knowledge for making decisions and the basis for a legal defense. A record, according to Penn, Pennix, and Couson (1994) are details that can be reproduced and used for business purposes. It is in the view of Roberts (1998) that records are information that has been gathered or gathered in the course of an institution or individual's activity.

To put it another way, record management handles information throughout organizational lifecycle, from product creation to disposition. Classifying and categorizing records as well as keeping them safe and accessible is part of this process. Records Management department is in charge of ensuring that the processes involved in the creation, maintenance, receipt and disposal of records are systematically carried out.

These records are a source of institutional memory, according to ABC International Standard Organization ISO (2001). Keeping records that can be reused is an important consideration when deciding how to store them. Some are used as evidence of actions, dealings, and judgments that have taken place. Managing the documented organizational activities and also reducing or mitigating the associated risk, is what records management is all about (Megill, 2005). Section 4 of the International Organization for Standardization— ISO (2001) stated that “records management includes: Setting policies and standards, assigning responsibilities, establishing procedures, guidelines and procedures, providing range of services related to the management and use of records, designing, implementing, and administering special systems for managing records, integrating and managing records management systems”.

According to Dzifa *et al*. (2015), record management is the competent management of data in its true structure from the point at which it is obtained or created via handling, distribution, and placement in a capacity/retriever framework until the end or till it ascertains extremely long-lasting preservation of the existing records. They went on to define records management as the act of keeping track of documents from the moment they are created or received all the way through to the point where they are shredded or otherwise disposed of. In contrast, the International Standard Organization (2016) defines records management as management field that is responsible for the productive and methodical control of the generation, receiving, upkeep, usage and removal of records. Organizational performance can only be evaluated with the help of records. Record keeping must be current, accurate, and easily accessible in order to accurately measure performance (Amani, 2013).

 Records management has been linked to performance evaluation in previous studies. Although a few examinations have raised comparative worries about records management and reduction of cost, as well as their role in preventing fraud (Cheng, 2018). Effective record keeping can also reduce costs in ways that are not related to money, like fines, lost productivity, and lost office supplies, damage to reputation, criminal charges and loss of customers in the commercial sector. An investigation conducted by Casadesus de Mingo et al. (2018) found that record management is an effective for fighting and preventing corruption in Spain, as well as protecting organizations from the risk of corruption eroding their procurement functions.

**Records Lifecycle**

There is a lifecycle for each and every piece of data. Records are created, used for a period of time, and then archived for future use in response to queries or other referrals. It is either destroy it or store, it in an archive as part of the organization's permanent record. In Noluvuyo (2010)'s view, the life of a record begins when it is created or received by the institution and ends when it is disposed of. A record's life cycle is depicted in the following diagram:

Figure 2.1: Life-Cycle of a Record

*Source: Noluvuyo, 2010.*

A record management is worked around the life-pattern of a record. This is on the grounds that the framework indicates the means and cycles that organizations need to follow at each phase of the record's life-cycle. A key idea in records management is that records should be managed well throughout their entire lives. If organizations do not keep track of records in their early stages, records with few operational value will be kept and records with archival value won't be found and kept safe. In another study, Amani (2013), found that there are three types of records that are kept at different points in the record management life cycle. There are records that are still active or current, records that are no longer active or current, and semi-current records. Active or current records are open files that are used to run the organization's current business. Current records and documents are always being used, so they should be kept close to the people who need them, they should be kept and managed in a way that makes it easy for people to find them.

Records offices are usually where current records are kept (or registries). The most recently closed files are in the semi-current records, they aren't used very often, they should be put in a closed records register and moved and put away in a way that makes sense in a departmental record center, the register is a way to find things.

On the other hand, non-current or inactive records are documents that are rarely used for business operations. Reviewing and evaluating old records is necessary to decide if they should be kept or thrown away. Those that are chosen as important records should be kept in a departmental record center or, with advance planning, sent to the archives to be kept for a long time as archival records.

**Procurement Records System**

Organization's business systems must be able to keep accurate records and perform basic record-keeping tasks continuously through linked business operations. This makes sure that all of the organization's business activities are properly documented. These systems do not have to be the ones that keep records on their own. They can be business systems that keep records, like database applications or web content managers. They do not have to be big, centralized, or accessible to everyone in the agency, but they do need to have a role in keeping records (CBPS, 2013).

At the moment, most business systems may keep records of information. The organization's personnel and financial management systems are among these systems. There may also be proof of organizational operations not treated as records in other systems, such as shared files, workflow programs, web Apps and database applications. All business systems used by an organization must be able to capture, store, and provide evidence of its business activities over time to meet the organization's record keeping needs (CBPS, 2013). Lang (1990) opined that a researcher's ability to get a patent on these data may depend as much on how well he or she has kept a research notebook as on how original and patentable the discovery is. "There is a lot of competition to get new products on the market" says a patent lawyer for the Wisconsin Alumni Research Foundation (WARF). "In the United States, it may be important to get a patent if you can prove when you made an invention. Also, competitors are challenging patent claims more and more". In these cases, inventors might have to show their notebooks to someone who wants to look at them. Any mistakes in keeping records are red flags for the lawyer of the person being sued. Most university researchers do not feel like they have to keep strict notebooks like their industrial colleagues do. Still, they should do a few common-sense things to keep themselves and their work safe. These practices can not only back up patent claims, but they can also protect against the loss of valuable data, show that contracts were fulfilled, and protect against claims of research fraud or a conflict of interest (Lang, 1990).

A good research notebook is more like a diary than a biography, it tells about events as they happen, not as people remember them. It's also like a diary because it keeps track of what you think as well as what you do. It provides that too many notebooks are just places to store data without any indication of how the ideas behind the research are changing. A researcher can spend months doing experiments that could lead to a new discovery or that turn an idea into something that can be done. But if the researcher's notes don't show that they were aware of the possibility, they may have a hard time defending their ownership of the final discovery in the future. If you don't explain your ideas as you go along, the evidence may not be there to back them up.

**Impediments to Effective Record Management**

Hounsome (2001) expatiated that that there are a lot of things that make records management practices efficient and effective. These include the establishment of laws governing records management, the presence of professionals with requisite skills, including archivists and record managers, and the allocation of capital to put the required record keeping systems in place. The public service's operation is slowed down by inadequate information storage and retrieval, this therefore makes it harder to make policies, plan, and keep track of money. Improving how records are kept is a must if the reform process is to move forward.

But over time, the way records were kept got worse, and many important records were lost during the fight for independence and right afterward because of problems with staffing and education. Today, every government ministry, department, and agency is also affected by long-term problems with how records are managed. Most business areas, like financial transactions, resource allocation, policy development, case management, and procurement management, don't keep good records. Information is not usually controlled, and registries aren't always well-organized or staffed with well-trained people. This makes the information stored very insecure. In some places where records do exist, they have often been changed or papers have been taken out on purpose. There is almost no confidence in the records. Computerized record-keeping and document-management systems don't exist, and electronic records are just starting to show up, especially in the form of a government-wide integrated financial management system. However, these records are still few and expensive, especially in rural areas (CBPS, 2013).

**Rewards accruing from Record Management:**

The benefits of effective record management as stipulated by Molla and Licker (2001) include the following:

1. Control over the number, size, duplication, and records progress.
2. Lowering operation costs through effective management and smart decisions about outsourcing.
3. Overall effectiveness and output will get better.
4. Assimilation of new technologies for managing records.
5. Making sure that laws and rules are followed, as well as other risk management issues, like lawsuits.
6. Keeping the organization's important records, including historical ones, safe.
7. Helping business processes run better and be more productive
8. Allowing management to make decisions faster and better

**Cost Management**

Cost management (SCM) is the process of gathering and analyzing cost and management accounting data of a business organization and its rivals so that the business strategy can be made and tracked. Strategic cost management is more about lowering costs and improving and changing things all the time than it is about keeping costs the same. Ibanichuka (2017) opines that the customary cost control methods tend to keep things as they are and don't change how things are done. Strategic cost management means looking at every process in an organization, breaking down barriers between departments, learning about the business of suppliers, and aiding in the process improvement. It involves using cost management strategies to both increase an organization’s strategic advantage and reduce expenditures (Ibanichuka, 2017).

Institute of Chartered Accountants in India (ICAI, 2016) defines cost management as the process of gathering, measuring, classifying, and reporting information that managers and other internal users can use to figure out costs, plan, control, and make decisions. The goal of cost management is to produce and share information with people who work inside the organization. Managing costs well is important for making an organization stronger and more stable, and it also helps a business reach its full potential. The organization wants a way to keep track of how the business affects the economy as a whole, including how it gets and uses resources. This gives information to the top management so they can look into different options for making cost-effectiveness better. Cost management enables organization's effectively use their resources to improve its overall efficiency and reach the desired goals.

Furthermore, Hailiang and Chaofeng (2013) explain that cost management is a fundamental aspect of procurement management. Cost management is often a part of business organizations, mission statements, strategic goals as well as business plans. But there are three main tasks that help organizations' cost systems work well. These are;

Financial reporting functions**:** The method displays production costs in reports for each period under consideration, including cost of goods sold and inventory.

Employees and supervisors can receive economic feedback from a cost system, including information on how well a process is operating and cost-cutting strategies.

Organizations may better control costs by estimating the expenses of their activities, consumers, activities, services, and goods based on cost information.

**Types of Costs in Cost Management**

Hailiang and Chaofeng (2013) further states that costs are classified into two categories, namely; direct and indirect costs

**Direct Costs**: Direct costs are the initiative itself. The labour and materials cost can be the finest illustrations of direct costs. Most times, labor costs are seen as direct costs because they have to do with the people who are actually working on the project. But some labor costs, like the cost of support staff, may not be considered to constitute direct project costs. For instance, it would not be possible to directly apportion the expenditures of auditors or advisors from other organizations and incorporated into the project, especially if their jobs involve servicing or observing anything that could be viewed as additional.

The direct material cost is simple to calculate for a project as long as you know what kinds of materials you will need. For example, it is quite possible to calculate the direct costs of constructing libraries or hosting an event involving 1000 guests. This implies that such expenses can be anticipated to be incorporated directly into the project. In the past, material costs and labor costs were directly added to projects in industries like manufacturing. There are a few reasons why these resources were given out right away. First, the cost of the finished product was largely comprised of these charges. Then, the scientific management regime thought it was very important to control how these expensive resources were used and how much of them were used. Lastly, it was easy to figure out how much of these resources each product used. These three features can be used to estimate how much time and money will be spent on each product (Hailiang and Chaofeng, 2013).

**Indirect costs**: Most of the time, overhead costs and selling and general administration costs are linked to indirect costs. The very first component accounts for all indirect costs, including as utility, taxation, insurance schemes, property repairs and maintenance, amortization of equipment, and employee health and pension schemes. Because the costs may originate from numerous distinct projects and occupations within a corporation, they may be challenging to calculate. Costs associated with sales and administrative operations typically include salary, promotion, wages, sales and administrative support, commission on sales, as well as other expenses of a similar nature. Monitoring these costs and figuring out how they are related to initiatives is far more difficult compared to direct costs. Therefore, each company has its own way of doing it. A fixed fee (such as multiplying direct costs between 20 and 50 percentage) or a project-by-project premise assessment, that is associated with individual observation of every operation, are two possible measurement techniques (Hailiang and Chaofeng, 2013).

**Elements of cost management.**

Most of the time, there are other sources of project costs, such as:

**Labour costs**: These are the costs of hiring and paying all of the people who will be working on the project. These costs can be hard to figure out because a project needs a lot of people to work on it at different times and in different parts. The human resources department needs to keep the lowest feasible labor costs, under control.

**Material costs**: This type of costs vary depending on whatever the firm intend to accomplish for a task to be completed with specified periods of time. The project team must consider flowers and trees for a horticultural project including one at hand. As a result, they rank among the project's highest crucial components.

**Subcontractor costs**: These costs will be accounted for within the initial cost calculation and budgeting, particularly if subcontractors contribute to project resources. Subcontractor expenditure, for instance, might be the cost of paying a designer to create eye-catching packages for goods such as cosmetics, food, and containers.

**Equipment and facilities**: Renting equipment or facilities increases a project's cost, which must be considered.

**Travel expenses**: Expenses associated with business trips, such as lodging and food, must be factored into the costs of a project.

**Benefits of Cost Management:**

Here are some of the good things about strategic cost management: It helps set up a structure for analyzing the optimum deployment of company resources depending on the crucial business operations and procedures Also, cost management helps businesses better understanding of cost drivers, which makes it easier to explain its strategic plans in terms of costs. Cost management also lets the business figure out, a greater explanation of how action strategies might be applied throughout the organization to enhance costs management.

2.1.3 Concept of Production Management

Usually, when people talk about production or manufacturing in management, they mean the making of things like cars, computers, TVs, cameras, furniture, and equipment. However, in the past decade, intangible services creation has shifted to satisfying consumer needs. Educational institutions, banks, insurance companies, amusement parks, and other services are becoming more important in production management (Palmer, 2013).

The production system function is the part of an organization that is in charge of turning different inputs into the desired output (products) with the desired quality level. Production is the continuous conversion of specific materials into some others by means of mechanical or chemical procedures to produce or enhance product for the user. Hence, production is a value-adding activity that creates value at every level. So, production has also been thought of as the act of making things and giving services (Viswanadham and Narahari, 2015).

Gholam, Mohamad, Parisa and Mahdy (2013) submit that production management involves planning, organizing, and monitoring of the entire production phases. A production system is the way all of these operations and activities that go into making goods and services work together. Production means using processes (Technology) to add use and economic values to raw materials in order to make the best product possible without sacrificing quality.

Gholam *et al.* (2013) describe Production Management as the actions that managers take in choosing, designing, operating, controlling, and updating the production systems. Also, the Institute of Chartered Accountants of India (ICAI) defines production management as effective planning, coordinating, and controlling the production process of a business. Thus, production and operations management see to the responsibility of converting of raw materials into finished products. They also said that production management is mostly used in systems that make things that can be seen and touched, like medicines, cars, electronics, mobile phones, etc.

In the same way, production management is the management function that involves planning, coordinating, and controlling all the resources needed for production in order to make a certain product in a certain way using the best use of resources. Abdiaziz (2019) also defined production management as the management function that plans, organizes, directs, coordinates, and controls the material supply and processing activities of a business enterprise aimed at meeting approved standards. But these things are done in a way that makes the best use of the capital, labor, and plants that are available to the organization.

From the above definitions, it seems that most authors have a similar idea of what production management means. From this, we can conclude that production management is the process of using all resources, strategies, and methods effectively to make sure that goods and services are made that meet customer needs. The Production Management aims at developing products that are wanted or specified in a way that makes the best use of the resources that are available. So, it's up to the people in charge of production management to make sure that the desired product, which can be sold, is made at the lowest possible cost through proper planning, using the right personnel, materials, and processes. The people in charge of production must make sure that standard products are manufactured in the correct quantity, at the appropriate place and best price. Therefore, Production Management system works well, when these goals are actualized.

**Characteristics of Production Management**

The Institute of chartered accountants of India (ICAI, 2016) explained that production management today has some features that seem to vary with its original characteristics. More precisely, there are four main things that make up the production system of today.

**Manufacturing as Competitive Advantage**

Before, people thought that production was just like any other part of an organization. When there was a lot of demand and not enough production, the goal was to get all of the inputs together and use them to make goods that people would buy. But what can be seen now is very different. Plants have more capacity than they need, competition is getting tougher, and businesses are looking for ways to stay in business and do well. The production system is interesting because it gives companies a lot of room to gain a competitive edge, and companies plan to take advantage of this. Time-Based Competition (TBC), Flexible Manufacturing Systems (FMS), Total Quality Management (TQM) Just-in-Time (JIT), Focused Factory,(FF), Business Process Re-engineering (BPRE), Computer Integrated Manufacturing (CIM), and The Virtual Corporation are among the factors that drive competitive edge in a business firm.

**Focused Services**

The service sector is becoming more important in business today. So, the production system needs to be set up with the special needs of the service component in mind. All of an organization's manufacturing needs should be geared towards:

(1) The services are both perishable and intangible.

(2) Having constant contact with clients or customers.

(3) Small quantities of goods made for local markets.

(4) Need to find places to build to serve local markets.

**Getting Rid of Smokestacks**

The production system has changed completely because of laws that protect workers, the environmental movement, and the gradual rise of organizations based on knowledge. Modern factories are built in a way that looks nice and is good for the environment as they seem to offer the similar comforts like homes. Thus, visiting factories on daily basis has ceased to be boring. Now, it's like taking a vacation in a beautiful place. Anyone who goes to some organizations should be able to see how the system for making money has changed.

**Small has Become Beautiful**

ICAI (2016) used Schumacher's "Small is Beautiful" to illustrate why big companies and more specialization are bad. He instead pushed for technology based on more compact organizational structures, local investors, and localized factories that make use of neighborhood labour. For him, smaller was lovely. Business people from all over the world didn't agree with Schumacher's ideas. The idea of economies of scale made industrialists want to build big companies and systems for mass production.

**Recent Trend in Production Management**

Current trends in production and operations management have to do with global competition and how it affects manufacturing companies. Some of the new trends that ICAI (2016) has noticed are:

**Global Market Place:** Because of globalization, many manufacturing companies now have to do business in many countries where they can make more money. Because of this, the degree of competitiveness within manufacturing companies across the globe has increased significantly.

**Production/Operations Strategy:** More and more businesses are realizing how important their production/operations plan could be to the ultimate effectiveness of the organization and also how crucial it can be to tie it into their overarching business strategy.

**Total Quality Management (TQM):** Many companies use TQM to make sure their customers are happy by constantly trying to enhance products and services standards.

**Flexibility**: Being able to quickly adjust to changes in demand volume, product mix, delivery timelines and product development have grown to be important competitive strategies and advantages for businesses. This is often referred to as "agile manufacturing”.

**Time Reduction:** Reducing the timeframe required to produce a product and deliver it to the market faster gives a company an edge over other companies. When two companies can offer the same product at the similar cost and same quality, timely delivery (reduced lead times) offers one, a definite edge above the other.

**Technology:** As technology has improved, various new products, procedures, as well as materials and parts, have resulted from it. Computers and information and communication technologies automation has significantly altered how businesses operate. The competitiveness and increased production process would greatly benefit from effective integration of the new technology into the current production systems.

**Worker Involvement:** It is becoming more common to give lower levels of an organization the power to make decisions and solve problems. This is called getting employees involved and giving them power. Quality circles, work teams, and quality improvement teams are all ways that workers can be involved.

**Re-engineering:** it is a way for a company to improve its performance by taking drastic steps or making breakthrough changes. It uses the idea of a "clean slate" or starting over, when redesigning business processes.

**Environmental Concerns:** Today's industrial managers are highly focused on sewage disposal and pollution management which are important parts of protecting the environment and being a good citizen. More and more attention is being paid to reducing the amount of waste, reusing waste, utilizing lesser hazardous chemicals, and employing renewable packing materials.

**Corporate Downsizing (or Right Sizing)**: Firms have been forced to do downsizing or right sizing in order to lose weight. This is because of competition, a drop in productivity, the need to make more money and pay higher dividends to shareholders.

**Supply-Chain Management:** Controlling the flow of commodities along supply system lowers the shipping, storage, and distribution costs.

