

**THE IMPACT OF PROCUREMENT PLANNING ON SUPPLIER SELECTION :A  
CASE STUDY OF MINISTRY OF ENERGY AND MINERAL DEVELOPMENT**

**JOEL MUHUMUZA**

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**UGANDA CHRISTIAN  
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**DECLARATION**

**I MUHUMUZA JOEL**, hereby certify that the research I have presented here has been done in compliance with all necessary criteria and is completely original. This report's contents have never been submitted before for academic recognition or at any kind of educational institution. As a result, it doesn't replicate or duplicate any previous research project.

Signature .....  .....

Date ..... *04/09/2024* .....

**APPROVAL**

I hereby certify that **MUHUMUZA JOEL** conducted and compiled this research under my guidance as the University Supervisor.

Signature 

Date 

**WINFRED NNASSIWA LUYIMBAZI (Mrs.)**

## **DEDICATION**

I dedicate my research report to my parents, friends, and family for their unwavering moral, material, and financial support in helping me finish this research project and my education in general.

## **ACKNOWLEDGEMENT**

Permit me to take this opportunity and express my appreciation to many individuals who readily assisted in making this study project successful. In addition, I would also like to acknowledge the following for their assistance and contribution towards the realization of this study. I cannot emphasize how grateful I am to my supervisor WINFRED NNASSIWA L. (Mrs.), whose advice during this project was priceless. I also appreciate the expert guidance, support, and time you gave to me that enabled me to succeed. I would also like to thank equally all employees at the Ministry of Energy and Mineral Development for taking time as well.

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## **LIST OF ABBREVIATIONS**

<b>MEMD</b>	Ministry of Energy and Mineral Development
<b>RFID</b>	Radio Frequency Identification tags
<b>RBV</b>	Resource-Based View
<b>TCE</b>	Transaction Cost Economics
<b>SRM</b>	Supplier Relationship Management
<b>MCDM</b>	Multi-Criteria Decision Making
<b>MAPE</b>	Mean Absolute Percentage Error

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## **ABSTRACT**

The study assesses the impacts of procurement planning on supplier selection at the Ministry of Energy and Mineral Development. The focus is to establish how good planning of advance technology procurement would impact choosing dependable suppliers, carrying out better management of inventories, as well as enhancing the reliability of forecasts for future demands. In this respect, the research shows effective ways of improving supply chain efficiency in MEMD.

Demand forecasting allows buyers to project the volume of goods and services needed in the future, thus helping to balance the procurement process, therefore facilitating the right choice of suppliers.

The Inventory Management assists in having a healthy stock by keeping the levels of inventory just enough to preclude overstocking or stockouts, an important factor to identify suppliers who can actually fulfill the stock levels.

Selection of suppliers involves assessing them based on criteria such as cost, quality, and dependability to select suppliers that would better align with organizational goals.

Both qualitative and quantitative research designs were used for data collection and analysis. Quantitative data collection was by survey, whereas structured questionnaires were completed by selected personnel based at MEMD, including the procurement officers and the supply chain managers. In this regard, interviews revealed certain challenges and best practices of procurement planning and supplier selection.

The findings of the study showed that sound procurement policies influence the adoption of internal supplier assessment and development programs by enhancing pre-qualification mechanisms. Inventory control should be correctly done to minimize overstock levels and lead times. Demand forecasting was important in ensuring that the procurement plans were in line with what was required, hence minimizing situations of overstock levels or stockouts.

Based on this research, integrated procurement planning, with efficient inventory control and correct demand forecasting, is best for selecting suppliers and chains in general at the MEMD. There are suggestions regarding more sophisticated methods of forecasting, feedback on supplier performance, and what could be even more effective at this level for inventory management processes.

# CHAPTER ONE

## INTRODUCTION

### **1. 0 Introduction.**

On the same note, procurement planning and supplier selection are interrelated, whereby the performance of one determines that of the other. The purpose of this study is to investigate the role of procurement planning on supplier selection and determine the effect of each of these factors on the other are within organizations. Consequently, this chapter has the following headings: background of the study, problem, purpose of the study, research objectives, research questions, scope of the study, significance of the study and the conceptual framework.

#### **1. 1. Background of the study.**

Sourcing of commodities and services necessary in the success of an organization has become an important sector in the management of any organization in its corporate activities. What alarms most is the fact that only 22 percent of US employers offered some form of well-being programs to its employees in 2015 as found by Monczka et al. The procurement approach and decision regarding suppliers become one of the major considerations for organizations trying to attain higher levels of organizational efficiency, productivity, and flexibility in their supply chains. This is in light of the fact that the integration of these two processes impacts an organization's ability to fulfill its strategic objectives, mitigate risks, and further strengthen its competitive advantage in the business market. This is according to Trent and Monczka, 2019. Further information is obtained from Cousins et al., 2019

Procurement-related activities are as old as civilization, and proofs are there showing that procurement was being done around 3000 BC. Even though scribes planning pyramids also functioned as clerks, quantities of labour and material which went into the construction and other affairs, procurements as such, were often not beyond the confines of a book-keeper mentality where the overall restructuring of purchasing was considered to be more of buying and contracting than anything else .

It is supported that until recently, procurement was not considered strategic by organizations, and it was only about placing orders with suppliers for materials required to produce an organization's products or deliver its services. However, other changes then came into the

business environment which necessitated procurement to become more strategic in organizations. Today, it is accepted that procurement planning forms the basis of the selection of suppliers because it provides a basis for sourcing strategies, supplier assessments, and contractual policies.

Suppliers' selection on the basis of procurement planning has huge and multidimensional impacts. In this respect, a good procurement plan proves almost like a guiding tool for the selection of suppliers in that it leads the decision-maker in the selection and contacting of suppliers whose profiles are in better correspondence with the strategic priorities of the organization joined to operational needs. Besides, procurement planning allows a company to have proper assessments of suppliers regarding several matters including but limited to quality, reliability, efficiency, sustainability amongst others, Cousins et al. (2019) posit.

On the contrary, the outcomes of the selection of suppliers may have serious effects on the effectiveness of procurement planning activities. Poor selection of the supplies leads to disruption in supply chains, problems in product quality, cost overruns, and loss of brand reputation-all of which will defeat just the very goals and objectives set forth in the procurement plan. This would mean that procurement planning and selection of supplier go hand in glove; the effectiveness of one process directly affects the result of the other process.

In this regard, professional organizations that may have an intention to realize sustainable competitive advantage through better procurement practices should be guided by understanding the complex interrelationships that exist between procurement planning and supplier selection. The research will, therefore, go into critical detail to investigate the relationship between these two variables with express intent to provide best-practice guidelines for enhancing the decision-making process while ensuring continuous improvement in the management of procurement. In this way, the paper contributes to the theoretical contribution added to the empirical evidence explored in procurement management and also provides workable guidance to organizations on the selection of suppliers.