**Lean Production**: Today's production systems are lean production systems that use as few resources as possible to make a large selection of stylish items of varying quality. By utilizing adaptable production techniques and personnel with a variety of skills, such promising innovation encourages large scale production and employment creation (or craft production). Onyebuchi, Isaac and Henry (2019) also explains that workers involvement also called “employees involvement”. Time reduction and production/operations strategy are important trending ideas in operations management.

**Employee involvement**

Authors have used different words to describe what it means for an employee to be involved. Kumari and Kumari (2014) explain that employee involvement is the act of granting freedom to employees to engage in managerial decision-making and growth initiatives that are relevant for their levels within an organization. People also see the idea as a process that ties together involvement, dialogue, and decision-making enhance the employee engagement and industrial democratization.The authors also said that getting employees involved in how an organization works keeps them motivated and helps them do their jobs well and add value to the organization.

Owolabi and Abdul-Hameed (2011) expatiates that it is a specific sort of outsourcing wherein the subordinate receives greater responsibility and autonomy, removing the gap between employer and employee. It means how much an employee is involved in the strategic planning of a company.

Sofijanova and Zabijakin–Chatleska (2013) describe “involvement" as engaging the employees in making decisions and solving problems and offering more freedom to them in their work processes. Employee involvement means giving employees a say in decisions that affect them, giving them more freedom and control over their work, and giving them more power and responsibility so that employees are much more dedicated, driven, and satisfied in their tasks.

Another aspect of employee involvement is the division of decision-making authority among management and employees. This is done by improving communication with employees in order to get them to care about their jobs and help the organization (Mwiudi, 2011).

Agyeman (2012) argues that managers should consider ways to enable personnel to contribute to the success and improvement of businesses by encouraging employee involvement. However, employee participation levels within a corporation might range from high to low. When employees are deeply involved in making decisions, which is a high level of involvement, it implies that every category of staff takes part in the strategic planning. However, a low level of interaction (poor employee involvement in decision-making) indicates that only the top management is involved in the planning process. When employees have a lot of say in how decisions are made, they can have an affect the planning process. Since they are closer to the customers, they may spread information about new products and services. (Owolabi and Abdul-Hameed, 2011).

Employee involvement helps the manager get the workers' commitment and indirectly makes sure that any planned change will last or work. These definitions suggest that employee engagement is a management-instituted organizational procedure that enables staff members to participate in decision-making and enhance the organization.

**Mechanisms of Employee Involvement.**

Asokk, Allamprodhu, Parulkumari and Vanishree (2021) examined that there are six ways for employees to be involved in companies, here's a short explanation of these:

**Involvement In Work Decisions:** This is how managers help make decisions. It includes structured and clear ways for workers to take part in making business decisions. White and Robert (1973) did an early analysis of the roles played by 2775 employees in six Midwest industrial sites. They considered the overall staff's contribution to task completion, attitude, and participation in the group work in the organization. The sample drawn from six different plants shows that there is a positive link between employee satisfaction and management skills. The findings demonstrate that employees are more engaged and also have a greater understanding of what might occur.

**Authority of Employees:** Employee ownership is an official way to make employees usually partners in the business's strategic owners. Performance management is both an incentive that comes from within and one that comes from the outside. There are three types of psychological effects that come from giving employees more power. The first is the "inherent performance method" for effective leadership and happiness, which makes employees work better. The second model is the "inclusive satisfaction method" for current employees, which makes them more productive and helps them make better decisions. The "inviolable enjoyment system," which is the third strategy, demonstrates how corporate leadership promotes work and performance.

**Representative Involvement:** Employers and competitors will be shown in the curriculum through deployment and representation. By working with democracy, everyone has a say in the decisions made by certain designated superiors. In this process of engagement, job gets suggestions and concerns that are their own. It was also clear because the way staff is judged is not always a part of the judging system. By far, its partnerships were the most well-known part of the group.

**Advisory Involvement**: A formal way to get managers involved in making decisions is through consultative engagement. Most of the time, accuracy circles are used to do these things. This could be thought of gathering of workers from all categories in a firm to converse in public about ways to improve efficiency and deal with technological problems. Discussion has a big effect on how competitive, engaged, and reliable a business is, as well as how well it does in many other ways.

**Involvement without Form:** Casual engagement happens when people at the top and the bottom of the administration know each other. How important bosses and subordinates are to each other has a big effect on how happy people are at work. Some past studies have found that organizations are more effective when people are happy at work and have strong, complex relationships with each other. Even though informal participation isn't professionally coordinated, it shows good results and can have a big impact on participation through trust among managers and lateral ties.

**Short-Term Involvement:** Simple participation will be seen as a one-time thing, mostly made up of odd things that a participant may do but simple participation is not often used (Asokk *et al*., 2021).

**Time Reduction also called "cycle time reduction"**

Before talking about the cycle time reduction, it's important to talk about what cycle time means. Cycle time can mean different things depending on business types, enterprise or organization. Ismail and Tosifbhai (2019) examined manufacturing and service organizations as examples of organizations. For example, Operating Cycle is the typical amount of time that should pass from the moment raw materials are acquired till a product is completed in the manufacturing sector. For service organizations or industries, Cycle time is calculated or expressed in terms of the interval from when a customer specifies whatever he or she needs and how much time it takes to accomplish the service. This viewpoint is also consistent with Khan and Sharma's (2014) definition of cycle time, which is the overall time required to transport and process a single task from start to the finish of a specific practical production process (Khan & Sharma, 2014). The order entry stage is the beginning of the manufacturing cycle, and the shipping stage is the end. Cycle Time comprises of process schedule and delay period, during process time, a work piece is processed or nearer to its ultimate shape or size. During delay phase, a project waits for the next step (Sreelekshmy, Rajesh, Santhosh and Anoop, 2013). A standard and easy-to-understand idea is that cycle time includes: Value-Adding (VA) and Non-Value-Adding (NV) processes such as Order entry, inspection, processing, storage, transportation, and waiting time. Klarin, Spasojevi, Golubovi, Stanisavljev, Brki, and Sajfert (2016) establishes that cycle time as a measure of the length of time it takes to make something.

Klarin *et al*. (2016) went on to explain that the production cycle time is made up of several parts. These include time spent not making things and time spent making things. Technology time, throughput times, setup time, non-technological moment, controlling duration, transit time, and packing schedule could all be used to measure production time. Cycle time enables an industry stay in business and be more competitive (Chen, 2013). Also, shorter cycle time has a huge effect operational planning in manufacturing and aids in client order processing more efficient (Ismail and Tosifbhai, 2019).

In another definition, Patel and Shah (2014) say that "cycle time" is the amount of time it takes to finish a specific task or activity at each well-defined station. Most of the time, "cycle time" and "service time (ST)" go together. Service time is shorter than cycle time. Anyaeche and Adegbilero (2014) explain cycle time in terms of how long it takes from the start of a task to the end. Also, cycle time should encompass both productive and ineffective work, and any available "free period" (Anyaeche and Adegbilero, 2014). Also, Chen (2013) cycle time is defined as the production time lag or throughput times of a specific task or job, accounting for the time required to complete the task in a specific industrial facility. So, equations (1) and (2) can be used to figure out "cycle time" in math (Patel & Shah, 2014).

Cycle time = Service Time + Idle Time (1)

Cycle time (CT) = Useful production time available per day= T (2)

 Output per day Q

Cycle time reduction (CTR) aims to reduce cycle time as much as possible, employing more effective and efficient methods to carry out methodically stated duties. In order to do this, all the NV tasks or activities must be cut back or stopped. The tasks or activities classified as NV are those that do not increase or add value to the product. This indicates that there is no documented impact of the lack of such tasks or activities on the produced outcomes. In the manufacturing industry, there are many examples of "non-value-added" tasks that have their cycle time cut down or eliminated. Some examples are setting up a machine, fixing it when it breaks, testing and inspecting it, getting behind schedule, etc

Reducing "cycle time can significantly impact a company's "bottom line"" if the appropriate tactics are employed (Kumbhar, Niranjan and Satpute 2014). Kumbhar *et al*. (2014) explains more about how cycle time reduction is very helpful for any manufacturing company. When you cut down on cycle time, you cut down on activities that don't add value. By doing this, costs will go down, communication will be better, processes will be streamlined, deliveries will be made on time (reliability will improve), the company's output will go up, process variability will go down, and the schedule's integrity will be improved (Leachman and Ding, 2011; Kumbhar *et al*., 2014b).

Chen's (2013) study shows how important it is for the industry to be able to shorten the time it takes to do a task or job cycle. Saraswat, Kumar, and Kumar (2015) listed some of the reasons. First, every order or work is a significant "opportunity cost" for the sector or business. Additionally, a long cycle time makes it difficult to quickly convert "opportunity costs" into earnings. Second, long "cycle times" for jobs make it harder for the amount of "work-in-progress" (WIP) to grow. The whole management of the shop floor would be harder or more complicated because of this. ACAI (2016) affirms that a firm has a competitive advantage over other firms if it can cut the time it takes to make a product and get it to market quickly especially when two companies can offer the same product at the same price and with the same quality, faster delivery (short lead times) gives one a clear advantage over the other.

**Production Strategy.**

How well production is managed is what makes it possible for a business to stay alive as a separate unit. Obsolescence of the product line and high production costs are the two main things that cause businesses to fail. These things have happened because production planning has not been done well.

The Institute of Chartered Accountants of India (ICAI, 2016) affirms that a firm's production strategy is a key part of its overall success. Based on an objective analysis of the outside environment and the company's strengths and weaknesses, it allows an organization to make the best decisions about product, production capacity, plant location, choice of machine and equipment, and maintenance of existing facilities. Reviewing the manufacturing plan on a regular basis helps keep the right balance between capital investments in plant, equipment, and inventory, employee commitment, and efficient operation of the production system. This is done by adding flexibility and versatility to the system so that it can adapt to changes in schedule, product mix, raw material, and quality control. It also makes sure that materials are handled well and facilities are planned well.

Within the corporate structure, the production strategy helps make sure that the marketing and engineering departments are working together to come up with plans to make products and services better. It tells management that they need to stay in touch with finance and staff in order to make the best use of assets, keep costs down, hire the right people for production, and handle labor disputes and negotiations.

**Formulating Production Strategy:**

ICAI (2016) gives insight that the following steps are needed to come up with a production strategy:

**Study the company's overall plan and set the goal**: Production planning begins with the business mission and forecasting premises, just like other aspects of business. A firm‘s strategy can help you understand the production landscape and provide solutions to your queries about international economic, technical, commercial, and corporate aspects that would influence or constrain your production schedules. The planner establishes production objectives and specifies the basic production process categories wherein production operations must concentrate within the context of such overarching planning considerations.

**Analysis of the Current Production Operations and the Forces in the Environment**: The production manager should look at how the company is making things now and how the environment is changing now and in the future. This would assist him or her in determining the firm’s production strengths and limitations as well as environmental elements which have a significant influence on the production, including the accessibility of labor and the implementation of new techniques and machinery. The planner examines the locations or items that directly affect the production operations throughout this stage of the planning phase. A research of facility placement should be conducted to determine how much the present position of the business activities in terms of essential supplies and distribution routes. The study should also look at the short-term and long-term labor cost and talent pool savings associated with plant location. It's important to consider how much of the plant's resource is utilized effectively.

It is important to assess the equipment's present condition and evaluate its adequacy and efficiency to that of other devices in the same industry, as well as those made in other nations. It should also be found out how often the company uses new equipment developments in the industry, such as using computers for scheduling, automating warehouses, making things smaller, programming equipment, etc. The current plan for replacing machinery and how much it will cost to do so also need to be looked at.

In terms of maintenance, the production manager should make sure that replacement parts are available. He should also consider whether the business has productivity-based workplace policies. Production scheduling includes information gathering and analysis of machine downtime, timetable accuracy, past production issues and their causes, method modifications over the previous few years, projected trends, etc. It is crucial to consider factors like purchasing requirements, inventory turnover rates, work stoppages resulting from out-of-stock materials, the situation of material handling systems, the appropriateness of existing plants for storing and storage of goods materials, and other factors.

**Review of Sales Forecast and Marketing Mix:** The planner should take a glance at some of these strategies because planning in other sectors has an impact on production planning. Sales targets are the foundation of detailed plans for managing a manufacturing company. In order to match the target sales with operational constraints, the production manager ought to have contributed to the development of such targets. Plans can then be developed for manufacturing to achieve sales targets after this is completed. Experiments, development of new products, and the promotional mix's effect are all examined.

**How to Make Strategic Choices:** The factory manager must make decisions under conditions of manufacturing output, the preferred production process, the capabilities of the mechanical equipment that could be used, and the facilities while bearing in mind the overarching corporate mix, existing production processes, ecological factors, market forecast, and promotion mix.

**Extent of Production Activity:** A production manager's first important decision, which should be made in consultation with the marketing and finance managers, is how much manufacturing the company will do, most of the time, there are a lot of options for how much commitment to production, or vertical integration, a company wants to make. All the components utilized in production, such as standard parts, small unique parts, and huge pieces that could be produced and assembled in their entirety, are all at one end of the range. The manufactured products, which bear the trademark, are available for purchase at the opposite end but the optimum region is expected to depend on the structure of the production line. Even then, there is often still a lot of difference.

Managers decide how much manufacturing to do base on a number of factors. For example, a company may be tempted to make the raw materials and parts for the products it will sell as well as the parts that will be used to put the products together if it thinks that this will ensure supplies of the right quality, quantity, and timing. This temptation will get even stronger when it turns out that the cost of making raw materials and parts is less than what suppliers will charge for them. Uncertainty about how quickly supplies will be available is another reason why the company should have its own source of important raw materials and ingredients. The size of the investment needed to build production facilities can also affect how much the company makes, when the investment is big, it's probably too expensive to add new products or change the way they are made because it will cost more to run the plant facilities and when this happens, it will be best for the company to get its materials from outside sources so it can be more flexible and adapt to changes in its needs. How much a company makes depends a lot on how strong its finances are, so a company with a strong financial position is in a better position to combine the making and processing of parts and products than a company with a weak financial position.

In the same way, the range of manufacturing activities in a company is determined by the expertise of its managers. When a company has executives with specialized skills and knowledge in a certain field, it must hire new executives with the same level of skill. So, it will be smart for the production manager to check with the top management to see if the company can pay for new executives. The finance manager may also help figure out how much the decision will cost and how much it will help by:

**Choice of Manufacturing Process**: Choosing a good manufacturing process before goods are made is another strategic decision that has a big impact on the success of an industrial business. The design of the manufacturing process is not limited to new concerns or new products. Existing businesses also need to look at how they work in light of the competition so that they can make more and spend less.

**Capacity Decisions:** Making a strong decision on the production capability is crucial when considering the architecture of the proposed facility or the renovation or extension of the existing infrastructure. To figure out what the plant's future capacity will be, it's important to take into account things like sales forecasts, engineering assessments of machine performance, production plans that specify how the machinery is used, and policy judgments regarding what would be purchased rather than manufactured. In addition, it is necessary to implement centralized management principles regarding rated capacity, including provision for maximum against typical requirements, reverse reduction of capacity allocation for expansion, and facility balancing

**Choosing machines and equipment**: A production manager also has to make a strategic decision about what kind of equipment the organization will need for production, how much it will cost, how much it will cost to run, what it will do for the organization, and how long it will do it for. How a product is made is the most important factor in deciding what equipment to use to make it. So, the person making the decision should learn about the production process that will be used.

**Investing in equipment:** Buying equipment requires capital spending, which will have long-term effects on the company's finances. Before making a final decision about investing in a machine, it's important to do a detailed cost-benefit analysis of the investment and use the internal rate of return or present value method to figure out whether or not it's worth it.

**Choices about physical facilities:** Facilities strategy includes plans for analyzing and choosing locations, designing and stipulating layouts of equipment, plants, warehouses, and related services, and stipulating and paying for maintenance. Facilities planning looks at the different costs of things like materials, supplies, labor, services, and facilities, as well as how they all affect each other. Its job is to find ways to make the products and get them to the right places at the right time for the least amount of money.

2.1.4 Concept of Supply Chain Management

Supply Chain Management is a way to get different organizations, like suppliers, manufacturers, distributors, retailers, and customers, to work together better. This means that goods are made in the right amount, at the right time, and in the right place so that the system costs as little as possible and the service level is met (Levi, 2000).

Willkister (2013) explains that supply chain management is the process of integrating customer needs, internal processes, and upstream supplier performance at the same time (SCM). But even though supply chain management has become popular, there aren't many examples of supply chains that are really integrated. Even though there are many examples of companies that have built strategic partnerships between suppliers and buyers, outsourced non-core competencies, and adopted strategic customer relations practices, few companies have done all of these things at the same time and succeeded (Handfield and Nichols, 2008).

Scott and Westbrook (2017) define supply chain management as the chain that connects each part of the manufacturing and supply process, from raw materials to the end user. This chain crosses organizational boundaries. So, SCM includes the whole value chain and takes care of materials and supply management from the time raw materials are taken out of the ground to the time they are no longer useful. Supply chain management also aims to improve the value customers get by using a "just-in-time" system, getting rid of waste, involving all stakeholders in the process of creating value, and working closely with suppliers.

Ireland and Webb (2016) explains that supply chain management is still being used by organizations as a way to gain and keep a competitive edge. They say that this is understandable, given the benefits that could come from good supply chain management. Some of the benefits are less inventory, better delivery service, and shorter development cycles for new products. Slack (2018) agrees that the goals of SCM are to focus on satisfying the end customer, to come up with and implement strategies based on getting and keeping the business of the end customer, and to manage the whole chain effectively and efficiently. For supply chain procedure to work, people who use it must develop certain skills (Chandra and Kumar, 2000). The skills include the capacity to build a dynamic organization, build and maintain suppliers trust, pursue overall proficiency supply chain, improve communication, reduce uncertainty and inventory levels, outsource non-core competencies, implement build-to-order manufacturing, reduce inventory, and cut costs as much as possible. To reach these goals, employees need to be flexible in their roles, have a wide range of skills, be open to reorganization, be able to take on responsibilities that cross boundaries, and be creative. Companies that are said to be good at SCM put a lot of focus on developing their human resources by training and retraining their workers (Gowen and Tallon, 2012).

**Supply Chain Management Dimensions**

Tonggo and Nazaruddin (2020) opines that integrated supply chain differs from other parts of operations management by four practices. Some authors, such as Charles et al., (2018) have also called these four practices the dimensions of supply chain management.

**Customer Relationship**

Customer relationships (CR) are dependent satisfying consumers with the services rendered and addressing their concerns timely and efficiently in order to precisely satisfy their aspirations and sustain their loyalty (Hussain, 2018). According to Lee *et al.* (2015), customer relationship management entails designing, developing, and assessing successful interactions among suppliers and customers in the downstream and upstream of the distribution chain. According to some, it entails educating clients about items, interacting with them to control desire and satisfying their needs and requirements, processing orders, establishing protocols for doing so, telling customers about the status of their orders during order scheduling, and delivery of products. Customer relationship management has been studied a lot in the academic world because a good supply chain considers it to be among the most crucial components.

Kotler and Armstrong (2006) examines that for companies to win in the market today, they must not only know how to manage their products, but also how to manage customer relationships. Fostering successful customer relationships and getting a competitive edge require giving customers more value and making them happier than competitors do. Tonggo and Nazaruddin (2020) explains that a collection of procedures known as customer relationship management (CRM) aims to address consumer complaints, create positive, long lasting relationships, and increase customer satisfaction. A positive customer connection enables a business to define its commodities to rivals, boost brand loyalty, and provide customers with high quality products/services.

Also, companies told their management to put a lot of effort into building CR in order to get customers interested in their services and give them a good experience (Wang and Kim, 2017). Al-Weshah *et al.* (2019) explains that positive CR helps managers build a strong foundation for their business and, in the long run, improve organizational performance. Practices for keeping in touch with customers can help an organization succeed only if supply chain management initiatives are successful. Supply chain management's effectiveness depends on integrating customers at the end of the chain and suppliers at the beginning. This is because each link in a distribution chain, serves a provider and a consumer (Thatte, 2007). In a business that is very competitive, the success of an organization depends on how well it manages its relationships with customers. Organizations need to have good relationships with their business partners and key customers for supply chain management to work. Relationships with customers are regarded as a vital component of businesses plan to increase sales and maximize profits. Maintaining strong connections with clients enables business to standout from competitors, keep customers satisfied, devoted, and boost the value that the businesses provide to them. (Charles, Josphine and Ambrose, 2018).

Charles et al. (2018) also enhances further that the global markets have a wide range of products with different prices and qualities, because of this, companies are always trying to cut costs and make their products better. Customers want more options, better service, higher quality, and quicker shipping. The way businesses treat their customers has become a matter of strategy. The authors also said that organizations would get better results if they kept working with customers in a collaborative way. When companies make attempts to establish relationships with supply chain stakeholders, it means that customers are happier.

**Level and Quality of Information Sharing**

Khan and Siddiqui (2018) describe information sharing (IS) as the transfer or exchange of product details with fellow manufacturing organizations that are collaborators. It means how well important information gets to the business partners of the company (Tonggo and Nazaruddin, 2020). Level of information sharing can also be thought of as the volume of classified data that is disclosed to a stakeholder. Information shared can be strategic or tactical, or it can be about logistics, customers, or the market as a whole (Min and Mentzer, 2015).Putting more time and money into integrating information leads to more strategic supply chain partners (Wong and Ngai, 2019). Information that can be shared between business partners includes strategic plans, supply chain data exchange regarding the market, and customers and such insight shared, can be exploited as a competitive edge.

Also, Rached (2015) expatiated that the presence of information sharing is a vital part of manufacturing companies because it helps give partners a clear picture every day and boosts SC performance in a big way. Also, it is known that increasing IS lowers logistics costs and makes people more connected and willing to do a better job. IS was also thought to be necessary for gaining knowledge that could enhance SC's operational performance, which will ultimately enhance SC's performance in general (Marinagi *et al*., 2015).

Information quality (IQ) is a very important part of manufacturing in the 21st century. Tonggo and Nazaruddin (2020) say that the quality of information sharing is when companies and trading partners share information in a way that is regular, accurate, complete, adequate, and reliable. The main idea is to give customers accurate and varied information that can facilitate access to and firm grasp of the products (Sagawa & Nagano, 2015). Also, IQ is believed to firms do better by giving a detailed picture of the services they offer (Fauver *et al*., 2017). IQ is also used to describe how good a company is in data sharing. It has been demonstrated that customers purchase products that enable them to perform more effectively due to information at their disposal (McKnight, 2017).

**Strategic Suppliers Partnership**

It is the idea of a supply chain that builds loyalty, trust, and integration between partners so that they can work together to have a long-term, sustainable performance, and the customers as well (Agus, 2015). Also, Fauziah (2019) establishes that a strategic supplier partnership is an agreement between a vendor and customer being on the same page regarding product production and supply enhances operations and supply chain effectiveness. Regina and Devie (2015) explains that a supplier partnership strategy is a long-term cooperation between a company and its suppliers. Relationships with suppliers need to be kept up as collaboration is always beneficial and forms a crucial component of a good supply chain. This enable supplier companies improve their strategy and operational capabilities to reach the organizations’ goals. The aim of this strategy, according to Tonggo and Nazaruddin (2020), is primarily on collaborative planning (mutual planning) and attempting to resolve issues between businesses and suppliers. The business can successfully collaborate with numerous suppliers that wish to shoulder the costs of producing and marketing the product, by partnering with suppliers as allies.

The management of the supply chain includes strategic initiatives to form alliances with suppliers. When supply chain partners get along well with one another, they would be eager to share benefits and risks. This helps to keep the relationship going for a long time (Thatte, 2007).

Charles *et al*. (2018) reviewed that firm-supplier collaboration is strengthened when both the customer and the suppliers have a long-term perspective. Customers are happy with the company's ability to offer the high quality goods and services to both local and international customers at the appropriate time, location and quantity. Linkage with customers, especially exchange of information about products with customers, getting orders from customers, talking to customers about managing demand, as well as letting clients know how orders are progressing with regard to timeline and product delivery. A long-term connection with a vendor tends to make things simpler, to get good results in a variety of activities, such as better product quality, shorter lead times, and quick customer service, all of which lead to happy customers (Charles *et al*., 2018).

2.1.5 Concept of Information Communication Technology (ICT)

IT has been described in a variety of ways by various authors. William and Sawyar (2015) expanded definition of Information Technology (IT), as encompassing hardware, software, databases, and networks in addition to any device that assists in the creation, modification, processing, storage, and transmission. Muhammad and Muhammad (2014) enhanced this term.

According to the Association of African Universities (2000), ICT includes computers, software, networks, and satellite communications to give people unprecedented access and control over data, knowledge, and skill (ICTs). Technology is the application of science to the achievement of specific objectives. It covers every set of abilities and steps needed to complete activities in a certain setting (Balogun, 2016). Information and communication technologies (ICT) include anything from computers to telephones to networks to multimedia software (Frenzel, 1996). When it was first coined in the late 1980s, in its place were terms like Management Information System (MIS) and Electronic Data Processing (EDP) (Frenzel, 1996).

The scope of ICT applications is no longer restricted to support services or electronic data processing; they are now truly global in nature and virtually boundless in their potential. It has supported earlier breakthroughs such as the telephone and fax machine, World Wide Web (WWW) and modern computer email systems. ICT devices include things like data recognition equipment, automated production gear and solutions, telecomputing, and video conferences using a real-time and online service (Adeoti, 2005). This idea has a significant impact on all aspects of human endeavours, this indicates that in order to accomplish a task, concepts must be applied to physical elements.

A new phenomenon has emerged in which information has taken over as the driving force behind global economic growth following decades of using computers for data storage and retrieval. Nigeria and other emerging countries are attempting to "reinvent the wheel" of economic and social development, to reach their chosen stage of economic growth. This new technology has sparked a social revolution that has had far-reaching effects on virtually every industry (Ovia, 2015). Organizational performance through human resource management is vital and inevitable in today's world because of the rapid expansion of company and the rapid technological progress that necessitates the use of information technology for this purpose (Farhad and Anindita, 2020). There are a plethora of uses for information technology within enterprises. Information technology is used in a wide range of business functions today. This speeds things up and gives people more faith in the process (Ghayasi, 2019). As the use of information technology expands, many tasks will become more difficult, if not impossible, to complete without it, resulting in a major drop in productivity (Davis, 2000).

Public and private sector workers in the majority of countries have recently prioritized the building of effective, quick, and convenient public sector organizations because of the relevance of information technology development and application (Nazari, 2019).It is the use of information technology to improve organizational efficiency in a specific activity inside an organization by utilizing human resources. Operational information technology is used for a variety of tasks, including creating employee schedules, billing customers, forecasting inventory, scheduling manufacturing, and calculating industrial costs (Pirghani, 2018). In the workplace, information technology can be used in a variety of ways. Information technology is used in a wide range of business functions today. This speeds things up and gives people more faith in the process (Ghayasi, 2019). Increasing use of information technology has made it impossible, if not impossible, to execute many jobs without it, and the degree of efficiency has been severely diminished as a result (Davis, 2000).

Many public and private sector practitioners throughout the world have been attempting to build organizations that are efficient, quick, convenient, and convenient recently due to the significance of information technology design and deployment (Nazari, 2019). To employ information technology in an operational way, human resource management must be integrated with information technology. Operational information technology is used for a variety of tasks, including creating employee schedules, billing customers, forecasting inventory, scheduling manufacturing, and calculating industrial costs (Pirghani, 2018)

**a) Information and Communication Technology (ICT) Skills**

ICT is mostly related to the use of technology to better manage the flow of information in the workplace. There are a variety of technologies that can be used in the setting of education that are referred to as ICT. Instructional technology encompasses the use of computers, telecommunication systems, and other similar devices and equipment. As a result, it's clear that ICT can be an effective tool for individuals and organizations who place a high value on technology (Abdulganiyu, 2019). ICT skills are defined by Doyle (2019) as the ability to communicate with others through various technologies. A wide range of ICT skills were discussed, including online research, utilization of social media channels, email management, online collaboration, data management and inquiries, desktop publishing and word processing amongst others.

According to Abdulganiyu (2019), various ICT components are managed in diverse ways by enterprises. Computer systems, telecommunications systems, and instructional technologies are utilized in a variety of industries, including industry, education, and the media, to process and distribute information. Virtual libraries, virtual laboratories, video conferencing, and interpersonal approaches have all been used by educational institutions and professors to give students with information and training in the academic sphere through the use of ICT.

For successful and efficient operations management, ICT skills are required. Worldwide, especially in industrialized countries where automated manufacturing systems are common, the importance of ICT for operations management cannot be over ruled (Francisca, 2019). Deployment of ICT in manufacturing and supply chain management is on the rise. The use of technology in HR tasks including recruiting, interviews, and selections is also readily apparent. Management and employees must have the requisite ICT capabilities to fulfill their respective duties if firms are to achieve their production system goals (Irfan and Noor, 2012).

To ensure that production management objectives are satisfied by using ICT skills are critical. Ibiene and Ugochukwu (2020), state that strong technical knowledge of ICT is required to be an effective and efficient operations manager. It is impossible to emphasize the importance of operational management training and development efforts. Operations management stakeholders need to be trained on how to use applicable ICT infrastructures to complete tasks, solve problems, and conduct research, not just deploy them.

To be successful in business pursuits, people must have a wide range of ICT skills, according to Doyle (2019), the following ICT skills are essential for guaranteeing the smooth operation of organizations:

**Email enhancement skills**: Information exchange in any field would be impossible without email. Employees, managers and employers all benefit from the knowledge holder's ability to respond to or communicate via email. Because of this, personnel in operations management must learn how to communicate with online correspondents via email, both to send and receive (email).

**Online Research Skills**: It is possible to conduct research on the internet In order to run a successful business, every member of the organization's operational staff should have this competence. There is always a need for employees to be up-to-date in their field of work, which can be easily accomplished with research skills alone.

**Social Media Management Skill**: Globally, corporations are in desperate need of social media management experts. It is crucial to understand the advantages and disadvantages of social media sites. Operational stakeholders can communicate with each other via messaging services such as WhatsApp or Telegram, as well as Facebook and Twitter. Team members can now hold meetings via WhatsApp and Telegram groups, schedules can be exchanged and duties distributed via social media platforms, making this expertise a necessity for corporate employees.

**Online Collaboration Skill**: According to Doyle (2019), online collaboration is a wide classification which permits the sharing of information between operations managers and other staff and the ability to arrange emergency video conferences.

**Data Management and Queries Skill**: Google Meet and Microsoft Teams are good examples of this. Creation and management of data with the Data Management and Queries Capability, Stakeholders in operations management should be able to use tools like MS Excel and MySQL to examine data and spot patterns.

**Desktop Publishing Skill**: An understanding of desktop publishing software is required. Organizations, in particular those involved in operations management, are in need of this additional ICT competency. Creating and printing documents, as well as disseminating and exchanging information, are all made possible by this ability. Software like Microsoft PowerPoint, Microsoft Office, Adobe Creative Suite, and others make this feasible

**Processing Skill**: Organizational operations managers must be able to use word processing software. A familiarity with a wide range of word-processing applications such as Microsoft Word allows me to write business correspondences, research papers and minutes of meetings which could be exchanged with coworkers both inside and outside of the workplace.

**b) Information Exchange**

Natural ideas are a part of every person's life. To be useful, this information must be disseminated (Adamseged and Hong, 2018). As a result, the term information exchange was given many different meanings by different people. According to Sohail and Daud (2009), information exchange (IE) is defined as the exchange of experiences, events, thoughts, or comprehension with the expectation of gaining greater understanding and insight into a topic out of transient curiosity. Abdullah (2019) opines that information exchange is a process through which people share their thoughts and knowledge by engaging in conversations or various types of social contacts in order to generate new ideas.

In a different definition, Maponya (2015) defined information exchange as the sharing of personal experiences, insights, and knowledge with others and making it easily accessible by establishing links or networks between individuals or groups within a specific system, community, or organization. Nonaka (2016) defined information exchange as the combination of an individual's experience, beliefs, expertise, and comprehension that are expressed, illustrated, transcribed, collated, and stored as text, images, sounds, and films to create knowledge and new insight.

In a more concise but elaborate definition, Sharrat and Usoro (2013) define information exchange as the process by which one party gives and receives a resource, and exchange is necessary for sharing to take place. When knowledge is shared, this interaction occurs between the giver and the receiver. Even in business organizations and among operations management stakeholders, technological development/transformation requires the employment of a variety of ICT expertise for knowledge transfer.

**Domains of Information Sharing Requiring ICT skill**

ICT could be used in training and retraining of operations management professionals in information-intensive organizations and other employees that need to execute the various job-related tasks assigned to them, the skills that will benefit them for the rest of their lives and improve their chances of future job-related opportunities. For effective information exchange, operations management stakeholders need ICT skills, this is because, it is a difficult task to get an organization to perform well in its operations, which could be done by sharing knowledge. Employees who work on tasks related to operations management need to have good ICT competencies and readiness to share the knowledge.

ICT competencies can be utilized to disseminate information through written reports, conferences, and seminars. Sharing information can be done through journal publications or conference proceedings with colleagues. Research knowledge and finding not shared undermines the investments in ICT skills. Guzman (2017) said that the main issue talked about at a workshop at La Catalina was shared through a short video. This is possible because the team has good ICT skills and has basic tools like a camera, digital recorder, and editing software. For ICT knowledge to be shared efficiently and effectively, ICT-compliant staff must have a lot of ICT knowledge. Tsui (2016) discussed four distinct online platforms: wikis, discussion forums, websites, and email listservs. He establishes that managers can use websites to share what they know with their subordinates all over the world. With the help of discussion forums, you can talk about current events. Wifi’s are used to share and exchange information during group research. Kosonen (2018) says that online collaborative editing makes it possible for people to take part in the exchange process.

2.1.6 Concept of Organizational Performance

The distinction between an organization’s goals and objectives and its accomplishment is called organizational performance. Performance includes three key aspects of an organization's results: financial performance (profits, return on assets, return on investment, etc.), product market performance (sales, market share, etc.), and shareholder return performance (total shareholder return, economic value added, etc.). Every organization aspires to achieve three major results (Bashaer, Sanjay and Sherine, 2016). Jon and Randy (2009) also agreed with the definition when they said that an organization's performance was its actual output or results compared to what it was supposed to do, its mission and strategies. In another definition, Tomal and Jones (2015) explains that organization performance is the output that show how efficient or inefficient the organization is in terms of its image, its skills, and its financial performance. Cho and Dansereau (2010) say that organizational performance is how well a company does in relation to its goals and objectives.

Researchers have different ideas about what the best way is to measure the performance of an organization. Boru and Chen (2020) say that a company's performance is usually measured by how well it increases shareholder value. Performance can also be measured by how well it reduces its impact on the environment, improves its health and safety performance at work, and makes customers happier. Eleonora (2020) has a different point of view. She thinks that organizational performance should be measured against a specific goal to see if the goal is met.

Without a goal, a company has no way to choose between different investments and projects. For example, if the company's goal is to get the best return on its investments, instead of the current average return on investment ratio, it would attempt to investing funds with return on that investment ratios. However, if the purpose of the organization has been to maximize its net profit, it would undertake investments that result in a profit, even though it means that its average return on investment would be reduced. Performance measurement is a requirement to ensure that business continues on pace to meet its objectives.

In general, financial and non-financial performance metrics are the two primary categories of performance measures. Profit, assets' return on investment, returns on assets, and sales value etc. are measures of financial performance. Non-financial measures of performance include job satisfaction, organizational commitment, organizational innovation, organizational agility, service quality, customer loyalty, etc (Yasmin, 2012), but non-financial measures of organizational performance like organizational agility, organizational innovation, and service quality are explored in this study and reviewed as follows:

**a) Organizational Agility**

Like numerous other management ideas, organizational agility is has received notable interest among management scholars. According to Overby, Bharadwaj and Sumbamurthy (2016), Organizational agility is defined as a company's ability to quickly assemble the necessary organizational resources in response to threats and opportunities. The word "agile" was first used to describe dynamic production techniques in the manufacturing industry.

Organizational agility is described by Yusuf, Sarhadi, and Gunasekaran (2018) as the proper implementation of responses like speed, flexibility, innovation, and quality by the use of expandable resource base, best practices and expertise in supplying consumer products and services in a constantly changing business world. An organization that is agile has the ability to expand and thrive in a market that is always undergoing unforeseen change, propelled by customer-defined products and services, by quickly adjusting to these changing marketplaces.

An organization with agile system has the potential which generally comprise employing both soft and hard technologies, human resources, skilled management, and data for addressing the quick changes in the market demands. According to Yusuf *et al*. (2018), such demand may include responsiveness, speed, flexibility, suppliers, consumers, rivals, and infrastructure. Organizational agility concentrates on speed and adaptability as the fundamental traits. Another essential agility trait is the effective responsiveness to uncertainty and change. The capacity to adapt to change in the most suitable manner and taking benefits of changes are also some of the primary features of an agile company.

**Determinants of Organizational Agility**

Several elements are crucial for deciding the adoption of organizational agility in a corporation. Some of those examined for assessment in this study include IT system adoption, strategic partnerships and human resources management techniques which are detailed below:

**Adoption of IT System:** The expanding expertise of information technology is among the reasons for the growing interest in organizational agility. Adoption of information technologies results in improved information management abilities, increases communication and analytical decision aids. With ICT, organizations employ information technology when creating innovative business models and a competitive edge (Argwings, 2015). Organizations can build the appropriate digital processing and knowledge systems using the structure established by information technology (IT) management skills to boost their agility. Information technology management competencies are a significant component of basis via which organizations may start and achieve and maintain competitiveness through IT-dependent projects.

Sumbamurthy, Bharadwaj and Grover (2016) stated that because information technology has the ability to aid businesses in establishing high levels of operational skills, it should be seen as digital options generators. The functional capabilities of new and existing information technology are used in the development or reengineering of several of the business operations. Making wise decisions when it comes to the selection, implementation, and application of pertinent technologies is pertinent to the realization of the benefits and value of information technology.

**Strategic Alliances**: Strategic alliances imply collaborations between businesses to seek shared goals. A strategic alliance entails at least two different partner companies that continue to contribute to one or even more strategic sectors, such as technology or goods, after alliance is established while also sharing advantages and administrative control over the completion of given duties (Yoshino and Rangan, 2015). Even though it is based on enterprise-to-enterprise synergy, strategic alliance is one of the many agility methods used by businesses to ensure actualize goal performance level as a sort of defined inter-organizational relationships is created and propagated. The purpose of this cooperative arrangement is achieving corporate goals preferably than the competitors.