## **1.2 Problem statement**

The problem statement in this research aims at the understanding of how the planning process in and procurement activities affects the choice of suppliers. It implies the multilevel analysis

of relationships between procurement planning tactics and effectiveness of suppliers' selection.

It was identified in this research how different planning methodologies influence the criteria, methods and decision making when evaluating and selecting supplier for procurement benefits.

### **1.3.Purpose of the study**

The study explained how procurement planning impacts on the choice of suppliers in the arena of supply chain management. By understanding this relationship, the study seeks to know how various planning strategies in procurement impacts the selection of suppliers.

Lastly, the research aims at offering knowledge that can be used to help organizations to develop strategies that can improve procurement to make supplier selection better.

#### **1.3.1 General objectives**

The paper examined the manner in which various strategies used in planning of procurement affects supplier decision-making with the view of making overarching recommendations on the best way to enhance supply chain management procurement. The completion of this study was an attempt at offering recommendations on how the procurement process could be enhanced in order to improve the performance of the supply chain at large.

#### **1.3.2 Specific objectives**

- i To examine the relationship between demand forecasting and supplier selection in MEMD
- ii To determine the relationship between inventory management and supplier selection within MEMD
- iii To examine the relationship between procurement planning and supplier selection at the MEMD

### **1.4 Research questions.**

Effective procurement planning positively influences supplier selection decisions

In the context of the research objectives identified; the study will answer the following questions

- Examine the relationship between demand forecasting and supplier selection in an organization?
- Determine the relationship between inventory management and supplier selection within an organization?
- Examine the relationship between procurement planning and supplier selection in an organization?

## **1.5 Scope of study.**

### **1.5.1 Content scope.**

The research explored how effective procurement planning impacts supplier selection in organizations. It delved into theoretical frameworks, methodology, factors influencing both processes, challenges faced, solutions and recommendations for enhancing supply chain performance.

### **1.5.2 Geographical scope.**

The study was conducted in Uganda from June - September 2024. An organization within the central region which was used as a sample space for the research for example Ministry of Energy and Mineral Development in the capital city of Uganda, Kampala.

### **1.5.3 Time scope.**

The study was conducted in a period of two months after the approval of the research proposal by my supervisor. A one month period was used by the researcher to collect data from the area of study.

## **1.6 Significance of study.**

The significance of the study lies in its potential to contribute valuable insights to both academia and industry through exploring the impact of procurement planning on supplier selection to organizations as follows;

Fill Research Gap, by addressing the gaps within the existing literature by providing evidence and insights into the relationship between procurement planning and supplier selection hence expanding one's knowledge in the field.

Future research directions, the study can serve as a foundation for future research purposes, guiding researchers to explore additional dimensions of procurement planning such as role of technology, etc.

Professional development, conducting the study allows one further develop their skills including data collection, analysis, interpretation, etc.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction.**

From this perspective, procurement planning with regard to the selection of suppliers is multifaceted, integrating a number of theoretical perspectives into optimum choices that ensure the attainment of organizational objectives. This section now undertakes a critical review and discussion in presenting the relevant theories and literature to the issue at hand and draws out differences and similarities in opinions and findings for nuanced understanding. Let us turn now, in some detail, to these interrelationships-first to how demand forecasting, inventory management, and procurement planning each impact, and are themselves impacted by the process of supplier selection. It is through such an examination that the emphasis on an integrated approach to managing the supply chain-whereby every component is appropriately aligned to optimally support the organization's overall strategic objectives-is better underlined. In so doing, strategies and best practices that would allow business enterprises to optimize their supplier selection process and develop better performance of their supply chain were brought out.

#### **2.2 Theoretical Review**

##### **2.2.1 Resource-Based View (RBV)**

The RBV highlights the fact that there is possibility to gain competitive edge through the effective utilization of resources in the organization. In the light of procurement planning, the RBV indicates that detailed planning activities strengthen an organization's capacity of recognizing and utilizing high quality supply sources; an aspect that will improve the organization's performance. For example, Carr and Smeltzer (1997) show that when procurement is positioned in strategic directions, organizations are able to take the right supplier choices in relation to innovation a premium supplier management process and

sustainability. However, RBV focuses strategically on internal resource and capability development, and although some business environmental factors such as the supplier market conditions cannot be completely ignored, they are given very little recognition when deciding on suppliers.

This view has been backed by empirical research showing that effective planning of procurement processes goes hand in hand with the enhancement of supplier relations and results of procurement activity (Barney, 1991; Wernerfelt, 1984).

In fact, the conceptualisation of procurement activities in the context of procurement strategy is critical in the field of procurement. In a conceptual manner, Carr and Smeltzer (1997) point toward empirical evidence that indicate that strategic procurement planning leads an organization to gain supplier contributions to innovation and sustainability. Their study shows that where procurement functions are aligned to overall strategic goals of the firm then it will be easier to identify suppliers who can help the strategic competitive position of the firm through innovation, cost leadership, and sustainability. It has a win-win effect of improving the relationship with the suppliers and at the same time aligning the procurement activities to the strategic vision of the organization thus supporting the RBV factors.

However, RBV also focuses on the strength exploitations within the company, which perhaps poorly provides for the outside market forces. There have been a number of calls from authors in these empirical research works to acknowledge the fact that external environment factors like supplier market conditions, competitive pressures and technological changes are very important in the selection of suppliers (Peteraf, 1993; Priem & Butler, 2001). Failure to consider these external variables may result to inferior procurement decisions being made. For example, overemphasizing internal resources can lead to such problems as failure to identify new market trends or the changes in the capabilities and offers of suppliers, which is crucial for keeping competitive advantage. Therefore, although RBV has been established as a sound approach to managing internal resources to generate competitive advantage, a holistic approach to procurement must also consider environmental factors so as not to miss out on other relevant information in the market for an efficient procurement process (Barney & Hesterly, 2012).

### **2.2.2. Transaction Cost Economics (TCE)**

The Theory of Contracting and Exchange also states that that should always be aimed to reduce transaction costs in procurement tasks. They are taken care of through proper planning in procurement which allows for the reduction of these costs through better evaluation and supplier negotiations. As noted by Williamson (1985) it is possible to control for external contingencies when the procurement activity of the organization is planned properly, thus managing the risks inherent in supply transactions . This approach is especially helpful to the organizations that want to gain efficiency in procurement processes. Nevertheless, TCE can pay inadequate attention to other significant attributes of the supplier such as quality and product innovation which is supported by researchers including Monczka et al. (2015).

Research evidence is available to support this view, and these studies have found out that where the procurement process is effectively planned and implemented in organizations, then such organizations are likely to incur less transaction costs, and hence high business efficiency (Rindfleisch & Heide, 1997; David & Han, 2004).