According to Frankel, Whipple and Frayer (2006), strategic alliances are extremely important to organizations for some critical reasons connected to organization dexterity: expansion alone is inadequate to satisfy the majority of organizations' minimum standard growth rate; supply chain strategy is crucial, and collaborations greatly enhance it; sophistication is soaring, and no organization has the necessary whole expertise to offer the best service to their customer; alliances can offset increasing costs.

**Human Resources Management Practices**: Agile businesses employ, educate and motivate to retain high calibre personnel and apply human resources management strategies that ensure the company navigates the turbulent commercial waves. Armstrong (2006) describes human resource management techniques, as the management of an organization's most valuable asset—the employees individually and collectively help business achieve its goals. Minbaeva (2015) describes that human resource management outlines the procedures used by businesses to manage people by encouraging the creation of firm-specific capabilities, multidimensional social relationships, and institution knowledge to enhance operational performance.

Organizational innovation is significantly influenced by how an organization approaches HRM processes. According to Tan and Nasurdin (2016), HRM strategies determine the nature and state of the employer-employee relations, which may encourage employees to be innovative. According to Argwings (2015) agile business is stressed on dependency through innovation integration and cooperation. This consequently highlights the necessity of creative thinking in a dynamic corporate environment. The competitiveness of today's market necessitates excessively value for customers, which equates to smallest overall expenditure, overall best quality, quickest cycle time and increased customer satisfaction. For this reason, creativity and innovation are crucial components for organizations and organizational leaders.

**b) Service quality**

Service quality has a crucial influence in traditional and service organization. According to Kotler (2001), any operation or action that a partner may perform for another and that is basically intangible and does not contribute to the acquisition of property is referred to as a service. In other words, it could or might not be inspired by a tangible commodity. Granroos (2001) refer to service as process that leads to a result during partially contemporaneous and consumption process. Parasuraman, Zeithaml and Berry (1991), explains that some customer expectations and perceived service execution are compared to determine service quality. Service quality is the consumer’s overall rating of a specific service type that arises from comparing the business performance with the industry's standard operating procedures and customer expectations. Gronroos (1988) stressed that perceived quality is regarded good when the quality of the brand fulfills customers` expectations prior to the usage of the services.

According to Kotler (2001), a service provider may be successful by continually improving service delivery than its competitors and going above and beyond for customers. Previous experiences, word-of-mouth utterances, and advertising influence customers’ expectations. Additionally, customers compare the quality of a service to their prior expectation; if the perceived performance is substandard, customers get disinterested in the source but they are likely to repeat the use of a source where the service performance meets or exceeds their expectations.

**Dimensions of Service Quality**

Parasuraman and Zeithmal (1991) identified that there exist 10 criteria and dimensions in which service quality may be judged; they include: dependability, responsiveness, competence, accessibility, courtesy, communication, credibility, security, comprehension and tangibility. These writers agreed and stress on five variables of service quality. These are arranged in order of importance (Kotler 2001).

**Reliability:** The capacity to execute the given service dependably and accurate. Realizing the expected service; being dependable in helping customers meet their needs; maintaining the best services from the first encounter on; delivering service at the expected timeframe; encouraging a zero defect guidelines; readiness to assist customers; and having staff members be responsive to customers' requests. Performing the promised service accurately and consistently, or "delivering on its promise," is what Zeithaml and Bitner (2003) define as reliability.

**Responsiveness:** This refers to the ability to provide prompt service and readiness to serve customers, letting customers know when services will be delivered and providing quick service and the desire or availability of staff to provide service (Parasuraman *et al*., 1991). It also involves promptly and careful handling of consumer requests, questions, and grievances. When a business informs its customers how long it will take to hear back from them or address their complaints, it can be regarded as responsive.

**Assurance:** The staff's professionalism, courtesy, and capacity for expressing trustworthiness. Having employees who inspires, trust, give customers a positive impression of negotiating a contract, are courteous, and have the knowledge necessary to respond to customers concerns. Intermediaries between the customers and the firm can be given the benefit of the doubt (Zeithaml and Bitner 2003).

**Empathy:** It implies knowing and offering personalized attention to customers; concentrating on customers` interest; recognizing the unique demands of the customers and making working hours easy for consumers. Empathy comprises care and providing of personalized attention to clients by staff of the company (Zeithaml *et al*., 2003). In this regard, the consumer feels distinct and cared for.

**Tangibles:** The appearance of the buildings, machinery, personnel, and communication materials. It denotes firm having current equipment; that is the company's buildings and equipment that are physically pleasing, same as the employees' appearances and the products it offers as services. Specifically, the notion investigates the service provider's physical premises, how their workers appear, the devices they use to give the service, as well as any other customers present in the facility. Organizations use tangibles to communicate reputation and service excellence (Zeithamal *et al.*, 2003).

**c) Concept of Innovation**

The idea of Innovation is seen differently by authors. According to Wikipedia (2019), the term innovation is derived from its Latin counterpart “innovatus” which suggests, in - “into” + novus - “new”, the introduction of something new. In an endeavor geared toward understanding the term “innovation”, Nagasimha (2015) asserts that, innovation is a substitute new-trend word in management for previously commonly used phrases like “re-engineering,” “six sigma,” “kaizen,” “out-sourcing” and it incorporates all their functionality.

In the opinion of Barnett (1953), innovation is defined as any form of modification in the production process that results to major improvements inside the organization. She underlines that, “innovation” which is unique to a certain business may or may not be new to the globe. In the same spirit, way, (Bala, 2017) characterize innovation as “any change in inputs, techniques, or outputs which improves the commercial position of a business and that is new to the firm’s operational market. Further in the opinion of Chandra, Srivastav and Shab (2013) innovation is considered as “new ideas that work”. That is, the development and application of novel procedures, goods, and services which as a consequence offers noticeable gains in efficiency, effectiveness or quality as an outcome.

Further in the concept of Innovation, Drucker (1954) defines innovation as the transition of knowledge into economic and societal gain. The term innovation is also viewed as a brand-new or significantly improved process, product (goods or services), marketing strategy, or organizational structure are achieved in the intra-organizational activities or external interactions. In other words, the least criterion demanded for innovation is for businesses to use a brand-new (or much improved) product, process, marketing strategy, or organizational tactics. It is mainly a tool of entrepreneurship and an activity that offers the required resources for the establishment of a new capability.

Drucker (1954) expatiate further that, innovation delivers important information that offers the people who operate at a business together and have various knowledge and capacity with an opportunity for the first time to make them productive. The most significant quality of the innovation is that new ideas, new goods or process may bring advantages economically and socially and these benefits can become commercial (Timur and Antanas, 2017).

**Classifications of Innovation**

According to Narvekar and Jain (2016), innovation is commonly categorized into a collection of various kinds, the categorisation is typically separated based on kind, degree, skill, influence, and ownership. For instance, Tidd *et al.* (2005) opine that not all important aspects of innovation involve creating new markets. They categorized innovation into four groups, namely; product, process, position, and paradigm, otherwise referred to as the "4Ps of Innovation." According to in a related development, Moore (2004), outlined eight categories of innovation which are Disruptive, Application, Product, Process, Experiential, Marketing, Business Model, and Structure.

According to Kuratko, Ireland, Covin, and Hornsby (2005), innovation is generally attributed to variations in products or business procedures that result in an increase in customers and help the company gain a competitive edge. Similarly, Gopalakrishnan and Damanpour (1997) emphasized that innovations have been viewed as new ideas, methods, or device (products) and the act of introducing something new (processes). Furthermore, Worthington, Collins, and Hitt (2009) underlined that while firms can develop in a variety of ways, such innovation might range from little tweaks to current items, services, or procedures to entirely new ideas.

**Steps in Innovation Process**

For an organization to focus on innovation there is a number of steps to be followed. According to Martin (2017), when these procedures were properly followed, businesses could quickly develop fresh concepts and successfully carry them out.

S**tep 1:** Idea Generation Idea creation is the initial stage in the process of innovation. A participant makes a decision to improve upon a product/idea and draws certain reasons why it is a better idea/concept. It is crucial here to include both staff and customers. Involving several informed people can assist in obtaining a deeper insight of the market. It will also provide a chance to consider the idea in other viewpoints. In addition, specialists would present numerous plausible concepts.

**Step 2:** Advocacy and Screening: Some ideas generated are worthwhile of implementation. Therefore, it is necessary to scrutinize all of the suggestions made. During screening, the benefits and risks of each idea are weighted to see how workable it is and the ideas with futuristic direction are taken into consideration. At this point, participants work on idea improvement by refining it. Suggestions thought not to be the best option, are explained to the initiator. This is crucial, particularly when the idea generator is an employee as motivation would stimulate him/her to offer more suggestions in the future.

Organizations could engage three steps for fostering an innovation culture include;

a) Conducting evaluation and selection procedure in a transparent manner.

b) Creating lots of outlets for workers to receive feedback and advocacy

c) As a corporation, participants recognize that appraising an innovative concept is a demanding responsibility.

**Step 3:** Experimentation

At this phase, a pilot test is conducted to evaluate the concept. This examination is conducted in the selected market. As participant test the product to determine if consumers would accept it, whether the price is fair, as well as whether consumers value the innovation. The goal is to determine whether the idea sounds good and appropriate for the business as of a specific time. Hence, novel ideas or ideas that seem too complicated for the business, may not be embraced, since they are often deposited in the idea bank for future use.

Therefore, even though a participant is aware that the idea has gained popularity and that the cost is low, he may wish to wait to be certain that it is time to introduce the innovation to the market. This knowledge is only acquired during the experimental process. This means that it cannot be assumed that the idea is flawless to the extent that the market cannot ignore it. Nevertheless, testing could be a one-time thing or a continuous practice. In certain cases, the trial process results in novel ideas.

Ample time must be offered to employees to explore and analyze the results from the experimentation. Participants generate new ideas during this phase by determining whether the original concept is practicable and by gathering and analyzing data from the findings. Also, intellectual property protection is applied at this level.

**Step 4: Commercialization**

At this level, product is ready for sale. The focus at this point, should be on convincing the target market that the innovation would benefit, explaining how and when the innovation would be used to benefit the people, and demonstrating the invention's benefits with the use of a prototype. Therefore, a clear offer must be made to draw purchasers to an invention.

**Step 5: Diffusion and Implementation**

The stages of diffusion and implementation are distinct from one another. Diffusion occurs when the company adopts new innovation, and implementation occurs once all necessary resources are established in order to expand and use or build the innovative ideas. To spread the concept throughout an organization, knowledge intermediaries/brokers are used. The knowledge brokers distribute the concept's and its utility's description. Employees are able to understand the idea more deeply thanks to this expertise. They implement the idea once they have understood it.

Accessibility to manufacturing data, logistics, and market channels are only a few of the factors involved in diffusion and implementation. For the concept to succeed, working with businesses and sectors, forming partnerships, and engaging in outsourcing of management could be used to ensure that the idea is fully executed, and information is utilized to learn and generate further ideas (Martin, 2017).

### **2.1.7 Conceptual framework**

A conceptual framework is used by scholars including Riggan (2017) as a visual representation of the key theoretical concepts or principles of a study. With this in mind, the variables that will be represented in the framework includes procurement management, supply chain management, production management, ICT management and their influence on Organizational performance.

**Figure 2.2: Conceptual Framework**

**Operations Management**

Procurement Management

* Suppliers relationship.
* Record management.
* Cost management.

Maroma (2017), Kipkemoi (2017), Agu etal. (2022), Ahmed (2019)

Production Management

* Workers involvement.
* Time reduction.
* Production Strategy.

Bouranta etal (2019), Nassab etal (2013).

**Information and Communication Technology (ICT)**

* Information exchange.
* ICT skills.
* Production control.

Perez-Lopez(2019), David, Henley &Giambona (2014), Ngunyi (2014)

Supply chain Management

* Customer relationship.
* Strategic supplier partnership.
* Quality information

sharing.

Li etal (2002).

Li etal (2006).

**Organizational performance**

* Organizational agility.
* Quality of service delivery.
* Innovation.

Okotoh (2013), Ho, Teng &Trang (2011), Ulusoy (2022).

$$H\_{4}$$

$$H\_{1}$$

$$H\_{3}$$

$$H\_{1a}$$

$$H\_{1b}$$

$$H\_{1c}$$

$$H\_{2}$$

## 2.2 Theoretical framework

The theoretical propositions that support this study are Goldratt’s (1984) Theory of Constraints and Schmenner’s (1991) Theory of Swift Even Flow. These theories are more relevant in examining factors that influences operations management on organizational performance, particularly in the manufacturing sector. A review of these theories are presented as follow:

2.2.1 Theory of Constraints (TOC)

The Theory of Constraints as propounded by Eliyahu M. Goldratt (1984) in his work titled, “The Goal”. It is an entire management philosophy oriented on allowing firms to continually accomplish their goals. This theory is founded on the notion that throughput, operating costs, and inventory can all be varied to regulate and control an organization. According to the concept, inventory refers to all the funds that the organization has invested in buying the goods that it intends to sell. All of the cost that the organization spends to convert inventory into throughput is referred to as operational expenditure. The level at which an organization generates revenue from sales is known as throughput.

According to Goldratt (1984), there are several required circumstances that must be realized before organizational aim may be attained. These circumstances include quality, safety, legal duties, etc. While profit making is considered as the major purpose of most companies, other various profit and non-profit firms perceive making money as a requirement for completing the task. A solid understanding of how to execute sound financial decisions premised on throughput, inventory, and operating costs is of utmost importance whether the goal is the realization of a target or the fulfillment of a fundamental prerequisite.

Furthermore, the constraints the theory is based on five phases, the first being the assumption that a goal-oriented system's throughput is limited by at least one constraint. Second, the reduction ad absurdum argument, according to which a system's throughput might be infinite in a real-world system if there were no barriers preventing it from attaining greater throughput (i.e., more target units in a unit of time). Third, the only way to increase total throughput is to increase flow across the restriction. The fourth is the presumption that a system's target has been identified, its measurements have been established, and that the procedures include identifying the system's constraint(s), elevating the constraint(s), caution where restriction has already been compromised in the previous phases, and a return to the first step without allowing inertia to create a restriction. The fifth assumption is that the goal of a business enterprise is to "make more money now and in the future," and throughput accounting provides its measurements in the form of throughput, inventory, and operational costs (Stevenson, 2002).

Stevenson (2002) highlighted further that the purpose of the five focusing phases in the theory of constraints literature refers to the "process of ongoing improvement" and describes persistent process improvements as being focused on the organization's constraint(s). The concept states that these concentrated phases are crucial steps in developing the specified solutions.

A restriction, in the words of Goldratt (1984), is something that prevents the organization from achieving its goal. Constraints can manifest in many different forms, but a fundamental principle of TOC is that there may not be dozens or even hundreds of limitations. Each system has a minimum of one and a maximum of a few. There may be external or internal restrictions on the organization. Whenever the market demands more from an organization than what it is capable of providing, an internal constraint becomes obvious.

If so, the organization's attention ought to be on identifying that constraint and using the five specific steps to break open (and possibly and potentially resolve it). Whenever a system can produce more than what the consumer will accept, an exogenous restriction appears. In this situation, the business should strive to develop strategies to increase demand for its goods or services.

**Forms of internal restrictions**

**Equipment**: The system's ability to produce more commercially viable goods and services is limited by the manner facilities and machinery that is presently used.

**People**: A shortage of qualified workers limits the system, and human mental models may lead to behaviours that impose restrictions.

**Policy**: The business can be prohibited from manufacturing more by a documented or implicit policy.

Challenges in terms of equipment, personnel, rules, and other issues that organizations encounter are diverse (A breakdown is not, in the true sense of the theory of constraints, a constraint). Even though everything goes according to plan, the constraint or limiting factor prevents the business from generating more revenue (usually through sales). To "break" a limitation, its throughput capability must be increased to the point where it is no more the system's significant constraint. Therefore, the limiting factor must not be confused with a breakdown since it can become a component of the system or could be external (an external restriction)

The theory of constraints makes extensive use of buffers. Buffers often take place during the exploit and subsidiary phases of the five focal processes, according to Chandra and Kumar (2000). The presence of buffers ensures that the controlling constraint seldom experiences starvation. Additionally, buffers are added in front of the restriction to prevent downstream breakdown from obstructing the outputs of the constraint. By employing buffers in such a way, the constraint is protected against changes in the entire system and, therefore, should be able to process data at a variety of rates naturally as well as occasionally experienced significant upset (Murphy) before or after the constraint.

The possibility that Buffers could be a physical item standing in front of a workplace, ready for analysis by such a manufacturing site, has been further noted by Chandra and Kumar (2000). Buffers actually purchase time, such as the period of time just before deadline arrives, and thus are occasionally referred to as "time buffers." There could still be adequate work with in a time line ahead of the restriction, but not that much, and suitable unloading area after the constraint.

Buffers are not really the minor delay of production that stands in front of each manufacturing site in a Kanban system, but if you use the assembly line as limiting factor, it is comparable. According to the idea, each subcomponent will have enough option to accomplish the task at hand at the constraint and to close the gap if any time is wasted. Whenever one workstation in a balanced line breaks down much longer than what the buffer will allow, the overall structure would wait till that facility is eventually restored (Goldratt, 1989).Just one situation in a TOC system wherein production is at danger is when the constraint cannot be processed (either due to sickness, malfunction, or a "hole" in the buffer).

As a result, buffer management is crucial to the concept of constraints. There are several approaches to implementing buffers, but the method that is most frequently used is a visual approach that involves designating the buffer in three different colours: green for "good," yellow for "warning," and red for "action required”. By establishing this kind of visibility, the entire system can align and subsequently yield to the constraint's demand holistically. Additionally, this can be carried out daily in a common centralized operations unit.

There are four fundamental plant categories in the Theory of Constraints, according to Goldratt (1989). These categories describe how materials flow through a system as a whole and provide some guidance on how to seek for common problems. The letters V, A, T, and I's bottom-up shapes are often used in this sort of analysis, referred as VATI assessment, to distinguish the different plant species. In larger facilities, the main kinds could be merged in various ways, such as "A plant feeding a V plant."

**V-plant:** A facility that utilizes one raw material to make a variety of finished products operates a one-to-many total material flow. Steel mills or meat-rendering facilities are typical illustrations. When one operation (A) immediately follows a point of departure and "robs" resources intended for the other operations (B), this is known as "robbing," and that is the main problem with V-plants (B). After materials have been produced by A, it cannot be returned and put through B unless a significant amount of rework is done.

**A-plant:** In a plant, for example, where multiple sub-assemblies come together to form an assembly operation, the typical material flow is many-to-one but managing the convergent threads as each provides the assembly process point at the appropriate time is often the main challenge with A-plants.

**T-plant:** The general flow resembles an I-plant (or has multiple lines), which further separates into various assemblies (many-to-many). The majority of manufactured components are used in numerous assemblies, and practically all assemblies contain multiple sections. Computers are quite a perfect example of customized equipment. Both the synchronization issues of A-plants (where some parts are accessible in an assembly) and the robbing issues of V-plants (when one assembly grabs materials which could be used to in some other units) affect T-plants.

**I-plant:** Like an assembly line, material moves in something like a set order. One-to-one correspondences are used to complete the main objective (one-to-one). The restriction causes the slowest process.

From the list above, it may be inferred that similar fundamental V, A, T, or I structures can be reached for non-material systems by drawing the work flow or even the flow of activities rather than physical flows. An initiative, for instance, is an A-shaped sequence of tasks that culminates in a product manufactured, or the intended result. The idea of constraints has been the subject of criticisms. Trietsch from the University of Auckland in 2009, argues that design-oriented research methods is inadequate to competitive methodologies, despite the theory having been positively associated with to linear programming techniques. Also, Linhares from the Getulio Vargas Foundation claimed that the capability of the theory of constraints (TOC) approach to produce the best outcomes or creating an ideal product mixis uncertain since it would suggest that P=NP.

According to Duncan, the systems mechanics proposed by Forrester in 1950 and the process control that dates back to World War II both contributed significantly to the theory of constraints. Nevertheless, it has also been acknowledged that a number of the assumptions in the theory are recurring issues in management accounting literature (Steyn, 2000). More so, some authors have argued that Goldratt's publications failed to explain that the idea draws on over 40 years of previous business and management studies and experimentations, particularly from the just-in-time approach and the Program Evaluation And Review Methodology (PERT/CPM).

According to Gupta and Snyder (2009), the theory of Constraint (TOC) has not been proved to be effective in the academic literature, despite its acceptance as a legitimate philosophy of management. Moreover, Nave (2002) claims that TOC fails to inspire workers and consider their needs during manufacturing processes and also ignore the role of constraint in unsuccessful policies. Therefore, TOC cannot be academically designated as a generally accepted hypothesis. Hence, further case studies that show a link between acceptance and improved financial outcomes are required by TOC.

2.2.2 The Theory of Swift, Even Flow

Schmenner (1991) conceived the idea of swift, even flow. He thought that a business would be more profitable if materials flowed through some more rapidly and uniformly. Consequently, efficiency in any business (whether it be for materials, machines, labor, or total factors) increases the rate at which materials flow through to the system and decreases with increases in the flow variations, even if that variance is caused by changes in supply or by changes in the stages of the process. This concept of swift, even flow states that, regardless of how one analyzes them, just two aspects and only two criteria are critical to increasing productivity.

The first and most important step is to eliminate variance, which can take three forms: quality, quantity, and timeliness if desired.

(1) To decrease faults and improve quality;

(2) To balance the diversity and quantity of the products created so that each day of operation is similar to the previous day; and

(3) To operate in a predictable order.

Schemenner (2015) highlighted further that the second crucial component is to determine how long it requires to manufacture something from start to finish, or its "throughput time," and to make every effort to reduce the throughput period. The concept focuses on how materials move through a process and allows people to adopt the perspective of the materials as they do so. Lower the non-value-added component of operations that is where the expenditure and inefficiency are, by limiting the variation and duration of such materials. In order to comprehend this theory better, it is necessary to understand various concepts in the theory as explained below.

Value-added and non-value-added tasks are the basic principles: The idea holds that all work can be divided into value-added work and non-value-added activities. Value-added work transforms raw materials into useful products; it does not involve the transport, cataloging, inspection, counting, or reworking of raw materials. Non-value-added items include the renowned seven forms of wastes by Shigeo Shingo, which include overproduction, waiting, transportation, additional processing stages, stocks, motion, and defects (Hall, 1987, p. 26). (Hall, 1987, p. 26). Therefore, if the non-value-added and ineffective steps of the process are either deleted or significantly reduced, materials can go through a process more quickly.

Likewise, materials could only move quickly if the path is free of constraints and other impediments to flow. To achieve this, the theory relies on some other concept called throughput time. It acts as a helpful gauge of the flow's speed from the unit where products are first prepared to where it is manufactured and delivered to customers or packed in a storehouse.   According to the principle, the process should shorten the clock time (also known as throughput time)  is shown in this manner. The ability to locate flow delays or obstructions using throughput time is extremely useful. One must reduce the unpredictability linked either to system's demands or its operational phases if someone wants material to flow more consistently. The variance or standard deviation of the intended quantity, schedule, or amount of time spent in each phase of the process serves as a measure of variability. Whenever the demands placed on the system are the same and consistent, variability is reduced. Production plans with predictable volumes and deadlines are less appropriate with productivity than "level" production plans. Such uniformity in demand suggests less variation in desired times and quantities. If similar things are addressed collectively, variability is reduced. Therefore, productivity increases whenever similar task are performed concurrently.

The just-in-time operations mindset of Japan and the Swift, Even Flow idea are particularly compatible. In fact, JIT's success provides compelling proof for the theory (Schmenner, 1991).  Supply chain coordination is also required by the concept. All parts of the distribution chain need to be more efficient and the more seamless the connections are and the quicker the flow seems to be from basic supply to the final consumers.

The Swift, Even Flow theory also argues for the elimination of a range of performance metrics. Measures of labor productivity or equipment utilization (the ratio of standard to actual work hours) are not flow or variability indicators. The hypothesis proposes that these items should be replaced with throughput time and variability measurements such as delivery performance to plan. There are several measures that employee performance and machine usage are not strongly correlated with productivity (Schmenner, 1991).

The Goldratt (1981) theory of constraints was applied for the context of this research. Since the swift, even flow theory criticized the possibility of achieving productivity through labour and machine utilization which makes the theory’s assumptions unrealistic since in real organizations, both efficiency of machine operations and material handling depends the labour and this is what makes labour an important organizational resource. On the contrary, the theory of limits however has its criticism like many other management theories, it is able to provide insight into probable elements capable of functioning as hurdles to the attainment or organizational goals. This organizational aim may appear in terms of attaining efficiency through all parts of operations management (i.e. procurement management, production management, and supply chain management) which are the major emphasis of this study. Hence the theory of limitations of Goldratt (1981) is utilized considering its applicability to this research.

## 2.3. Empirical Review

This section examines the existing research works that have already been done on the research problem. Specifically, recent literatures on the research problem were reviewed.

2.3.1. Operations management and performance variables

Elisa, Andrea, and Massimiliano (2013) reviewed how operations management practices affect performance and how several operations management optimization strategies impact upon the performance of small and medium manufacturing businesses. The independent variable of the study was measured using production and supply chain activities. Qualitative survey design was adopted and a total population of all 3,500 manufacturing firms from which 100 small and medium-sized enterprises (SMEs) were chosen at random for the study. The research data were analyzed through the Structural Equation Modelling (SEM) method. The research results show that there is no correlation between operations management supply chain (OM SC) and performance. The study also found that there is no proof that the size of a business affects the Production or Supply Chain parts of Operations Management.

A finding contrary to the findings Elisa *et al.* (2013) is presented in the work of Werunga (2016) which examined Electric Utility Firms in Kenya to find out what operations management practices they utilize as well as the association between operations management practices and the performance of the firms. The study used a quantitative method of research. The population of the study is all of the electric utility companies in Kenya that generate, transmit, and distribute electricity. Twelve of these companies were chosen at random to be part of the study. The needed information was gathered from primary and secondary sources, and multiple regression was used for data analysis. The results show that operations management practice is positively associated with the firms’ performance. Because of this, electric utility companies with the most operations management practices are likely to do better. The study also found that electric utility companies in Kenya are very good at their jobs. So, the study came to the conclusion that effective operations management practices help electric utility companies do well. The findings are inconsistent with Elisa *et al.* (2013) report.

Pooja and Palawi (2019) examined how operations management activities affect how well service organizations do their jobs. They employed the use of a mix-method research design that included both qualitative and quantitative research. The design was based on a random sample of 24 service companies in the courier, retail, banking, and hotel industries. Interviews and questionnaires were used as primary sources of data to get the required information. Pearson correlation was employed for data analysis. The result showed that quality control and maintenance go hand in hand and are two of the best operations management tasks. The study established a significant positive correlation between the variables.

Miidom, Nwuche and Anyanwu (2016) also investigated the activities of operational management and the long-term viability of Nigeria's Rivers State's Oil and Gas businesses. The study employed a cross-sectional survey and a quasi-experimental method. A sample of 234 departmental heads and operational managers was selected from a population of 565 Heads of Departments and Operational Managers. The data was analyzed using Spearman's Rank order correlation coefficient. The findings demonstrate a strong, positive, and significant association between operations management activities and an organization's sustainability.

Rehema, Stephen and Gituro (2020) assessed Kenyan manufacturing firms' sustainable operations management practices and competitive advantages, using a cross-sectional survey. The study population consisted of 903 manufacturing firms who belong to Kenya Association of Manufacturers. It was reviewed that a sample of 277 was not enough for the study, therefore the researchers used a sample size of 300 to account for people who do not respond. Using a questionnaire, the needed information was gathered and analyzed with the Covariance-based Structural Equation Modeling (SEM). The study found that a firm's competitive advantage is affected by operations management practices. The researcher also considered exploring empirical review of operations management variables (procurement management, supply chain management and production management) which shall be used in this study.

2.3.2. Procurement management and performance variables

Empirical review of operations management variables in this work will be incomplete without reviewing works relating to procurement management. Wambau and Kagiri (2019) examined how procurement procedures impact organizations performance in Kenya, using Oracle Technology Limited as a case study. The study participants consisted of randomly selected 145 procurement staff, including purchasing officers, lead and junior category managers, logistics managers, senior procurement directors and medium level directors, and accounts payable officers. Data for the study was gathered with the aid of a structured questionnaire and a multiple regression technique was used for data analysis. It was found that using IT in procurement has a positive effect on how well an organization does its job. Information technology also makes the process of buying things more efficient. Abdiazeez (2019) investigated on how the telecommunications industry in Hargeisa, Somaliland, buys things and how well it works as a whole, using a descriptive approach. The study population comprised of 203 employees, made up of 108 Telesom employees and 95 Somtel employees, from which a random sample of 135 was taken. Questionnaire was used as the instrument for data collection and the data generated was analyzed with descriptive statistical tools including frequencies, percentages, and mean, as well as the regression technique, which was used to test the research hypotheses. Findings show that procurement planning and ethical procurement methods exert influence on the organizations’ performances.

Wambau and Kagiri (2019), who also found a significant effect of procurement variables on organizational performance, agree with this finding. Even though different proxies were used to get the measures for the two studies (the independent variable), the results are pretty similar.Ahmed, Aiman, and Mohamed (2019) studied the consequences of procurement procedures on organizational performance in an Arab academic service firm. The study used a descriptive research design with all 258 AAST logistics Managers as the study population. A sample of 102 was chosen from the study population using a purposive sampling technique and a structured questionnaire was used in data collection. Both descriptive and inferential methods (Pearson's correlation and Regression analysis) were used for data analysis. The results showed that the independent variables-information sharing strategic supplier partnerships, , customer orientation, reverse logistics, knowledge management and adoption of Information Technology (IT) have a significant effect on organizational performance. Abdiazeez (2019) and Kagiri (2001) agree with the results.

Flora (2019) researched on the effect of strategic procurement methods on the performance of public institutions, using a descriptive correlation. The study area used was the Kenya School of Revenue Administration using 110 employees of the Kenya School of Revenue Administration (KESRA), consisting of procurement officers, managers, logistics officers, financial officers, as well as operational officers. Taro Yamane formula was used to arrive at appropriate sample size of 86 people as representatives of the whole population. The data was gathered via a self-administered structured questionnaire and analyzed with descriptive statistics including frequencies, percentages, and charts as well as inferential statistics such as Pearson's correlation and regression techniques. Research showed a strong positive link between supplier management and organizational performance. Also, supplier management as a measure of operations management significantly affected the organizations’ performance. More so, there how technology was used is positively associated with organizations’ performance. Linear regression analysis shows that technology has a significant effect on how well public organizations perform. These imply that significant impact on procurement practices on the performance of public entities was also established in this study just like in the case of the reviews of other studies presented in the previous paragraphs.

Akubuko, Obodo, Musa and Jimoh (2019) carried out a re-appraisal of procurement management procedures and vendor performance among oil companies in Rivers State, Nigeria, using a cross-sectional survey approach. The study population is made up of200 procurement and store staff from the organizations studied. A sample of 133 people was chosen from this group using the proportionate sampling method. The data from the study audience was analyzed using frequency, percentage, mean, and Chi-square. The results of the study show a significant positive association between how procurement is managed and how well vendors do their jobs. Management is not surprised by this result because similar relationships between study variables have been found in other studies.

2.3.3. Production management and performance variables

From the point of view of push-pull production systems, Hui-Ming, Shu-Yun, Chin-Chow, and Paul (2009) conducted a cross-sectional research on how production management practices and systems affect how well a business perform. With the help of three science park administrations in Northern, Central, and Southern Taiwan, data were collected from businesses that were not part of the Toyota system. The student population includes people who work in semiconductors, aviation, precision machinery, optoelectronics, and traditional industries. Only 238 out of the 700 questionnaire copies were retrieved. Mail, e-mail, phone calls, and interviews were used to get information. Analysis of Variance (ANOVA) and the regression technique were used to analyse the data. The study findings show that a hybrid push-pull and pull production system works better. It was also found that quality improvement, cost improvement, flexibility, and on-time delivery are important factors in production management that can help a business do better. It was also found that both hybrid push-pull production systems and pull production systems make customers happier than the push production system.

Hossein, Mohamad, Parisa, and Mahdy (2013) conducted across-sectional survey on how production management affects operations management at the Shahib Hashemi Nejad Gas Refinery in Khangiran to make it more productive. The study population comprised of all managers in the study area who worked in human resource management, production management, financial management or production management, marketing management. A total of 97 respondents were chosen at random. Using a structured questionnaire, the needed information was gathered. Regression technique was used to look at the information that was collected. The results showed that production management has a strong ability to predict how well operations management works in a refinery. It also shows that production management has a positive effect on the refinery's output.

2.3.4. Supply chain management and performance variables

Supply chain management is yet another element of operations management that has drawn significant interest from previous scholars. Ebrahim and Mahmoud (2013), conducted a longitudinal research to examine the impact of supply chain management strategies through core competencies on organizational performance in Iran Pumps Company. The study population was made up of all manufacturing engineers in the United States and the participants at the year 2000, Council of Logistics Management (CLM) Conference, held in New Orleans, USA. The mailing lists of these people were gotten from the relevant associations. A questionnaire was used to get the needed information, and 196 of them were filled out and sent back. Structural Equation Modelling was employed for data analysis. The results show that the competitive priorities of the Iran pumps company are affected by the supply chain management methods used in the study area. The results match what Hui-Ming et al. found. Azmi and Ika (2020) used the Batik Industry in Yagyakarta City as a study area to look at how supply chain management affects organizational competiveness through a cross-sectional survey method. The study population include all owners and managers of 56 small and medium Batik businesses in Indonesia that were listed in the Yagyakarta province as well as city industry and trade services database. Using a structured questionnaire, the needed information was gathered. The study's results showed that supply chain management exerts a positive effect on the origanizations’ competitiveness and performance. It also showed that having a competitive advantage has effect on how well an organization performs. The results are consistent with Hui-Ming *et al.* (2009).

Ireoegbu, Ann, and Kofordu (2018) examined how supply chain management affects the performance of managers in privately owned manufacturing firms in South-East Nigeria. The study used a cross-sectional survey design with a population made up of all the managers of operations, manufacturing, purchasing, logistics, material managers, directors/managing directors/CEO and other managers of units of the 184 registered manufacturing firms with Manufacturers Association of Nigeria (M.A.N) in South-East, Nigeria, consisting of five states; Abia, Anambra, Ebonyi, Enugu, and Imo. A sample of 553 people from these states was used for the study. The sample respondents filled out a structured questionnaire on their own to get the information they needed, which was then analyzed using Pearson's product moment correction and regression analysis. The results show that training, knowledge of technology, and the security of investments in supply chain management help people develop the creative skills needed to improve managerial performance. The study also found that spotting opportunities helps research and development which then leads to better management performance of organizations.

Willkister (2013) assessed the Kenyan Sugar Industry's supply chain management and organizational performance, using a descriptive survey and a questionnaire for data collection. All of the people who work at the ten sugar factories in Kenya, including the heads of procurement, production managers, and agricultural service managers, make up the study population. A random sample of 328 people from this group was chosen for the study. Statistics were used to describe and figure out what the research data meant. Results show that practices have a positve impact on a number of performance criteria for effective supply chain management. Also, when supply chain management practices are well implemented, the firm's operational costs reduces, the time it takes to change the design of a product decreases, the accuracy of processing orders for customers increases, and the market share and customer satisfaction increases.

Makena and Mike (2014) reveal how supply chain management practices affect organizational performance, using the Haco Industries Limited in Kenya as a case study. The study's population included all Haco Industries' supply and logistics staff, from which 40 employees was conveniently selected. Questionnaire and key informant interviews (KII) were used as data collection instruments and the data gathered for the study were analyzed with the aid of descriptive statistics tools such as frequency and mean score. The study's results showed that Haco Industries Ltd does a good job of putting supply chain management into practice, and supply chain management is positively associated with organizational performance. It also showed that all four supply chain management measures (operational cost reduction, reducing lead time, improving product quality, and responding quickly to changes in the market) exert more significant effects on organizational performance when used together than when used separately. This matches the results of a study by Willkister (2013), which was also done with a manufacturing organization and found that supply chain management variables have a significant effect on organizational performance.

Mohammad and Elham examined how supply chain management strategies affect a company's competitive advantage in Khuzestan province in 2014. The study used both descriptive and applied research methods to do cross-sectional research. Population of the study consisted of all the manufacturing companies in Khuzesgtan province. A total of 201 companies were selected through the random sampling method. Questionnaires were used to collect data and multiple regression used employed for data analysis. The study found that the most significant factors influencing competitive advantage are efficiency of information exchange and supplier base collaborations, while the level of information exchange does not affect competitive advantage. Most variables employed in the measurement of supply chain management have positive effects on competitive advantage. This is in conformity with Ebrahim and Mahmoud (2013), Azmi and Ika (2020), reports which show that supply chain management exerts positive effects on competitive advantage of organizations.

Amineh, Hani, and Basema (2020) establishes how supply chain management influences a company's competitiveness and the role on information technology. The study used a cross-sectional survey with all 500 employees of Halawani Industrial Company as the study population. A random sample of 250 people was chosen, and questionnaire was used in collecting data from the study participants. The data was analyzed with One-Sample Kolmogorov-Smirnov (K-S) analysis and the results showed that relationships with both suppliers and customers had an effect on IT. Relationships with intermediaries and distributors have not have an effect, but they did help supply chain management (SCM) indirectly affect competitive advantage. But the finding was in line with the work of Ebrahim and Mahmoud (2013), Mohammad and Elham (2014) and the work Azmi and Ika (2020), where it was also shown that supply chain management is capable of exertinga significant effect on competitive advantage.

Evans and Mawuko (2018) conducted a cross-sectional research to determine how supply chain management and organization’s performance shape the creation of value, using supply chain staff who work in manufacturing firms located in the Kumasi Metropolitan Assembly, in Ghana. A total of 100 respondents were chosen at random from the group. Using a structured questionnaire, the needed information was gathered, and exploratory factor analysis, regression and correlation were used for the analysis. It was found that value creation does not have as much effect on supply chain operation as supply chain management procedures do. It also showed that value creation failed to seamlessly balance in a similar way thatsupply chain management does but it does have positive effect on how information and technology are managed, which hurts supply chain performance. The results don't match up with what Amineh et al. (2020) found. They showed that ICT negatively impacted on supply chain performance, but Aminehetal's study showed that ICT enhances the competiveness of supply chain management.