In practice procurement planning implies criteria setting for suppliers' evaluation and negotiation; this helps to avoid various problems related to suppliers' selection. Williamson (1985) notes that the absence of information asymmetry in supplier relationship means that the actual costs of transactions of the procurement activities will be lower due to the elimination of several uncertainties. The adoption of hard materials approach is also cost efficient while at the same time improving the stability of suppliers and the procurement process. The application of TCE principles in procurement has been shown in prior scholar's work to result in efficiency gains and lower costs (Williamson, 1981; Heide & John, 1990).

However, the TCE emphasis on cost-savings might push organisations to neglect other critical supplier characteristics such as quality, creativity and environmental friendliness. Monczka, et al (2015) strongly opine that while striving to minimize transaction costs may push the decision to the suboptimal level, all other key driver factors can be overlooked. For example, using the cost-oriented procurement approach one can achieve lower costs without seriously considering the issues of quality and innovation, which is critical for competitive advantage creation in the long run. The theoretical view and empirical studies advocate that, both TCE principles and consideration of suppliers' other characteristics can enhance the overall and better procurement management (Poppo & Zenger, 1998; Gulati & Nickerson,

2008). Therefore, although the TCE is really helpful in cost rationalization, it needs to be used alongside quality and innovation in procurement in order to get the best results.

### **2.2.3. Supplier Relationship Management (SRM)**

The focus of SRM theory is on the idea of relationship with the suppliers as more than transactional and where the goal is not merely a one-time supply of goods but rather a sustained and elaborated cooperation. SRM as a concept is therefore integrated into procurement planning by engaging the suppliers in a manner that is not solely transactional. Research conducted by Dyer and Singh in their paper suggest that such relationships enhance quality, innovation and organisational performance. Nonetheless, whereas SRM offers value in creating strong supplier relationships, it can be costly, and one could be expected to dedicate a great amount of capital, which is a problem for companies which may not afford it.

for example, Dyer and Singh (1998) has supported that these types of cooperative partnerships can enhance quality, innovation and performance. From their research, they establish the fact that organizations that apply resources to developing robust supplies relations reap benefits of improved co-ordination, trust, and joint operations.

The strategic supplier management requires the incorporation of suppliers in the strategic process, and the exchange of key data as well as ensuring that objectives of each are a reflection of the other's objective to attain the aim of mutual benefit. Moreover it makes a positive impact on improving the efficiency of its operation and puts more pressure on suppliers to learn and develop. For instance, Dyer and Singh in their study established that the firms that practice SRM witness an improvement in their PD processes as well as an improvement in their sensitivity to market fluctuations. This environment facilitates combined innovation as suppliers will be more willing to bring in new innovations and technologies if they feel like they are an important part of the organization's planning for the future. Another empirical work that supports the realization of superior performance outcomes in relationship effect accompany SRM that is mechanisms of cooperation and Sharing of resources by Chen, Paulraj, and Lado ( 2004).

However, much as the research has shown positive impacts of SRM, the process requires a lot of resources and this is a challenge to firms that are financially constrained. As a result, the relationships between the buyer and the supplier can be characterized as the key type of

bonds that need the intensive investment of time, money, and managerial efforts. As a result, costs stand out as major challenges when it comes to SRM, particularly to smaller organizations or those that are experiencing clamming down on their budgets. Krause, Handfield, and Scannell (1998) agree with such challenges pointing that while many organizations gained from SRM, it is crucial to balance the gains against the resource available. However, multiple strategic partnerships min, increase the pressures on organizational.

### **2.2.3.Total Cost of Ownership (TCO)**

The TCO approach presents a holistic view of the supplier costs: acquisition, operation, and disposal. By embedding the TCO into procurement planning, an organization would be assured that all the aspects of its cost throughout the product lifecycle were considered in choosing a supplier. In this light, Ellram (1995) said TCO helps an organization shift from focusing on initial purchase prices to the valuation over an extended period. However, the complexity of the implementation may be a barrier where data on detailed costs are not available.

Empirical studies are unabatedly supportive of TCO, further justifying the approach as crucial in modern purchasing methodologies.

TCO awareness was first raised by Ellram, 1995 when she urged organisations to look beyond the acquisition costs of materials and services. This has been supported in the current literature where it has been outlined that firms that have implemented and were using TCO were able to realise a host of benefits in terms of cost and performance. For example, the study of Hartmann and Lakatos (2020) reveals that companies which use the TCO model in making purchasing management decisions offer optimised choices and reduce overall costs by taking better performance from suppliers. Evidence provided by Wouters et al. (2020) also illustrates that through TCO analysis, organisations benefit in cost reduction by identification of costs not integrated into products and services, and improved supplier relations through contract negotiations.

There are, however, some key challenges associated with TCO implementation. Among these is the availability of adequate cost information that may be precise and comprehensive in most situations. The collection and analysis of detailed cost data require the use of proper databases and professionals, most of which may require a lot of resources. In turn, Maestrini

et al. (2021) have noted that one of the major issues related to the use of the TCO is a certain level of its complexity, which might lead to the lack of its total adoption, especially by organisations of lesser scale, or by small firms lacking required resources and sufficiently developed data analytics tools. Also, costs vary throughout the life cycle of the product, which complicates the issue of updating cost data in order to get the real TCO. Consequently, the main advantage of TCO as an approach to procurement planning is its holism, while its application to strategy-making in supply chains results in a very relevant question regarding the level of time and effort needed for gathering the required data and carrying out extensive analysis.

#### **2.2.4. Multi-Criteria Decision Making (MCDM)**

MCDM bases its supplier evaluation on a number of factors that include cost, quality, reliability and sustainability. Therefore, integration of MCDM in procurement planning makes supplier evaluation more objective and holistic. According to Handfield et al. 2011, MCDM has successfully weighed different supplier attributes against each other, and therefore, maximizes the possibility of achieving a whole systems approach to decision making. However, the implementation of MCDM requires specific analysis tools and expertise, and it can be hard for organizations with weak developed analytical capabilities.

Other empirical research works also reinforce MCDM's effectiveness in procurement through evidencing its capability to aggregate numerous factors related to the suppliers in question, working to enhance procurement fulfillment. For example, Govindan et al. (2020); Rezaei et al. (2020). The foundational assumption was provided by Handfield et al. (2011), who have shown how MCDM helps manage many supplier characteristics in a better manner. This has been further supported in later research that shows the MCDM framework leads to better decisions in supplier selection as opposed to the list approach since the latter does not consider any possibility of trade-offs between different criteria. For instance, Govindan et al. (2020) depict that with the support of MCDM, the organizations are able to enhance the procurement strategies, as the evaluative criteria include both the standard and the sustainability factors. They further provide an explanation that the organizations who utilize MCDM are able to prioritize the suppliers in much better ways. Similarly, Rezaei et al. (2020) have discussed that MCDM approaches facilitate the enhancement of the overall procurement efficiency and performance because it allows a systematic approach towards assessment of the supplier.