Inda, Shouvik, and Ali (2020) studied the relationship between organizational success and supply chain management in the service sector. The study was a cross-sectional survey of all tourism industry organizations in Salalah, Oman, such as hotels, restaurants, transportation companies, and so on. The researchers chose 10 hotels, 20 apartments, 50 restaurants, and 11 companies that provide transportation at random. The study sample was made up of 85 managers from hospitality organizations in Salalah, Oman. A questionnaire was used to get the needed information from the respondents and Structured Equation Modelling employed in data analysis.

The findings show a strong link between the strategic supply chain partnership and organizational performance. The study also found that customer relationships, sharing information, information technology, and internal operations have a big impact on how well an organization does. This result agrees with what Amineh et al. (2020), Evans and Mawuko (2018), Mohammad and Elham (2014), and other researchers have found. Tonggo and Nazaruddin (2020) expatiated on how supply chain management affected PT PLN's competitive advantage and the performance of its operations organization. The study did a correlation study with 150 employees from the PT PLN Persero Regional Northern Sumatra Operations Section. A sample of 109 employees was selected via the stratified random sampling technique and Pearson's correlation and multiple regression were used for analysis of the data collected. The study's results showed that both supply chain management and competitive advantage has a significant positive effect on the organization’s performance. Waqas (2019) examine the effect of supply chain management practices on the performance of business in the textile manufacturing sector. The study used both correlation and causal research designs. The people in the study's population are supply chain professionals at textile companies in Karachi, Pakistan. A sample of 211 respondents were participated in the study and a self-administered questionnaire, was used to gather the data which was analyzed with multiple linear regression technique. The study found that organizational performance is significantly improved by the quantity, quality, and level of information exchange, strategic supply partnerships, and customer relationships. This agrees with research done by Mohammad and Elham (2014) as well as Inda, Shouvik, and Ali (2020), which also reached the same conclusion.

2.3.5. Information technology and performance variables

An analysis of the qualitative performance indicators of Pakistan's banking and manufacturing companies conducted by Muhammad provided insight into the impact of information technology on organizational performance. A quantitative survey was used for the study. The respondents were selected from 48 companies. There were 24 companies in the manufacturing industry (12 local and 12 foreign) and 24 financial institutions. T-test and ANOVA were used to look at the collected data. The study concludes that information technology wields a positive influence on the performance of all the selected organizations. However, the performance of the banking sector is better than that of the manufacturing sector. It also showed that in the financial institutions, local firms seems to be the leader, whereas the multinationals are the leading among the manufacturing enterprises.

In a similar study, Balogun (2016) conducted a survey to determine how information technology affects the performance of organizations in the Nigerian Banking sector, using 21 randomly chosen commercial banks that were merged before and after 2005. From each of these 21 banks, 100 customers were chosen at random and used as study respondents. Using a questionnaire, the needed information was gathered, and Chi-square and ANOVA were used for analysis. The results of the study showed that technological innovation affected how well bank employees did their jobs, how happy customers were, and how much money banks made.

Sinisa, Jovanka, Jasmina, Vesna, and Laszlo (2021) studied how information technology can be used enhance organizational performance. The study used a descriptive survey with 380 middle managers from 102 companies as its sample. The study's audience filled out a structured questionnaire to get the information it needed, and descriptive statistics, Pearson's correlation, and the T-test were utilized for data analysis. The study found that the amount of information in a company is a sign of how well it works as an organization. It also demonstrated that a number of management performances have direct and indirect positive significant effect on organization's information technology.

Ramdani (2012) also did a study called "Informational Technology and Organizational Performance: Reviewing the Business Value of IT Literature." The study looked at the work of both academics and professionals and tried to figure out why new ways of managing IT investments are needed. Reviewing the work shows that it is clear that new ways are needed to manage IT investments. The study also found that not enough research has been done on how firms change or don't change the potential value of IT.

## 2.4 Methodological Review

On the methodologies adopted in the empirical works presented, it was observed that cross-sectional survey design was largely adopted by previous researchers except the work of Ebrahim and Mahmoud (2013) that analyzed supply chain management's effects on businesses through comparative advantage where longitudinal research design was employed. Also, most of the study considered case study method using the organizations that accommodate the study respondents as their case study. Furthermore, on the research instrument used, questionnaire was found to be the major data gathering instrument.

Though in few of the studies reviewed (e.g. Hui-Ming et al., 2009; Makena and Mike, 2014; Pooja and Palawi, 2019), interview was combined with questionnaire to validate the data gathered using the questionnaire adopted and the study of Hui-Ming et al. (2009) which also considered mail, e-mail and phone calls for data collection in addition to questionnaire and interview. From the review of the methodologies of the empirical literatures, it was observed that Cronbach’s Alpha Method was largely employed by the authors for reliability measure during the pretest of the data collection instruments. Though, some of the researches failed to test the reliability of the instrument used in their study, hence raising the possibility of internal inconsistencies in the data gathered in the studies.

On the statistical techniques used in data analysis, it was observed that almost all of the researchers found inferential statistical tools relevant to their work as test of the proposed hypotheses were conducted using Multiple Regression Analysis, Pearson’s Correlation, and Structural Equation Modelling (SEM). However, a study of Akubuko et al. (2019) was the only work where Chi-square was used for testing relationship among variables, though this work found a Multiple Regressing Analysis more appropriate for the study.

## 2.5 Gap identified in Literature

The study seeks to fill up the gaps in the works of previous researchers in the following ways:

On the conceptual gap, considering the fact that only a few researches such as Elisa, Andrea and Massimiliano (2013), Werunga (2016), could be found on the impact of operations management on organizational performance related variables, this study will bridge this gap by adding to the bank of few existing literatures that examined the effect of operations management on performance related variables.

Also, it was observed that majority of the previous works such as Hossein (2013), Abdiazeez (2019), Ebrahim and Mahmoud (2013) presented a narrow view of operations management. As they measure the variable using some minute variables that could have better been used as a sub variable in a more properly conducted research. Except the work of Elisa et al. (2013) where production management and supply chain management were used for measuring operations management which is the independent variable of the work. This study however deemed it fit to fill this gap by conducting a more robust research on operations management using production management, supply chain management and information and communication technology (ICT) as variables (proxies) for measuring the independent variable and further introduced procurement management as the mediating variable to make this work more unique.

Furthermore, despite the relevance of operations management in enhancing overall performance of organization, researches that investigate the influence of operations management on performance are few, hence this study considered organizational performance as its dependent variable hereby filling the vacuum in the previous researches.

Also, it was found through the review of existing literatures that several studies have used production oriented organizations as their study area. But no single researcher considered using pharmaceutical products manufacturing organization as the study area. This gap is bridged in this work by using Tuyil Pharmaceutical Industries Limited, Ilorin which is one of the largest producing of pharmaceutical products in Nigeria as the study area.

On the methodological gap, it was found that most existing works on this topic used old formulas like that Taro Yamani (1963) and related other formulas and in order to bridge this gap, this study considered adoption of more technological driven method of sample size determination using Raosoft (2004) samples size calculator.

Also, rather than using simple regression technique which was widely used by most previous authors, this study adopted the use of multiple regression technique which requires each independent variable in the hypotheses formulated to be separately measured using some sub-variables which will help provide better explanation of the relationship between the independent and dependent variables.

# CHAPTER THREE

METHODOLOGY

## 3.1 Introduction

An appropriate methodology is used to elicit quality results. Hence, the research design, the study population and sample size, sampling methods, data sources and data collection procedure, research instruments and administration, and methods for data analysis was discussed in this section.

## 3.2 Research Design

This research is descriptive and survey in nature, the importance of using this method is to give credibility to the research since it describes the view and opinions of individuals (Mostafa, 2008). The data collection used for this research is primary source. The decision to conduct this study was driven by the research questions and objectives.

## 3.3 Research Instrument

Primary sources were adopted in data gathering. It was decided that a questionnaire serve as the primary source of data for the sample audience taken from the study's overall population. 'A' and 'B' were the two sections of this questionnaire. While section 'A' was created to obtain demographic information from the respondents, section 'B' was created to collect pertinent information on the research variables.

**3.4. Tuyil Pharmaceutical Industry Limited (TPIL) Ilorin**

Apostle Oluwole Awotuyi, a prominent philanthropist and humanitarian, created Tuyil Pharmaceutical Industries Limited, a privately held corporation. The firm was founded in Ilorin, Kwara State, at No. 22 Stadium Road on May 1, 1996. Tuyil Pharmaceutical Industries Limited produces tablets and syrup, creams, capsules, dry powders, herbal, table water, and veterinary items. The company's registration number is 273695, and its registered office was located at 127 Gambari Road, Ilorin, Kwara. As a result of its quick production growth, the firm relocated to a permanent site, located at No. 22 New Yidi Road, Ilorin, Kwara State on June 2, 2005. Also, it was officially approved by Governor Bukola Saraki and former NAFDAC Director Dora Akuyil. The primary rivals of Tuyil Pharmaceutical firm are Orpham Nigeria, Aspen Pharmacare Nigeria, Fidson Healthcare, Emzor, and Bolapharm Nigeria, among others. Its functional website is **WEBSITE-** <http://www.tuyilpharm.com>

## 3.4 Population of the Study

The population of this study consisted of the Management and Staff of Tuyil Pharmaceutical Ltd, situated at no 22 New Yidi Road, Ilorin, Kwara State. The population of the management staff stands at fifteen (15), whereas the staff population comprised of one hundred and fifty-four (154) permanent staff, two hundred and twenty-seven (227) temporary staff and forty-one (41) staff on outside work. The population statistic is summarized in the below table 3.1

Table 3.1: Tuyil Pharmaceutical’s Staff Categories

| **Tuyil pharmaceutical Ltd** | **No of staff** |
| --- | --- |
| Management Staff | 15 |
| Permanent staff | 154 |
| Temporary staff | 227 |
| Staff outside work | 41 |
| **Total** | **437** |

*Researcher’s computation, 2021.*

## 3.5 Sample Size

Considering that the population of 437 is large, the Raosoft (2004) online sample size calculator was engaged to determine adequate sample that was used as a representative of the study population. The sample size calculator was assessed via the internet link <http://www.raosoft.com/samplesize.html>. However, the result generated by the sample size calculator, was two hundred and five (205). The sample size was determined at 0.05 error term, indicating 95% confidence in the estimated sample size. Hence, from the total population of four hundred and thirty-seven (437), the total sample size to be considered would be two hundred and five (205).

On the other hand, Bourley’s proportion allocation formula was adopted in determining the sample size for each of the staff category. The formula is stated as follows;

ni = $\frac{Ni}{N}$ x n

Where Nι = Element within the sample frame e.g. number allocated to each class of employee

n = Sample size or the proportion of the universe used for the study (Total sample).

N = Study population size i.e. over all staff

 **Management Staff**  **Permanent Staff**

 $n\_{1}$ = 15 x 205 = 7 $n\_{1}$= 154 x 205= 72

 437 437

 **Temporary Staff** **Staff outside work**

 $n\_{1}$ = 227 x 205 = 107 $n\_{1}$ = 41 x 208 = 19

 437 437

Therefore, the total population of all categories of employees and estimated sample was selected from each of the staff category discussed above is illustrated in Table 3.2:

Table 3. 2: Population and sample size estimated

| **Estimates** | **Management Staff** | **Permanent Staff** | **Temporary Staff** |  **Staff outside work** | **Total** |
| --- | --- | --- | --- | --- | --- |
| Population | 15 | 154 | 227 | 41 | 437 |
| Sample | 7 | 72 | 107 | 19 | 205 |

*Researcher’s computation 2021*

## 3.6 Sampling Technique

Stratified random sampling technique was adopted in selecting the sample size from the total population, since there are four staff categories in the study area from which sample members must be selected, this is to ensure that each of the staff category is adequately represented

## 3.7 Validity and Reliability of the Instrument

The research instrument was first subjected content validity test. The research supervisor and other research experts in the department received a draft copy of the study questionnaire to ensure that all questionnaire items are appropriate for measuring the dependent and independent variables used. Corrections made were effected before proceeding for the bulk production of the questionnaire before the instrument was administered to the study participants.

Cronbach’s alpha () method was used to determine the reliability of the research instrument. Based on Chelsea (2015) submission, the statistically acceptable coefficient for Cronbach’s Alpha reliability test is .70, which indicates that a study instrument is good, reliable and has high level of internal consistency. The test was carried out with the Statistical Package for Social Sciences (SPSS 25) and the test result would determine that the study instrument is reliable.

## 3.8 Methods of Data Analysis

The data for this was study was analyzed with the aid of descriptive and inferential statistical tools. A descriptive statistical tool such as frequency counts, and percentages was used for data analysis. Furthermore, Multiple Regression, Correlation and Mediated Multiple Regression were adopted for the test of the study hypotheses which aimed at examining the impact and influence of the independent factors on the dependent variable.

## 3.9 Ethical Consideration

This study poses neither threat nor exerts any injury on anyone. It was conducted in such a way that it follows the laid down ethical standard of Management Sciences. Also, confidentiality of the respondents was strictly maintained throughout the research period. Data gathered from the study respondents was not used for any other purpose outside this work. Lastly, the findings of this study was made available to the public through publication in both local and international journals.

# CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

## 4.1 Introduction

This chapter entails the presentation and analysis of data obtained through the use of questionnaire administered to staff and employees of Tuyil Pharmaceutical industry limited in Ilorin, Kwara State. In doing this the chapter is divided into three sections, introduction, presentation and hypothesis testing.

## 4.2 Presentation and Interpretation of data

Data for this study was gathered with the research questionnaires distributed through online platforms. A total of 205 participants responded and only 200 participants returned the questionnaire. This equals to 97.6% response rate. This was a high response rate after the researcher made personal calls and visits to remind the respondents to fill in and return the questionnaires. The data were analyzed using descriptive and survey method; Frequency tables and percentages were the descriptive statistics used. Data analysis was done, using the SPSS 25, the results of the computer output are attached as appendices.

Table 4. 1: Distribution of Respondents by Gender

| Frequency | Percent | Valid Percent | Cumulative Percent | Frequency |
| --- | --- | --- | --- | --- |
| Male | 72 | 36.0 | 36.0 | 36.0 |
| Female | 128 | 64.0 | 64.0 | 100.0 |
| Total | 200 | 100.0 | 100.0 |  |

*Source:**Field Survey 2022.*

Table 4.1 indicates that 72 (36%) of the respondents are male while 128 (64%) of them are female. This implies that organization has more females and males, that the job is flexible, not labour-intensive and can be handled by females.$ $

Table 4. 2: Distribution of Respondents by Educational Qualification.

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| --- | --- | --- | --- | --- |
| SSCE | 37 | 18.5 | 18.5 | 18.5 |
| NCE/ND | 106 | 53.0 | 53.0 | 71.5 |
| HND/Bsc | 52 | 26.0 | 26.0 | 97.5 |
| Others | 5 | 2.5 | 2.5 | 100.0 |
| Total | 200 | 100.0 | 100.0 |  |

*Source:**Field Survey 2022.*

Table 4.2 reviews the respondents’ educational qualification. The results shows that 37 (18.5) of the respondents had SSCE, 106 (53%) of the majority respondents had NCE and ND, 52 (26%), of the respondents had HND/BSc, and 5 (2.5%) of others had other qualifications. This implies that the majority of the employees have NCE/ND, this will benefit the establishment in terms of staff hiring and paying cost, that is employees salary will be minimal to the likes of HND/BSc and others.

Table 4. 3: Distribution of Respondents by Grade level.

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| --- | --- | --- | --- | --- |
| Lower level management | 122 | 61.0 | 61.0 | 61.0 |
| Middle level management | 71 | 35.5 | 35.5 | 96.5 |
| High level management | 7 | 3.5 | 3.5 | 100.0 |
| Total | 200 | 100.0 | 100.0 |  |

*Source: Field Survey, 2022.*

Table 4.3 reveals the distribution of the respondents by grade level. The result shows that 122 (61%) representing the majority of the respondent are of lower level management, 71 (35.5%) are of middle level management and 7 (3.5%) are of top management. This result suggests that the majority of the staff are in lower management level, communication flows from top to middle to lower level management, also orders and specifications are done according to dictates of the management.

Table 4.4: Distribution of Respondents by Department.

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| --- | --- | --- | --- | --- |
| Admin | 38 | 19.0 | 19.0 | 19.0 |
| Syrup | 33 | 16.5 | 16.5 | 35.5 |
| Laboratory | 28 | 14.0 | 14.0 | 49.5 |
| Audit/sales | 26 | 13.0 | 13.0 | 62.5 |
| Tablet | 18 | 9.0 | 9.0 | 71.5 |
| Pharmacy | 9 | 4.5 | 4.5 | 76.0 |
| Security | 8 | 4.0 | 4.0 | 80.0 |
| Maintenance | 7 | 3.5 | 3.5 | 83.5 |
| Raw materials | 7 | 3.5 | 3.5 | 87.0 |
| Dry syrup | 7 | 3.5 | 3.5 | 94.0 |
| Veterinary | 6 | 3.0 | 3.0 | 97.0 |
| Quarantine | 6 | 3.0 | 3.0 | 100.0 |
| Total | 200 | 100.0 | 100.0 |  |

*Source: Field Survey, 2022*

Table 4.4 explains the distribution of respondents by Department/units. The results shows that 38 (19%) representing the majority of the respondents are in Administration Department, 33 (16.5%) of the respondents are in Syrup Department, 28 (14%) of the respondents are in Audit/Sales Department, 18 (9%) of the respondents are in Tablet Department, 9 (4.5%) of the respondents are in Pharmacy Department, 8 (4%) of the respondents are in Security Department, 7 (3.5%) of the respondents are in Maintenance Department, 7 (3.5%) of the respondents are in Raw materials Department, 7 (3.5%) of the respondents are in Store Department, 7 (3.5%) of the respondents are in Dry syrup Department, 6 (3.0%) of the respondents are in Veterinary Department, 6 (3.0%) of the respondents are in Quarantine Department. This implies that the establishment is capable of managing inventory, records, handling budget, office reporting invoicing and customers’ service

Table 4.5: Distribution by Years in the Establishment.

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| --- | --- | --- | --- | --- |
| 0-2 years | 32 | 16.0 | 16.0 | 16.0 |
| 3-5 years | 27 | 13.5 | 13.5 | 29.5 |
| 6-9 years | 9 | 4.5 | 4.5 | 34.0 |
| 10years and above | 132 | 66.0 | 66.0 | 100.0 |
| Total | 200 | 100.0 | 100.0 |  |

*Source: Field Survey, 2022*

Table 4.5 shows the distribution of the respondents by years in the establishment. The results shows that 32 (16.0%) of the respondents have 0-2 years of experience in the establishment, 27 (13.5) had 3-5 years of experience, 9 (4.5%) of the respondents have 6-9 years of experience, and 132 (66%) representing majority of the respondents have 10years and above years of experience. This implies that the establishment has high employee retention which leads to expertise and performance.

Table 4.6: Distribution by Annual Sales Turn Over in millions.

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| --- | --- | --- | --- | --- |
| 0-50 | 31 | 15.5 | 15.5 | 15.5 |
| 51-500 | 16 | 8.0 | 8.0 | 23.5 |
| 501-1000 | 143 | 71.5 | 71.5 | 95.0 |
| 1001-5000 | 3 | 1.5 | 1.5 | 96.5 |
| 5001 and above | 7 | 3.5 | 3.5 | 100.0 |
| Total | 200 | 100.0 | 100.0 |  |

*Source: Field Survey, 2022*

Table 4.6 above explains the distribution by Company’s annual sales turn over in millions. The results shows that 31 (15.5%) of the respondents indicates that company’s annual sales turnover is 0-50. 16 (8.0%) of the respondents indicates that company’s annual sales turnover is 51-500, 143 (71.5%) of the majority of the respondents indicates that company’s annual sales turnover is 501-1000. 3 (1.5%) of the respondents indicates that company’s annual sales turnover is 1001-5000. 7 (3.5%) of the respondents indicates that company’s annual sales turnover is 5001 and above. This implies that the establishment is making improvement in terms of sales due to its high performance capabilities.

Table 4.7: Procurement Management (Item analysis)

| **Descriptive Statistics** |
| --- |
| Statement | N | Minimum | Maximum | Mean | Std. Deviation | Ranking |
| Supply partnership influences organizational performance. | 200 | 1.00 | 5.00 | 4.2050 | .73188 | 4 |
| Strategic partnership with suppliers influences organizational performance.  | 200 | 1.00 | 5.00 | 4.0100 | .79565 | 11 |
| Product development projects influence organizational performance. | 200 | 1.00 | 5.00 | 4.0600 | .84853 | 8 |
| There is effective suppliers supervision | 200 | 1.00 | 5.00 | 3.8800 | .89420 | 15 |
| The organization knows it suppliers capabilities | 200 | 1.00 | 5.00 | 3.9100 | .94145 | 14 |
| Effective records management improves organizational performance.  | 200 | 1.00 | 5.00 | 4.2650 | .86517 | 3 |
| Adequate record keeping encourages staff to be more effective | 200 | 1.00 | 5.00 | 4.0850 | .88979 | 7 |
| When documents are effectively handled, staff performance improves. | 200 | 1.00 | 5.00 | 3.9900 | .92421 | 12 |
| Adequate safety of records enables availability of such records facilities | 200 | 1.00 | 5.00 | 4.0300 | .82004 | 10 |
| By keeping records, the organization avert the stress of duplicating recording efforts | 200 | 2.00 | 5.00 | 4.0450 | .89273 | 9 |
| Organization focuses how much they spent, where, when, and why. | 200 | 1.00 | 5.00 | 4.3000 | .75021 | 2 |
| Organization carefully analyzes the cost that they are buying goods and service. | 200 | 1.00 | 5.00 | 4.1650 | .84934 | 5 |
| Organization controls the cost through carefully forecasting, planning, budget preparation, reporting and monitoring.  | 200 | 1.00 | 5.00 | 4.1400 | .88562 | 6 |
| Organization manages the cost to avoid unnecessary spending.  | 200 | 1.00 | 5.00 | 4.4500 | .92044 | 1 |
| Organization maintains the cost effectiveness through cost reduction that spending less for goods and service. | 200 | 1.00 | 5.00 | 3.9200 | .89869 | 13 |
| **Average mean: 4.09** |  |  |  |  |  |  |

*Source: Field Survey, 2022*

Table 4.7 depicts that the extent of procurement management on organizational performance in which is very high with average mean of 4.09. This indicates that the level of organization’s cost management to prevent needless expenditure through effective procurement procedure that focuses on how much the organization spent, where, when, and why.

Also the result shows that the Organization manages its cost to avoid unnecessary spending has both the highest standard deviation and ranking this indicates that organization experiences high maximization of its organizational resources.

Table 4.8: Production management (Item analysis)

| **Descriptive Statistics** |
| --- |
| Statement  | N | Minimum | Maximum | Mean | Std. Deviation | Rank |
| Employees participate in the decision-making processes  | 200 | 1.00 | 5.00 | 3.9200 | .95822 | 11 |
| Employees take initiatives | 200 | 1.00 | 5.00 | 3.9700 | .78880 | 6 |
| Employees are motivated to improve their performance.  | 200 | 1.00 | 5.00 | 4.0600 | .89465 | 2 |
| There are horizontal and vertical communication channels throughout the company. | 200 | 2.00 | 5.00 | 4.0300 | .82004 | 3 |
| Employees participate in meetings, the agenda of which is related to quality improvement planning. | 200 | 1.00 | 5.00 | 3.9000 | .82059 | 12 |
| Useful and effective plans are selected in order to preventing wasting time and money. | 200 | 1.00 | 5.00 | 4.2100 | .72701 | 1 |
| In evaluation process, the amount of time and energy is considered.  | 200 | 1.00 | 5.00 | 3.9650 | .82290 | 7 |
| The process of saving new materials is effective. | 200 | 1.00 | 5.00 | 3.8000 | .90781 | 14 |
| Basic repairment of operational units is done regularly. | 200 | 1.00 | 5.00 | 3.8700 | .89280 | 13 |
| After repairment, producing is done without stopping. | 200 | 1.00 | 5.00 | 3.7550 | .95894 | 15 |
| Production monitoring is done continuously. | 200 | 1.00 | 5.00 | 3.9600 | .89015 | 8 |
| Before any changes appropriate context is made. | 200 | 1.00 | 5.00 | 3.9500 | .92291 | 9 |
| Future development is planned for new productions. | 200 | 1.00 | 5.00 | 3.9750 | .92664 | 5 |
| Constant trying of producing high quality materials.  | 200 | 1.00 | 5.00 | 3.9500 | .87253 | 9 |
| Creating new techniques of producing is developed carefully. | 200 | 1.00 | 5.00 | 3.9800 | .91311 | 4 |
| **Average mean: 3.95** |  |  |  |  |  |  |
| *Source: Field Survey, 2022* |

The findings from Table 4.8, show that the extent of production management on organizational performance is high (average mean = 3.95). Majority of the employees are motivated. This may be associated with the organization maintaining useful and effective organizational and production plans.

The findings further shows that the organization select useful and effective plans to prevent wasting time and money has both the highest standard deviation and ranking this explains that the organization is efficient in production capabilities

Table 4.9: Supply chain management (Item analysis)

| **Descriptive statistics** |
| --- |
| Statement  | N | Minimum | Maximum | Mean | Std. Deviation | Ranking |
| The organization frequently interacts with customers to set reliability, responsiveness and other standards for us. | 200 | 1.00 | 5.00 | 4.2350 | .76990 | 1 |
| The organization frequently measures and evaluates customers’ satisfaction. | 200 | 1.00 | 5.00 | 4.0200 | .84449 | 3 |
| The organizations frequently determine future customer expectations. | 200 | 1.00 | 5.00 | 3.9400 | .92231 | 9 |
| The organization facilitates customers’ ability to seek assistance from us. | 200 | 1.00 | 5.00 | 3.9100 | .91437 | 12 |
| The organization periodically evaluate the importance of its relationship with our customers. | 200 | 1.00 | 5.00 | 4.0000 | .83876 | 5 |
| The organization considers quality as the number one criterion in selecting suppliers. | 200 | 1.00 | 5.00 | 4.1000 | .86239 | 4 |
| The organization regularly solve problems jointly with its suppliers. | 200 | 1.00 | 5.00 | 3.8550 | .92099 | 15 |
| The organization has helped it suppliers to improve their product quality. | 200 | 1.00 | 5.00 | 3.9300 | .91613 | 11 |
| The organization has continuous improvement programs that include its key suppliers. | 200 | 2.00 | 5.00 | 3.9800 | .82645 | 6 |
| The organization include its key suppliers in it planning and goal-setting activities. | 200 | 1.00 | 5.00 | 3.9500 | .91195 | 8 |
| Information exchange between its trading partners and the organization is timely. | 200 | 1.00 | 5.00 | 4.0400 | .81345 | 2 |
| Information exchange between trading partners and the organization is accurate. | 200 | 1.00 | 5.00 | 3.9550 | .85829 | 7 |
|  Information exchange between trading partners and the organization is complete. | 200 | 1.00 | 5.00 | 3.9050 | .90558 | 13 |
| Information exchange between trading partners and the organization is adequate | 200 | 1.00 | 5.00 | 3.9100 | .91985 | 12 |
| Information exchange between our trading partners and the organization is reliable. | 200 | 1.00 | 5.00 | 3.9050 | .93828 | 13 |
| **Average mean: 3.98** |  |  |  |  |  |  |

*Source: Field Survey, 2022*

The findings in Table 4.9 reveals that the effect of supply chain management on organizational performance is also high with average mean of 3.98. Result indicates that organization has a cordial relationship with its customers, it takes effective measures to evaluate customers’ satisfaction which keeps the organization in business.

Also it was revealed that the organization frequently interacts with customers to set reliability, responsiveness and other standards has both the highest standard deviation and ranking. This implies that there is cordial relationship between the organization and it customers

Table 4.10: ICT (Item analysis)

| **Descriptive statistics** |
| --- |
| **Statement**  | N | Minimum | Maximum | Mean | Std. Deviation | Ranking |
| Information exchange helps to meet customer’s requirement.  | 200 | 1.00 | 5.00 | 4.2550 | .70886 | 1 |
| Information exchange enables Improved customer service | 200 | 2.00 | 5.00 | 4.0550 | .83994 | 4 |
| Information exchange enhances Inventory management with suppliers and customers. | 200 | 2.00 | 5.00 | 4.0150 | .85347 | 7 |
| Information exchange helps in improving logistic process. | 200 | 1.00 | 5.00 | 4.0000 | .78298 | 8 |
| Information exchange enables relationship with suppliers. | 200 | 1.00 | 5.00 | 3.9150 | .91760 | 13 |
| Training programs in managing information.  | 200 | 1.00 | 5.00 | 4.2000 | .71593 | 2 |
| Training programs in the use of electronicresources. | 200 | 1.00 | 5.00 | 3.9800 | .83251 | 9 |
| Information management policy for computer-based systems. | 200 | 1.00 | 5.00 | 3.9350 | .93549 | 12 |
| Procurement function has adopted Information Technology hence procurement activities are done electronically. | 200 | 1.00 | 5.00 | 3.9650 | .88753 | 10 |
| Adoption of Information Technology improved the performance of the organization  | 200 | 1.00 | 5.00 | 4.0550 | .91989 | 4 |
| Organization often responds to market changes. | 200 | 1.00 | 5.00 | 4.0800 | .84091 | 3 |
| Organization effectively Introduces new products and services  | 200 | 1.00 | 5.00 | 4.0450 | .81628 | 6 |
| There is high performing tasks in the each work area.  | 200 | 1.00 | 5.00 | 3.9600 | .81961 | 11 |
| There are delays in production process. | 200 | 1.00 | 5.00 | 3.7350 | 1.0197 | 15 |
| There is organizational maintenance planning | 200 | 1.00 | 5.00 | 3.9000 | .86820 | 14 |
| **Average mean: 4.01** |  |  |  |  |  |  |

*Source: Field Survey, 2022.*

The findings from Table 4.10 show that the impact of ICT impact on organizational performance is high (average mean = 4.01). The study also reveals that information exchange through the use of ICT helps to meeting the organizational requirements. Probable explanations for this could be that the organization is futuristic, it sees the need for future growth and expansion, hence, the need for ICT during and after production processes to achieve performance.

The findings further show that Information exchange helps to meet customer’s requirement has both the highest standard deviation and ranking. This explains that there is adequate information flow within the organization which enables organizational performance

Table 4.11: Organizational performance (Item analysis)

| **Descriptive statistics** |
| --- |
| **Statement**  | N | Minimum | Maximum | Mean | Std. Deviation | Ranking |
| Ability of organization to adapt to unexpected changes is critical in achieving and maintaining enhanced operational performance. | 200 | 1.00 | 5.00 | 4.2300 | .73471 | 1 |
| Organizational responsiveness to changes serves to avert risks. | 200 | 2.00 | 5.00 | 3.9750 | .79216 | 6 |
| Agile organization executes innovations and take competitive moves with speed, surprise to enhanced operational performance. | 200 | 1.00 | 5.00 | 3.9750 | .77937 | 6 |
| Agile firms are resilient to shocks and upheavals in their business environments. | 200 | 2.00 | 5.00 | 3.9250 | .81406 | 10 |
| Agile firms are keen in creating new business models and significant changes in their operations. | 200 | 2.00 | 5.00 | 3.9250 | .81406 | 10 |
| Tangibles: The organization experiences wide range of production capacity. | 200 | 1.00 | 5.00 | 3.9250 | .85029 | 10 |
| Reliability: There is organizational high products reliability that meet up the standard. | 200 | 1.00 | 5.00 | 4.0900 | .82175 | 2 |
| Responsiveness: there is high response and speed during production processes. | 200 | 2.00 | 5.00 | 4.0150 | .80499 | 4 |
| Assurance: There is adequate Corrective and preventive causes of actions. | 200 | 1.00 | 5.00 | 3.8850 | .77120 | 14 |
| Empathy: The organization maintains the relationship after contracts. | 200 | 1.00 | 5.00 | 4.0250 | .79848 | 5 |
| Renewing the routines, procedures and processes employed to execute firm activities. | 200 | 1.00 | 5.00 | 3.8000 | .89667 | 15 |
| Renewing the supply chain management system. | 200 | 2.00 | 5.00 | 4.0800 | .77887 | 3 |
| Renewing the production and quality management systems. | 200 | 1.00 | 5.00 | 3.9250 | .79532 | 10 |
| Renewing the in-firm management information system and information sharing practice. | 200 | 2.00 | 5.00 | 3.9400 | .78067 | 8 |
| Renewing the organizational structure to facilitate strategic partnerships. | 200 | 1.00 | 5.00 | 3.9300 | .79262 | 9 |
| **Average: 3.98** |

*Source: Field Survey, 2022*

Table 4.11 reveals that ability of the organization to adapt to changes was ranked first with highest mean of 4.23, followed by organizational reliability with mean of 4.09. This implies that the organization is making progress in terms of production capabilities and performance.

It was also revealed that the organization adapts to unexpected changes in achieving and maintaining enhanced operational performance has both the highest standard deviation and ranking. This means that organization easily adapt to changes which makes them remain competitive in the market.

Table 4. 12: Relationship between variables

| Variable  | 1 | 2 | 3 | 4 | 5 |
| --- | --- | --- | --- | --- | --- |
| 1.Organizational performance | 1.000 |  |  |  |  |
| 2.Procurement Management | .521\* | 1.000 |  |  |  |
| 3.Production Management | .551\*\* | .662\*\* | 1.000 |  |  |
| 4.Supplychain management | .614\*\* | .611\*\* | .654\*\* | 1.000 |  |
| 5. ICT | .694\*\* | .669\*\* | .588\*\* | .651\*\* | 1.000 |

| **\*\*. Correlation is significant at the 0.01 level (2-tailed).** *Source: Researcher’s computation, 2022* |
| --- |

Table 4.12 depicts the relationship between the Operation Management dimensions and Organizational Performance:

The result shows that procurement management (r = 0.521; P<.05) has a significant association with organizational performance. This implies that effective Procurement Management has a positive and significant relationship with Organizational Performance. The result also further reveals that production management has a significant relationship of (r = 0.551; P<.05) with organizational performance. This implies that adequate production management is a major determinant of organizational performance. Also, the evidence reveals that supply chain management (r = 0.614; P<.05) is significantly related to organizational performance. This implies that sufficient Supply Chain Management is an alternative paradigm to organizational performance. More also, the result shows that ICT has a strong and significant effect on organizational performance(r = 0.694; P<.05). This implies that the use of ICT is highly related to organizational performance.

## 4.3 Test of Hypotheses

**Hypothesis one:**

Table 4. 13: Procurement management and organizational performance

| Variable | Model (OP) |
| --- | --- |
| Constant |  1.910 |
| Procurement management | Beta 0.508t-value 8.578 |
| p-value |  0.000 |
| R |  0.521 |
| R2 |  0.271 |
| Adjusted R Square |  0.267 |
| F |  73.576 |

*Source: Field Survey, 2022*

Table 4.13 presents the regression analysis of the model, showing the relationship between the dependent variable (organizational performance) and the independent variables (procurement management). From the findings, variables are significantly related to an R-value of 52.1% (p<0.05). The R-square value at 0.271 demonstrates that the independent variables explained 27%variance in the dependent variable. This implies that procurement explained 27% of the total variation in organizational performance, while 73% of the variation is explained by other variables not included in the findings. More so, the results show that the finding has a good fit, as shown by the f-value of 73.576, and is statistically significant at p<0.05.

**Hypothesis two**

Table 4.14: Production management and organizational performance

| Variable | Model (op |
| --- | --- |
| Constant |  1.781 |
| Production management | Beta 0.555t-value 9.285 |
| p-value |  0.000 |
| R |  0.551 |
| R2 |  0.303 |
| Adjusted R Square |  0.300 |
| F |  86.216 |

*Source: Field Survey, 2022*

Table 4.14 presents the regression results of the relationship between the dependent variable (organizational performance) and the independent variables (production management). From the result, variable have significant influence of R-value of 55.1% (p<0.05). The R-square value at 0.303 implies that the independent variables estimated 30% variance in the dependent variable. This means that production estimated for 30% of the total variation in organizational performance, while 70% of the variation is accounted for by other variables not included in this analysis. Also, the finding has a high rate of compatibility as p<0.05 and F=86.216.

**Hypothesis three**

Table 4.15: Supply chain management and organizational performance

| Variable | Model (SCM) |
| --- | --- |
| Constant |  1.806 |
| Supply chain management | Beta 0.546t-value 10.935 |
| p-value |  0.000 |
| R |  0.614 |
| R2 |  0.377 |
| Adjusted R Square |  0.373 |
| F |  119.620 |

*Source: Field Survey, 2022*

Table 4.15 reviews the regression analysis of a significant influence between the dependent variable (organizational performance) and the independent variable (supply chain management). From the result, there is a significant influence in which R-value of 61.4% (p<0.05). The R-square value at 0.37 implies that the independent variables estimated 37% variance in the dependent variable. This implies that procurement explained 37% of the total variation in organizational performance, while 63% of the variation is accounted for by other variables not included in this analyses. The finding also has a high rate of compatibility as p<0.05 and F=119.620.

**Hypothesis four:**

Table 4.16: Path Analysis – Direct Effect (without mediation)

| **Path**  | **Coefficient** | **Standard error** | **t- value** | **p-value** |
| --- | --- | --- | --- | --- |
| PCM$\rightarrow ICT$ | .3953997 | .0681394  | 5.80  | 0.000 |
| PCM$\rightarrow OP$ |  -.0368272  | .0713151  | -0.52  | 0.606  |
| PDS$\rightarrow ICT$ | .1108763  | .0736568  | 1.51  | 0.132  |
| PDS$\rightarrow OP$ | .1408285  | .0708942  | 1.99  | 0.047  |
| SCM$\rightarrow ICT$ | .3445944  | .0648365  | 5.31  | 0.000 |
| SCM$\rightarrow OP$ | .2244652  | .0708093  | 3.17  | 0.002  |
| ICT$\rightarrow $OP | .4913949  | .0678384  | 7.24  | 0.000  |

*Source: Field Survey, 2022*

From Table 4.16: The t-value of 5.80, beta-value of 0.395 and p- value of 0.000 affirms that procurement management has a linear and significant association with ICT. The result also reveal that procurement management (β =-0.0368; t=-0.52; p >0.606) has an inverse correlation with organizational performance. Furthermore, the t-value of 1.51, beta value of 0.110 and p-value of 0.132 reaffirm that production management is directly related to ICT. The t-value of 0.141, beta-value of .141 and p-value of 0.047 is in agreement that production management has a linear and significant association with organizational performance.