Thus while availing MCDM methods has several advantages, the process of their implementation entails certain difficulties, especially when an organization does not have powerful analytical resources and expertise. In fact, MCDM is a complex technique that requires efficient data analysis tools and skilled personnel to implement it to its optimum due to the incorporation of numerous evaluation criteria. It is the achievement of this challenge quoted by Škec et al. (2020), the author makes a point that smaller firms or firms with poor analytical muscles to achieve MCDM approaches wholly. Besides, there is some disadvantage in the use of MCDM, such as high demand for resources like time, information gathering and analysis which make process more challenging. Kumar et al., have said that in order to overcome these challenges, an organization has to invest substantially in training and IT infrastructure so as to develop the required analytical capacity for MCDM application.

It gives a broad-based exploratory analysis to various theoretical frameworks in regard to their empirical validation on the whole subject of procurement planning. While each of these theoretical frameworks adds to the valuable insight and practical benefits towards procurement planning, their effective application is mostly required in solving significant challenges related to data complexity and resource intensity and the need for advanced analytical capabilities. A balanced and integrated approach whereby internal strengths are matched with the dynamics in the external market in the process of supplier selection for an organization.

### **2.3 Procurement planning.**

Is defined as the strategic process of determining what to procure, when, and from which sources, while ensuring that procurement activities are aligned with the organization's objectives and budget constraints (Lysons & Farrington, 2020). This involves a systematic approach to identifying procurement needs, evaluating supplier markets, and scheduling procurement activities to ensure the timely acquisition of required resources.

#### **2.3.1 Dimensions of Procurement Planning.**

Procurement planning is complex, each of whose dimensions complements its overall effectiveness. These are as follows: Demand Forecasting: This is basically the process of forecasting the future procurement requirement based on historic data, market analyses, and organizational objectives. According to Chopra & Meindl, 2016, demand forecasting helps the organization purchase the right quantity of goods and services at the right time, thus

minimizing any cases of shortages or excess inventories as pointed out by Mentzer et al. 2007.

The budgeting and financial planning involve apportioning the financial resources of the company in relation to procurement activities or, rather, ensuring that expenses are supportive of the organizational budget. This is considering Monczka et al., 2015. Proper financial planning prevents overinvestment in multiple items, freeing up funds for vital needs in the procurement perspective; hence, allowing continuous operations to run smoothly.

Supplier Market Research: The study in the marketplace of the supplier involves the identification of potential suppliers, then analysis of the different capabilities and lastly researching the market trends. According to Carter and Rogers, it is through research in the market that an organization will be in a position to make informed decisions on which suppliers to choose; this way, it will be assured that only those offering the best value and meeting the standards that have been set are chosen.

Means and Methods: The selection of procurement methods, competitive bidding or direct procurement, would be apt, shall lead towards optimization. Lysons & Farrington endorse the view that selection of methods in procurement strategically enforces efficiency, transparency, and competitiveness in the overall process of procurement, and hence enhanced output is achieved.

Scheduling and Timeline Planning: A comprehensive timeline of procurement activities will be developed, including key milestones and deadlines. As stated by Burt et al. (2010), proper scheduling will make sure that procurement activities are done on time so that goods and services are available when they are needed.

Risk Management and Mitigation: Ascertaining of the potential procurement risks and ways of limiting these risks. According to Harland et al., 2003, successful management of risk decreases the occurrences of the disruptions of the supply chain. Thus providing a degree of certainty towards the operations of an organization.

Third, regulatory compliance and ethical consideration: it involves confirmation of procurement activities to the relevant laws, regulations, and ethical standards Arrowsmith, 2010. Compliance and ethical considerations avoid legal problems and enable equal opportunities based on a non-discriminatory procedure for procurement Walker & Brammer, 2009.

Broadly speaking, procurement planning bears a multidimensional and multifaceted character; it even extends influence on the selection of suppliers and to the efficiency level of an organization in its entirety. It is with such understanding and mastery over various aspects of procurement planning, ranging from demand forecast to budgeting, from supplier market analysis to determination of procurement methods, scheduling, risk management, and regulatory compliance, that the organizations might be able to refine their respective procurement processes. In these cases, it may easily translate into cost savings, improved relations with suppliers, and gains in operational efficiency.

## **2.4 Definition of Supplier Selection**

Supplier selection is the process by which an organization identifies, evaluates, and contracts with suppliers to procure goods and services. This involves assessing potential suppliers based on a variety of criteria, such as quality, cost, reliability, and delivery capabilities, to ensure they can meet the organization's needs (Monczka et al., 2015). The goal is to choose suppliers who can provide the best value and support the organization's long-term goals.

### **2.4.1 Dimensions of Supplier Selection.**

Some of the key dimensions of supplier selection help in making the effectiveness of procurement complete in all respects. These include:

**Quality:** In this regard, a supplier is selected based on the quality of products and services supplied. This is defined as specifications, defect rate, and consistency. Quality supplies have been considered important because it will ensure high product standards and customer satisfaction and at the same time reducing the level of rework and warranty claims as expressed by Garvin, 1987.

**Cost:** The cost of ownership involved, including the purchase price and delivery costs among other costs. Suppliers that are offering cost-effective solutions enable the achievement and realization of budgetary objectives while improving the organization's bottom-line performance. (Ellram, 1993)

**Delivery Performance:** If the supplier can deliver products on time and repeatedly meet schedules for delivery. Good delivery performance enhances smooth production schedules and also creates avoidance of stockouts that result in operational disruption. (Wilson, 1994).

**Financial Stability:** In order to verify the financial conditions of suppliers concerning the ability of investment in capacity required to fulfill contractual agreements, suppliers that are financially stable have less disruption to business, and thus continuity of supply is guaranteed.

**Technical Capability:** The evaluation of a supplier's technical know-how and capabilities concerning innovation. Suppliers that have high technical capabilities are in a position to offer innovative solutions, leverage rapidly changing technology needs, and deal with the complexities of the end-customer's needs (Chen et al., 2004).

**Sustainability and Ethical Practices:** The rating of the supplier on their sustainability practice, like the environment and labor standards. Ethical and sustainable suppliers help meet the organizational regulatory requirements and enhance their corporate social responsibility profile.

**Service and Support:** Suppliers service evaluation will consider the after-sales service, responsiveness, and customer service. Services and supports given by a supplier are directly related to the operational reliability and efficient timely resolution of problems, hence supplying stronger overall relationships in general.