Furthermore, the t-value of 1.51, beta value of 0.110 and p-value of 0.132 reaffirm that production management is directly related to ICT. The t-value of 0.141, beta-value of .141 and p-value of 0.047 is in agreement that production management has a linear and significant association with organizational performance association with organizational performance. The result also reveal that supply chain management (β =0.344) ; t= 5.31; p >0.000) has a relationship with ICT. The t-value of 3.17 beta value of 0.224 and p-value of 0.002) ascertain that supply chain management has a direct correlation with operations management. The findings ascertain that ICT (β =0.491); t= 7.24; p >0.000), has a positive influence on organizational performance.

Table 4.17: Structural Equation Modeling with mediator (Indirect Effect)

| **Path**  | **Coefficient**  | **SE** | **t-value** | **p-value** | **95%CI** |
| --- | --- | --- | --- | --- | --- |
| PCM$\rightarrow ICT\rightarrow $OP | .1863595 | .0420033  | 4.44  | 0.000  | .1040345  | .2686845 |
| PDM$\rightarrow ICT\rightarrow $OP | .0522581  | .0355362  | 1.47  | 0.141  | -.0173915  | .1219078 |
| SCM$\rightarrow ICT\rightarrow $OP | .1507796  | .0363636  | 4.15  | 0.000  | .0795082  | .222051 |

From Table 4.17: Using ICT as a mediator between procurement management, production management, supply chain management and organizational performance, the indirect effect is 0.186 and the 95% confidence interval is 0.104 to 0.268 and a p value of 0.000 prove that there is partial mediation. This indicates that ICT partially mediates between procurement management and organizational performance. The indirect beta -value of 0.552 and the 95% confidence interval of -0.017 and 0.121, and a p- value of 0.141 prove that there is no mediation. This indicates that ICT does not mediate between production management and organizational performance. Evidence also shows that ICT partially mediates between supply chain management and organizational performance, with the indirect beta-value of 0.150, the 95% confidence interval of 0.079 and 0.222, and a p- value of 0.000. This result is in line with Bido and Silva (2019) that when both direct and indirect effect are significant, partial mediation occurs, but when the direct effect is significant and the indirect effect is insignificant mediation does not occur, therefore H4 is partially confirmed.

## 4.4 Discussion of findings

The findings of this work are as presented below:

**Procurement management and organizational performance.**

Objective one of this study was to examine the effect of procurement management on organizational performance in the manufacturing sector. The result explains that most respondents affirmed that procurement management is crucial to organizational performance. This means that there is need for effective procurement practices that will regularly assist both management and workers to carry out operational activities such as ensuring supplier’s relationship, proper record management and cost management to avoid unnecessary spending.

**Production management and organizational performance.**

Objective two of the study was to investigate the extent to which production management influences organizational performance. The findings revealed that procurement management has a positive and significant effect on organizational performance. The t- value of 9.285 implies that production management has a connection with organizational performance. The beta value of 0.555 and p-value of 0.000 affirms that production management enhances organizational performance.

**Supply chain management and organizational performance**

Objective three of the study indicated that there is a significant influence in which R-value of 61.4% (p<0.05). The R-square value at 0.37 implies that the independent variables estimated 37% variance in the dependent variable. The finding also has a high rate of compatibility as p<0.05 and F=119.620.

**ICT mediation relationship between operations management organizational performance**

Objective four revealed that ICT partially mediates the relationship between procurement management and organizational performance, but not between production and organizational performance. Moreover, ICT mediates the connection between the supply chain and organizational performance. The results indicated that ICT is related bi-directionally to compulsory supply chain management and organizational performance

# CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

## 5.1 Introduction

This study investigated the effect of operations management on Tuyil Pharmaceutical Ltd's organizational performance. The major conclusions of the research study are summarized in this chapter. These conclusions are based on the fieldwork's theoretical and empirical findings, as well as the literature surveyed. It made recommendations based on the research results. Furthermore, the chapter discusses the conclusion, recommendations, the contribution to knowledge and limitations to the study as well as the suggestions for further studies.

## 5.2 Summary of the Study

The research report is divided into five chapters. The first chapter focused on the study's background, situating it in the context of Tuyil Pharmaceutical Limited's operations management and organizational performance in Ilorin. The numerous generated questions on the study issue statement were based on contemporary academic discussions about the necessity to re-examine the extent to which operations management improves organizational performance. The thesis specific objectives were listed, and research questions and hypotheses were developed, as well as the importance of the study to various stakeholders. The study's focus is on the perspectives of Management and Staff of Tuyil Pharmaceutical Limited, Ilorin, on their experiences with operations management and organizational performance. Organizational performance was operationalized as a dependent variable, whereas operations management was operationalized as an independent variable. Operational term was also shown. The second chapter includes a literature review of important ideas and conceptual relationships, such as various parts of operations management and organizational performance measurements. The chosen hypotheses that support the investigation were also explored. The theory of constraint and swift even theories were also applied. The following empirical studies were discussed in relation to the study's goals: Rehema, Stephen, and Gituro (2020) completed a study on sustainable operations management methods and competitive advantage of select manufacturing companies in Kenya, which found that operations management practices significantly impact on manufacturing firms’ competitiveness. Also, Pooja and Pallawi (2019) used variables such as procurement, production and others in service-oriented firms including transportation (courier), retail, banking, and hotel services. Chapter three is concerned with methodology applied. Quantitative method was utilized. A survey questionnaire was also used in the study as a quantitative tool. The study's participants include Tuyil Pharmaceutical Limited's management and employees. The SPSS version 25 was employed to evaluate a sample size of 205 people in Ilorin. Correlation, multiple regression, and mediated multiple regression were utilized as statistical tools of analysis. During the data collection, all participants had the option of filling out the questionnaire at their leisure or declining their replies. The outcomes of the studies demonstrated that operations management has a considerable influence on organizational performance which was based on the hypothesis testing conducted in chapter four.

Chapter four of this thesis contains the analysis of data gathered and the testing of the hypothesis. The descriptive and inferential statistics was adopted for data analysis. Hence, the results were presented in frequency tables, with the hypothesis tested in accordance with the stated goals.

The results were extensively discussed in chapter five by contrasting them with established literatures on the topic. Quite insightful inferences have also been created in the discussion of the observations. Summary of observations, results, guidelines and shortcomings of the report, proposals for future research and contributions to information are also discussed.

## 5.3 Conclusion.

Based on the theoretical and empirical findings, it was found that operations management is positively and significantly correlated with organizational performance. It was also confirmed that ICT partially mediate between procurement management and organizational performance, also the evidence reveals that ICT does not mediate between production management and organizational performance. And that ICT also partially mediates between supply chain management and organizational performance. The finding implies that ICT has bi-directional relationship characteristics including procurement management, production management and supply chain management is a mediating component.

In the findings of this study, the study concludes that in Tuyil pharmaceutical Ltd, supply chain management which affect organizational performance by 37% should not be neglected by any organization as it is one of the indispensable element of operations management which improves organizational performance. It was also revealed that the operations management model established for this study could be employed to self-assess organizational performance and measurement of progress for a long-term. By using this model, organizations can quickly identify areas which urgently need improvement. Thus performances can be evaluated and effective performance plans can be formulated.

## Recommendations

In order to ensure organizational performance in the manufacturing industry, the following recommendations were proffered

1. The management of Tuyil Phamaceutical Industries Ltd Ilorin should practice procurement strategies and relevant trends, identifying and implementing opportunities to create positive impact through effective Procurement management models in order to solve challenges of Procurement management approach.
2. The management of Tuyil Phamaceutical Industries Ltd Ilorin should create more awareness about the need to implore careful implementation of production management practices as it is a key factor in enhancing organizational performance.
3. Adequate and continuous efforts should continuously be made by Tuyil Pharmaceutical Industries Ltd Ilorin to increase the allocation being given to supply management to further improve on its organizational performance.
4. Organizations should make use of emerging technologies such as automation and advanced decision making will fundamentally help the way the business operates to meet organizational demands.
5. Also Standard organization of Nigeria (SON) should enforce Operational management procedures that will crisscross the entire manufacturing Organizations in Nigeria on regular bases to attain and sustain high standard products that meet customers’ satisfaction.

## 5.5 Contributions to knowledge

This study contributes to existing knowledge on operations management and organizational performance in Nigeria captured in the following paragraphs:

1) This study extends extent literature on operations management and organizational performance in Nigeria by providing empirical validation that ensuring effective operations management will enhance organizational performance

2) Since most studies such as Rehema, Stephen, and Gituro (2020):Pooja and Pallawi (2019): Akubuko et al. (2019) measure variables using some minute variables that could have better been used as a sub variable in a more properly conducted research. This study however conducted a more robust research on operations management using procurement, production management and supply chain management as variables (proxies) for measuring the independent variable and further considering the introduction of ICT management as the mediating variable to make this work more unique.

## 5.6 Limitation of the study

The major limitations of the study are:

The study examined three (3) variables (procurement management, production management, supply chain management) and organizational performance. This may affect the adequacy of the components of the construct. Also, this study focused on only Tuyil Pharmaceutical Industries Ltd Ilorin, as such studies that engage more organizations in the manufacturing sector may yield a different result.

5.7 Suggestions for further study

1. This study adopted quantitative research design and used the survey method of data collection. Other methods could be used to collect data to complement results of this study.

2. This study adopted the survey method for data collection, further research may be longitudinal data collection, or even mixed method to validate the relationships identified in the study.

3. Only three dimensions of operations management were identified in this study. A future study could consider exploring all the constructs of operations management on organizational performance in Nigeria

4. This study only addresses one manufacturing company. Future studies could seek to extrapolate the analysis into other areas.

5. Future research should also consider the role that procurement management, production management and supply chain management play in explaining Operations management and organizational performance**.**

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APPENDIX ONE INTRODUCTION

**SECTION A**

Please kindly indicate your answers to the following by ticking your choice answer.

Table 1 Distribution of the Staff’ Socio-Economic and Demographic characteristics by the organisation

|  |  |  |  |
| --- | --- | --- | --- |
|  | Characteristics | Category | Code(s) |
| 1 | Sex | MaleFemale | 12 |
| 2 | Educational Qualification  | SSCENCE/NDHND/BSC.Other qualification | 1234 |
| 3 | Grade level  | Lower level managementMiddle level managementHigh level management | 123 |
| 4 | Department/ Unit | Actual |  |
| 5 | Years in the establishment | 0-23-56-910 and above | 1234 |
| 6 | Annual sales turnover (millions) | 0-5051-500501-100010001-50005001 and above | 12345 |

SECTION B: Procurement Management Scale.

SD= strongly disagree; D=Disagree; Neutral/U=Undecided; A=Agree; SA=Strongly Agree

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Suppliers Relationship Management. | SD | D | N/ UD | A | SA |
| 1. | Supply partnership influences organizational performance. |  |  |  |  |  |
| 2 | Strategic partnership with suppliers influences organizational performance. |  |  |  |  |  |
| 3 | Product development projects influence organizational performance. |  |  |  |  |  |
| 4 | There is effective suppliers supervision |  |  |  |  |  |
| 5 | The organization knows it suppliers capabilities |  |  |  |  |  |
|  | Record Management. |  |  |  |  |  |
| 1. | Effective records management improves organizational performance.  |  |  |  |  |  |
| 2. | Adequate record keeping encourages staff to be more effective |  |  |  |  |  |
| 3. | When documents are effectively handled, staff performance improves. |  |  |  |  |  |
| 4. | Adequate safety of records enables availability of such records facilities |  |  |  |  |  |
| 5. | By keeping records, the organization avert the stress of duplicating recording efforts |  |  |  |  |  |
|  | Cost Management. |  |  |  |  |  |
| 1 | Organization focuses how much they spent, where, when, and why. |  |  |  |  |  |
| 2 | Organization carefully analyzes the cost that they are buying goods and service. |  |  |  |  |  |
| 3 | Organization controls the cost through carefully forecasting, planning, budget preparation, reporting and monitoring.  |  |  |  |  |  |
| 4 | Organization manages the cost to avoid unnecessary spending.  |  |  |  |  |  |
| 5 | Organization maintains the cost effectiveness through cost reduction that spending less for goods and service. |  |  |  |  |  |

SECTION C: Production Management Scale

SD= strongly disagree; D=Disagree; Neutral/U=Undecided; A=Agree; SA=Strongly Agree

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Workers involvement. | SD | D | N/ UD | A | SA |
| 1. | Employees participate in the decision-making processes  |  |  |  |  |  |
| 2. | Employees take initiatives |  |  |  |  |  |
| 3. | Employees are motivated to improve their performance.  |  |  |  |  |  |
| 4. | There are horizontal and vertical communication channels throughout the company. |  |  |  |  |  |
| 5 | Employees participate in meetings, the agenda of which is related to quality improvement planning. |  |  |  |  |  |
|  | Time reduction. |  |  |  |  |  |
| 1. | Useful and effective plans are selected in order to preventing wasting time and money. |  |  |  |  |  |
| 2 | In evaluation process, the amount of time and energy is considered.  |  |  |  |  |  |
| 3 | The process of saving new materials is effective. |  |  |  |  |  |
| 4 | Basic repairment of operational units is done regularly. |  |  |  |  |  |
| 5 | After repairment, producing is done without stopping. |  |  |  |  |  |
|  | Production Strategy. |  |  |  |  |  |
| 1 | Production monitoring is done continuously. |  |  |  |  |  |
| 2 | Before any changes appropriate context is made. |  |  |  |  |  |
| 3. | Future development is planned for new productions. |  |  |  |  |  |
| 4. | Constant trying of producing high quality materials.  |  |  |  |  |  |
| 5 | Creating new techniques of producing is developed carefully. |  |  |  |  |  |

SECTION D: Supply Chain Management Scale

SD= strongly disagree; D=Disagree; Neutral/U=Undecided; A=Agree; SA=Strongly Agree

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Customers Relationship | SD | D | N/ UD | A | SA |
| 1. | The organization frequently interacts with customers to set reliability, responsiveness, and other standards for us. |  |  |  |  |  |
| 2. | The organization frequently measures and evaluates customers satisfaction. |  |  |  |  |  |
| 3 | The organizations frequently determine future customer expectations. |  |  |  |  |  |
| 4 | The organization facilitates customers ability to seek assistance from us. |  |  |  |  |  |
| 5 | The organization periodically evaluates the importance of its relationship with our customers. |  |  |  |  |  |
|  | Strategic Supplier’s Partnership. |  |  |  |  |  |
| 1 | The organization considers quality as the number one criterion in selecting suppliers. |  |  |  |  |  |
| 2 | The organization regularly solves problems jointly with its suppliers. |  |  |  |  |  |
| 3 | The organization has helped it suppliers to improve their product quality. |  |  |  |  |  |
| 4 | The organization has continuous improvement programs that include its key suppliers. |  |  |  |  |  |
| 5 | The organization include its key suppliers in itplanning and goal-setting activities. |  |  |  |  |  |
|  | Quality Information Sharing. |  |  |  |  |  |
| 1 | Information exchange between its trading partners and the organization is timely. |  |  |  |  |  |
| 2 | Information exchange between trading partners and the organization is accurate. |  |  |  |  |  |
| 3 |  Information exchange between trading partners and the organization is complete. |  |  |  |  |  |
| 4 | Information exchange between trading partners and the organization is adequate |  |  |  |  |  |
| 5 | Information exchange between our trading partners and the organization is reliable. |  |  |  |  |  |

SECTION E: Information and Communication Technology Scale

SD= strongly disagree; D=Disagree; Neutral/U=Undecided; A=Agree; SA=Strongly Agree

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Information Exchange. | SD | D | N/ UD | A | SA |
| 1. | Information exchange helps to meet customer’s requirement. |  |  |  |  |  |
| 2. | Information exchange enables Improved customer service |  |  |  |  |  |
| 3. | Information exchange enhances Inventory management with suppliers and customers. |  |  |  |  |  |
| 4. | Information exchange helps in improving logistic process. |  |  |  |  |  |
| 5. | Information exchange enables relationship with suppliers. |  |  |  |  |  |
|  | ICT skills. |  |  |  |  |  |
| 1. | Training programs in managing information. |  |  |  |  |  |
| 2. | Training programs in the use of electronicresources. |  |  |  |  |  |
| 3. | Information management policy for computer-based systems. |  |  |  |  |  |
| 4. | Procurement function has adopted Information Technology hence procurement activities are done electronically. |  |  |  |  |  |
| 5. | Adoption of Information Technology improved the performance of the organization  |  |  |  |  |  |
|  | Production control |  |  |  |  |  |
| 1. | Organization often responds to market changes. |  |  |  |  |  |
| 2. | Organization effectively Introduces new products and services  |  |  |  |  |  |
| 3 | There is a high performing task in each work area. |  |  |  |  |  |
| 4. | There are delays in production process. |  |  |  |  |  |
| 5 | There is organizational maintenance planning |  |  |  |  |  |

SECTION E: Organizational Performance Scale

SD= strongly disagree; D=Disagree; Neutral/U=Undecided; A=Agree; SA=Strongly Agree

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Organizational agility | SD | D | N/ UD | A | SA |
| 1. | Ability of organization to adapt to unexpectedchanges is critical in achieving and maintaining enhanced operational performance. |  |  |  |  |  |
| 2 | Organizational responsiveness to changes serves to avert risks. |  |  |  |  |  |
| 3 | Agile organization executes innovations and takescompetitive moves with speed, surprise to enhanced operational performance. |  |  |  |  |  |
| 4 | Agile firms are resilient to shocks and upheavals intheir business environments. |  |  |  |  |  |
| 5 | Agile firms are keen in creating new business models and significant changes in their operations |  |  |  |  |  |
| S/N | Quality of service delivery |  |  |  |  |  |
| 1. | Tangibles: The organization experiences wide range of production capacity. |  |  |  |  |  |
| 2. | Reliability: There is organizational high products reliability that meet up the standard. |  |  |  |  |  |
| 3. | Responsiveness: there is high response and speed during production processes. |  |  |  |  |  |
| 4. | Assurance: There is adequate Corrective and preventive causes of actions. |  |  |  |  |  |
| 5. | Empathy: The organization maintains the relationship after contracts. |  |  |  |  |  |
|  | Innovation |  |  |  |  |  |
| 1 | Renewing the routines, procedures and processes employed to execute firm activities. |  |  |  |  |  |
| 2. | Renewing the supply chain management system. |  |  |  |  |  |
| 3 | Renewing the production and quality management systems. |  |  |  |  |  |
| 4 | Renewing the in-firm management information system and information sharing practice. |  |  |  |  |  |
| 5 | Renewing the organizational structure to facilitate strategic partnerships |  |  |  |  |  |

APPENDIX TWO:LETTER OF INTRODUCTION

Department of Business Administration,

College of Business and Social Sciences,

Landmark University, Omu-Aran.

Dear Respondent,

**STATEMENT OF INTRODUCTION**

I am an postgraduate student of the above-named department and I am conducting a study on ‘operations management and organizational performance with focus reference to Tuyil pharmaceutical Limited, Kwara State, Nigeria’. The study is purely for academic purposes and as a part of the fulfilment of the requirements for a higher degree programme. All responses supplied shall be treated with utmost confidentiality. Hence, your name is not required. I solicit for your sincere cooperation by providing frank answer to the questions as frankly as possible.

 Thanks for your anticipated cooperation.

Yours Faithfully,

ADEOTI, Sarah Bunmi

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