**Compliance and Risk Management:** The evaluation of the supplier's ability to comply with all the relevant laws, regulations, and even industry standards. Suppliers with appropriate compliance support reduction in legal risks, and keep the organization working within industry standards for the maintenance of legal standing and organizational reputation. In understanding and properly managing the different dimensions-quality, cost, delivery performance, financial stability, technical capability, sustainability, service and support, and compliance-that attribute to supplier selection, organizations can make decisions for suppliers who are capable of meeting their immediate needs and supporting long-term strategic objectives. The subsequent chapter will discuss how procurement planning and supplier selection are interlinked; this is in regard to evidence and case studies which demonstrate strategic procurement planning and its impact on the processes of supplier selection.

## **2.5 Demand forecasting.**

Is the process of estimating future customer demand for a product or service over a specified period. This process utilizes historical sales data, market analysis, and statistical techniques to predict future demand levels. Accurate demand forecasting helps businesses manage

inventory, plan production, allocate resources efficiently, and make informed strategic decisions.

### **Types of Demand Forecasting.**

Qualitative Methods:

Delphi Method: Gathers expert opinions through rounds of questioning to reach a consensus.

Market Surveys: Collects data directly from potential customers about their future purchasing plans.

Panel Consensus: Utilizes discussions among experts to predict future demand.

Quantitative Methods:

Time Series Analysis: Analyzes historical data to identify patterns and trends over time.

Causal Models: Examines the relationship between demand and factors such as price, economic indicators, and marketing efforts.

Machine Learning Algorithms: Employs advanced computational techniques to analyze large datasets and generate predictions.

### **Key Aspects for Demand Forecasting:**

Historical Data Analysis: Examining past sales data and trends to understand seasonal fluctuations, market trends, and historical patterns.

Market Research: Gathering insights from market studies, consumer behavior analysis, and competitor analysis to anticipate market demands and changes.

Technological Tools: Leveraging advanced forecasting tools and software that utilize algorithms, AI, and machine learning to improve accuracy and automate processes e.g. EGP, IFMS, etc.

Collaboration: Ensuring cross-functional collaboration between departments such as sales, marketing, operations, and finance to incorporate multiple perspectives and data sources.

Customer Insights: Utilizing customer feedback, surveys, and analytics to gauge preferences, buying patterns, and potential shifts in demand.

Supply Chain Integration: Integrating demand forecasts into supply chain planning to align production, inventory management, and distribution strategies.

Scenario Planning: Developing scenarios for different market conditions (e.g., economic downturns, supply chain disruptions) to assess potential impacts on demand.

### **Policies for Effective Demand Forecasting:**

Regular Review and Updates: Establishing a schedule for reviewing and updating forecasts based on new data, market changes, and internal developments.

Accuracy Metrics: Setting benchmarks and metrics to evaluate forecast accuracy, such as Mean Absolute Percentage Error (MAPE), to continuously improve forecasting models.

Feedback Loops: Implementing mechanisms to incorporate feedback from actual sales and performance data to refine future forecasts.

Training and Expertise: Investing in training for staff involved in forecasting processes to enhance skills in data analysis, statistical methods, and software usage.

Transparency and Communication: Ensuring transparency in forecasting methodologies and fostering clear communication across departments to align on forecast assumptions and outcomes.

Contingency Plans: Developing contingency plans and strategies to adjust operations swiftly in response to unexpected changes in demand or market conditions.

Risk Management: Identifying and mitigating risks associated with inaccurate forecasts, such as excess inventory or stockouts, through proactive risk management strategies.

### **Benefits of Demand Forecasting.**

Inventory Optimization: Helps maintain optimal inventory levels, reducing the costs associated with overstocking or stockouts .

Improved Customer Satisfaction: Ensures products are available when customers need them, enhancing service levels .

Cost Reduction: Minimizes storage costs, reduces waste, and optimizes procurement and production planning .

**Better Resource Allocation:** Allows for efficient use of resources, including workforce and capital, by aligning them with predicted demand .

**Enhanced Strategic Planning:** Provides insights for long-term business planning and market strategy development .

**Challenges of Demand Forecasting.**

**Data Quality:** Accurate forecasting relies on high-quality data, which can be challenging to obtain and maintain.

**Market Volatility:** Unpredictable changes in market conditions, such as economic shifts or competitor actions, can affect demand accuracy.

**Complexity in Modeling:** Developing accurate models requires expertise in statistics and data analysis, which can be resource-intensive .

**Seasonality and Trends:** Accounting for seasonality and long-term trends adds complexity to the forecasting process .

**Integration with Business Processes:** Ensuring that forecasting aligns with business operations and decision-making processes can be challenging .

### **2.5.1 Relationship between Demand Forecasting and Supplier Selection**

Demand forecasting and the selection of suppliers are closely related to efficiency in supply chain management. In this regard, good demand forecasting informs the selection of suppliers in that the former:

**Aligns Supplier Capacity:** Accurate demand forecasts enable an organization to identify what capacity and competency levels must be derived from suppliers. It is due to such reasons that the chosen suppliers also become capable of delivering the forecasted demand at the right time without stockouts or delays, as stated by Zsidisin & Henke (2019).

**Optimizing Inventory Levels:** Demand forecasting can facilitate business in maintaining optimum inventory levels. Suppliers are selected based on their capability of providing exact quantities at the right time. This reduces surplus inventories and thereby reduces holding costs also.

Accurate demand forecast thus provides excellent collaboration and communication with suppliers. If the suppliers know the correct demand, they can plan accordingly and work out the production schedules, which in turn improves delivery performance, thus shortening lead times (Christopher, 2016).

**Supply Chain Risk Reduction:** through the correct forecast of the future demand, the business can identify the potential risks that exist within the supply chain and then select suppliers who are most likely to reduce those risks. This may be diversification of sources of supplies or those that have reliable mechanisms for managing risks, Tang, 2006.

**Cost Efficiency:** Accurate forecasting may perhaps allow companies to negotiate with suppliers on favorable terms. If demand is predictable, then suppliers, in turn, can optimize their production processes to achieve economies of scale, thus bringing down costs.

## **2.6 Inventory Management.**

Inventory management is the process of overseeing and controlling the ordering, storage, and use of a company's inventory. This includes the management of raw materials, components, and finished products, as well as warehousing and processing these items. Effective inventory management ensures that a business maintains the optimal amount of stock – enough to meet customer demand without overstocking, which can tie up cash flow and lead to obsolescence.

### **Key Components of Inventory Management**

**Inventory Control:** Maintaining desirable inventory levels without overstocking or understocking to meet demand.

**Tracking of Stocks:** Identification of the level of stock through barcodes, radio frequency identification tags, or through inventory management software.

**Reorder Point:** The minimum quantity of stock beyond which a fresh order is placed to renew the inventory

**Safety Stock:** Additional stock that is kept as a protection against stockouts in event of sudden spikes in demand or disruption in supply.

**Lead Time Management:** This means managing the time between ordering and actually receiving the inventory to make the item available at appropriate times.

ABC Analysis: Inventory classified into three classes, A, B, and C, in order of value where A is most valuable.

Steps Involved in an Efficient Inventory Management Process.

Planning & Forecasting: Estimation of product demand in the future, keeping in mind past data, market trends, and predictive analytics. Good planning ensures that inventory levels are optimized to meet customer demand-never overstocked, never a stockout.

Buying & Ordering: Businesses arrive at the required quantity and timing of ordering inventory based on forecasts. In this step, vendors should be selected, terms of the purchase negotiated, and orders placed to make certain that goods will be delivered on time.

Receiving, Storing & Packing: Firms receiving inventory have to check for quality and accuracy in the inventory. Goods are stored by using appropriate storage techniques to arrange inventory and retain it. The process of packing is also smoothed out so that at any time, when required, merchandise is ready for shipment.

Inventory Tracking: Companies track their inventory levels using technology, including but not limited to barcode systems, RFID, and inventory management software, in real time. It enables them to manage stocks, detect discrepancies, and maintain accurate records.

Order Fulfillment: The final stage is the picking, packing, and shipping of products to their customers. An efficient order fulfillment process is very much essential to retain customer satisfaction, decrease lead times, and reduce losses in logistics management.

### **Factors that affect inventory management.**

Demand Estimation: It is the most critical component in any inventory optimization model. Overestimation leads to overstocking and underestimation can invite stock outs. Advanced Forecast Techniques and Tools: Predictive Analytics: It enhances accuracy in forecast, a part of advanced forecast techniques and tools .(Singh & Verma,2018).

Supplier Lead Time: The lead time that suppliers require to deliver the goods impacts inventory levels. Long or unreliable lead times necessitate higher levels of safety stock to avoid stockouts, whereas dependable suppliers allow companies to maintain lean inventories. (Chen & Paulraj, 2004).

**Inventory Turnover:** Inventory turnover ratio indicates how often inventory is sold and replaced over a period. High turnover rates imply efficient inventory management and better cash flow, while low turnover rates can indicate overstocking or slow-moving inventory. (Koumanakos, 2008).

**Inventory Costs:** Those related to the carriage of the inventory such as warehousing, insurance, and handling. Firms try to keep these costs as low as possible with the stock on hand." (Waters, 2009).

**Technology and Automation:** Implementing technology such as inventory management software, barcode systems, and RFID can streamline inventory processes, reduce errors, and enhance real-time tracking and reporting. (Nahmias & Olsen, 2015).

The EOQ formula computes the optimal number of orders that minimize the total cost of ordering and carrying inventory on stock. It gives a balance between the cost of ordering against the cost of carrying the inventory (Harris, 1913).

**Seasonality:** businesses have to cope with seasonal fluctuations in demand. Efficient management of seasonal inventories will enable the business to meet peak demand requirements without overstocking during the off-peak period of demand for the item (Silver, Pyke, & Peterson, 1998).

**Customer Service Levels:** Maintaining high customer service levels often requires keeping sufficient inventory to meet demand promptly. Striking a balance between service levels and inventory costs is crucial for customer satisfaction and operational efficiency (Mentzer, Myers, & Stank, 2007).

**Compliances w.r.t. Regulations:** Industry rules and standards with regards to the control of the inventory in relation to the maintenance of safety standards, or quality controls or any other regulatory requirements which may impact how inventory is managed or stored (Zinn & Bowersox, 1988).

**Supply Chain Dynamics Globally:** Within this village economy of globalization, international policies of trade, tariff, and geopolitical events shape inventory management. Hence, for such an end, the companies shall listen to these dynamics to make the supply chain resilient." - Christopher 2016.

### **The Benefits of Good Inventory Management.**

Cost Reduction: Saves holding cost, storage cost, and waste arising out of obsolescence.

Better Cash Flow: Reduces the capital tied up in excess inventory, hence freeing up resources for other business needs.

Improved Customer Satisfaction: The products will be available when customers need them, so the service level will improve.

Efficient Operations: Streamlines production and procurement processes, leading to better resource utilization.

Data-driven decision making: It gives insight into correct data; hence, better forecasts and strategic planning.

### **Challenges in Inventory Management.**

Demand Variability: Customer demand may be variable, which makes it hard to maintain optimum inventory levels.

Supply Chain Complexity: Multiple suppliers, lead times, and logistics may be a nightmare to manage.

Inventory Accuracy: Accurate inventory records are crucial yet at times hard to achieve without proper mechanisms in place.

Technology Integration: The implementation and integration of the inventory management systems with other business processes is complex and costly.

Human Error: Slip-ups in handling inventory, tracking, and data entry lead to inaccuracies and inefficiencies.

### **Best Practices in Inventory Management.**

Inventory management software includes advanced software to automate most of the tracking, forecasting, and ordering.

Inventory Audits: Regular physical inventory audits in order to compare against records.

Optimize Reorder Points and Safety Stock: Use data analytics to identify the optimal levels based on periodic demand patterns and lead times.

Supplier Relationship Management: Building rapport with suppliers for timely and consistent delivery.

Continuous Improvement: Establish a process of periodic reviews and improvements in inventory management to meet ever-changing business needs and market conditions.

### **2.6.1 Relationship Between Inventory Management and Supplier Selection.**

Inventory management and supplier selection are two sides of the same coin since it is necessary to balance the cost of inventory holding and suppliers' costs to continuously deliver goods in a supply chain. Supplier selection directly influences the effectiveness of inventory management in several ways: Supplier selection directly influences the effectiveness of inventory management in several ways:

Quality and Reliability of Supply: Accurate supplier choices prevent delays in delivery and receipt of goods that do not meet certain quality standards and requirements necessary for production as well as for the sale to customers. Innovative suppliers help their buyers to cut on issues of stock outs or delayed production due to substandard raw materials. (Simchi-Levi et al., 2021)

Lead Time Management: The lead time is particularly important in inventory management since it represents the time that is required for an order to be delivered. With short and less variable lead times, the suppliers allow businesses to minimize safety stocks and its holding costs. On the other hand, long lead time or fluctuating lead times may make suppliers to make business keep inventory in store thus incurring high costs of storage and high risks of obsolesces. This was according to Chopra and Meindl (2021) .

Cost Efficiency: Selecting an efficient supplier is one of the factors of managing the cost of goods sold and thus an organization's profitability. Suppliers who provide flexible terms of payments and quantity discounts are useful in ensuring that an organisation's cash flow is well managed and the overall cost of holding stocks is low. According to Stevenson and Spring (2021) ,

Flexibility and Responsiveness: Durable firms are those that are capable of sourcing their supplies readily and in a short time in order to enable them meet their customers' demand especially when there are changes in the market. This facility assists in the timely replenishment of stock and getting it right in the right quantities, thus eliminating the issue of

under or over stocking. It is also evident that working in cooperation with suppliers who can bring more flexibility to the cooperation increases a company's capabilities to meet customers' needs. (Christopher, 2022) .

Technology and Integration: Thus, the application of IT mechanisms and systems' connection with suppliers, including Electronic Data Interchange (EDI), Supplier Relationship Management (SRM) may help to simplify inventory control processes. These technologies allow for real time data sharing and hence results in accurate stocking records, demands estimation, and ordering systems. (Hyperlink to gt article: Heizer et al., 2021) .

To sum up, it will be worthy of note here that one of the key pillars of strategic inventory management is the proper sourcing of supplies. Thus, specified criteria in certain suppliers as for the delivery of high-quality materials, their punctual delivery, cost-effectiveness, and flexibility can help businesses improve their inventory management, cut costs and bring overall organizational effectiveness to the highest level.

## **2.7 Relationship between procurement planning and supplier selection**

It is worth stating that procurement planning and supplier selection are the two related activities that are essential to SCM. Procurement planning entails defining the requirements to be purchased, defining the requirements for these requirements and timing and cost of acquiring these goods and services. Supplier evaluation, on the other hand, entails identification of suppliers in a particular marketplace that can satisfy these needs to the greatest level of efficiency.

Strategic Alignment: Supply planning defines the broad framework within which procurement occurs, and out of this framework include the criteria used to select a particular supplier. 'While carrying out procurement planning, it is vital to reach procurement goals that you set during the contracting process hence it is vital while selecting the suppliers to ensure that they address the purpose of the procurement suppliers.' In suppliers selection it is also important to consider also a number of factors, other than price including the strategic needs of an organisation for instance quality, dependability, and sustainability (Salvi, Vitolla, Raimo, & Rubino, 2022).

Criteria Development: While making procurement plans, the organisation defines certain stipulations that would be met when selecting a supplier. Such may be; cost, quality, delivery time, and adherence to the set legal requirements (Cooper & Ellram, 2021). The detailed

planning phase outlines and defines all the needs and desires, and this helps in putting ‘parameters and particulars’ to check against which potential suppliers can be assessed. Effective criteria orally established from the procurement planning enable proper filtering of suppliers and guarantee that the chosen supplier is capable of meeting the procurement requirement (Bals, Laine, & Mugurusi, 2022) .

**Risk Management:** Procurement planning entails evaluation of risk related to suppliers including supply interruptions, product quality problems and supplier’s financial vulnerability (Schoenherr & Swink, 2021). These risk assessments help the organization in selecting the right suppliers as they are taken through different risk management frameworks. Lack of adequate risk management procedures when choosing high risk suppliers also poses a threat to the procurement plan strategy (Caniato et al., 2021).

**Cost Management:** Budgeting is one of the important tools in planning procurement. This financial planning affects the choice of suppliers in that it sets the parameter within which suppliers need to operate on matters concerning cost. PP occurs to guarantee the included suppliers provide the most value for the amount of money you are willing to spend, the cost being an important factor while other essential aspects to consider include quality and reliability (Van der Valk & Rozemeijer,2022) . The problem in an effective procurement planning is the cost saving and efficiency of suppliers (Schiele & Huttunen, 2021).

**Relationship Building:** The process of procurement entails long-term decisions and these may include the development and fostering of good supply relations with the suppliers. This proactive approach enables supplier evaluation not merely to be a single phase decision but a key building block in a long-term strategic alliance (Chen & Paulraj, 2022). High levels of supplier partnerships can result into more favorable negotiation, higher supplier performance and effective cooperation. Also, there are taxation policies which have been described by Foerstl, Azadegan, and Leppelt in their study done in this year.

**Performance Monitoring:** Last but not the least; procurement planning incorporates aspects of evaluating and monitoring the performance of the suppliers that are very essential in the advancement of the whole process. These are supplier performance measures prepared during the supplier selection phase in order to measure the suppliers’ performance. Another important factor of supplier competence is that suppliers should be selected not only for today’s requirements, but also for their development tendencies defined by performance evaluations. Said Kaufmann and Wagner, C. M. in (2021)

To summarise, procurement planning and supplier evaluation are two sides of the same coin. Strategic procurement planning gives an outline and standards that are used to screen possible suppliers and to check their capability to support the organization's strategy, manage risks, conform to the organization's budget, and correspond with its overall vision.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY.**

#### **3.0 Introduction.**

This chapter elaborates on the methods, tools, techniques, and procedures that were used in undertaking the research on the effects of procurement planning on supplier selection in the Ministry of Energy and Mineral Development. It further talks about the validity and reliability of the various methods and findings of the research study.

#### **3.1 Research Design.**

A descriptive research design is adopted in undertaking this study of the impact of procurement planning on supplier selection. This design is chosen because the study will be in a position to systematically collect and analyze data with the view of describing the current status regarding procurement planning and its implication on the processes of selecting suppliers within the Ministry of Energy and Mineral Development. A cross-sectional approach is one in which data are collected at a single point in time, offering a snapshot of prevailing practices and outcomes at that moment in time (Creswell, 2014).

#### **3.2 Area of Study.**

The Ministry of Energy and Mineral Development in Uganda has been selected because of the importance it holds with respect to Uganda's development and because most of the

procurement activities are undertaken there. This knowledge base will contribute to general applications in other sectors of government.

### **3.3 Sampling design**

The sampling design to be used in this study will involve simple random sampling techniques so that all eligible members who are involved in procurement processes can become part of the population-a procurement manager, procurement officers, support staff, inventory manager, supply chain personnel, and all those playing different roles in the procurement processes.

### **3.4 Data collection.**

#### **3.4.1 Sources of Information.**

Primary and secondary sources of data will be relied on for the research. The primary data collection will be directly from the employees who take part in the procurement process within the ministry. Secondary data will comprise documents and reports relating to procurement practice and supplier selection criteria adopted by the ministry (Yin 2018).

#### **3.4.2 Population and Sampling Techniques.**

The targeted population of this research comprises procurement officers and other staff who play different roles in procurement processes at the Ministry of Energy and Mineral Development. Simple random sampling is the technique adopted for the study. This is because such a technique helps capture representation across the different strata of the procurement hierarchy in the ministries of interest. In this way, the researcher can capture a sample that best represents divergent roles and experiences of the people in the ministry. Patton (2015) supports this too.

#### **3.4.3 Procedure for Data Collection.**

Data collection instruments encompass both questionnaires and interviews. The questionnaires are issued to the procurement officers for quantitative data required in

procurement planning and selection of suppliers, while interviews with senior procurement staff provide qualitative information, and may also be used to validate the quantitative results. Data collection procedures will follow standard ethical guidelines of confidential responses and voluntary participation. (Kumar, 2019).

#### **3.4.4 Research Instruments.**

Preponderant methods of data collection will involve the use of structured questionnaires and semi-structured interview guides. While questionnaires will contain closed-ended questions to assist in quantifying data analysis, the interview guides will contain open-ended questions aimed at capturing a more detailed outlook on procurement planning and supplier selection.

The quantitative data from the questionnaires were analyzed using the Statistical Package for Social Sciences-SPSS. Descriptive statistics summarize the data, while the inferential statistics test relationships-for instance, correlation analysis-between procurement planning and supplier selection. Qualitative data from interviews are analyzed thematically, and key themes and patterns were identified using Miles and Huberman (1994).

## CHAPTER FOUR.

### 4.0 Introduction.

This chapter presents the findings of the study which are interpreted and analyzed using frequency tables. The findings have been analyzed and interpreted with a view of achieving the objectives and answering the questions of the study.

### 4.1 Background Information.

The information was collected from 37 respondents out of 40 employees who work at Ministry of Energy and Mineral Development, Kampala branch. These respondents were got from different departments that are vital in procurement management.

#### 4.1.1 Gender of Respondents.

**Table 1: Gender of Respondents**

<b>GENDER</b>	<b>Frequency</b>	<b>Percentage</b>
MALE	19	51.35
FEMALE	18	48.65
TOTAL	37	100

In the survey of 40 respondents, 37 responded, 19(51.35%) were male, and 18(48.65%) were female. This indicated that the male respondents constituted a higher percentage of the sample compared to the female respondents.

#### 4.1.2 Education Levels.

**Table 2: Education Levels**

Level Of Education	Frequency	Percentage
Certificate	6	16.22
Diploma	9	24.32
Bachelors	12	32.43
Master	10	27.03
Total	37	100

The data above in table 2 showed that the majority of the respondents were bachelor's degree holders, making up 32.43% of the sample. Diploma holders constituted 24.32%, while master's degree holders represented 27.03% of the respondents. Certificate holders made up 16.22% of the sample.

#### 4.1.3 Age Group.

**Table 3: Age Group**

Age Group	Frequency	Percentage (%)
21 – 25 years	6	16.22
26 – 30 years	10	27.03
31 – 35 years	12	32.43
36 – 40 years	7	18.92
Above 41 years	2	5.4
Total	37	100

The data illustrated that the highest percentage of respondents fell into the age group of 31 to 35 years, making up 32.43% of the sample. The age group of 26 to 30 years follows closely behind at 27.03%. The remaining age group had varying percentages, with the smallest percentage in the “41years and above” category at 5.4%

#### 4.1.4 Working Experience.

**Table 4: Working Experience**

Years of Experience	Frequency	Percentage (%)
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Below 4 years	6	16.22
5 – 10 years	10	27.03
11 – 15 years	12	32.43
16 – 20 years	7	18.92
Above 20 years	2	5.4
Total	37	100

The table shows that the majority of individuals, 32.43%, have 11 to 15 years of experience, indicating a strong presence of mid-career professionals. Additionally, 27.03% have 5 to 10 years of experience, suggesting that over half (59.46%) of the individuals are in the early to mid-stages of their careers. Fewer individuals have below 4 years (16.22%) or above 20 years (5.4%) of experience, indicating a smaller representation of both entry-level and highly experienced professionals within the group.

#### 4.2. DEMAND FORECASTING.

**Table 5: DEMAND FORECASTING**

N O.	DETAILS	5		4		3		2		1		TOTAL	
		SA		A		N		D		SD		FR E	PE R
		Fr e	Per	Fr e	Per	Fr e	Per	Fr e	Per	Fr e	Per		
1.	The Ministry of Energy incorporates demand forecasting to effectively plan and manage its inventory levels.	19	51.35	10	27.03	6	16.22	0	5.4	2	0	37	100
2.	Ministry of Energy ensures cross-functional collaboration between departments such as sales, marketing, operations, and finance to incorporate multiple perspectives and	20	54.05	10	27.03	5	13.51	1	2.70	1	2.70	37	100

	data sources												
3.	The Ministry uses historical data effectively in its demand forecasting processes through examining past sales data and trends to understand seasonal fluctuations, market trends, and historical patterns	15	40.54	12	32.43	8	21.62	1	2.70	1	2.70	37	100
4.	Ministry of Energy uses advanced forecasting tools and software such as EGP and IFMS that utilize algorithms, AI,	14	37.84	13	35.14	8	21.62	2	5.4	0	0	37	100
5.	Ministry of Energy conduct market analysis such as consumer behaviour analysis, etc. during demand forecasting which helps in strategic decision-making	19	51.35	12	32.43	5	13.51	1	2.70	0	0	37	100
6.	Implementing demand forecasting techniques has reduced costs associated with energy production and procurement.	16	43.24	12	32.43	7	18.92	2	5.41	0	0	37	100
7.	Demand forecasting aids in identifying potential risks and uncertainties in energy supply and demand.	18	48.65	11	29.73	6	16.22	2	5.4	0	0	37	100

8.	The Organizations' demand forecasting processes have improved the overall efficiency and effectiveness of its operations.	21	56.76	10	27.03	5	13.51	1	2.70	0	0	37	100
9.	Ministry of Energy incorporates feedback loops to collect customer feedback, analyze it, acknowledge it, act on the findings, and bring users up-to-date with changes.	16	43.24	13	35.14	7	18.92	1	2.70	0	0	37	100

The table outlines the results of a survey or assessment related to the Ministry of Energy's demand forecasting practices. Each statement is followed by a set of responses indicating the frequency and percentage of agreement across different levels (likely ranging from strong agreement to strong disagreement).

Several practices, such as incorporating demand forecasting in inventory management (56.76%), cross-functional collaboration (54.05%), market analysis during forecasting (51.35%), and improving efficiency and effectiveness through forecasting (56.76%), have received high agreement, indicating these are well-recognized and effective practices within the Ministry.

The use of historical data, advanced forecasting tools, cost reduction, and risk identification in forecasting are practices with moderate agreement, ranging from around 37.84% to 48.65%. This suggests these methods are appreciated but might not be as universally accepted or understood .

The incorporation of feedback loops (43.24%) and the use of advanced forecasting tools (37.84%) are acknowledged but with less consensus, indicating these areas might need further emphasis or improvement.

There are areas where the responses show a higher degree of neutrality or lower agreement (around 27.03% to 35.14%). This could point to uncertainty or mixed perceptions about the effectiveness or implementation of these practices.

Overall, the table shows that the Ministry of Energy has a solid foundation in demand forecasting practices, with a majority of respondents recognizing their benefits. However, there are certain areas, particularly the use of advanced tools and feedback mechanisms that could be further developed to enhance overall effectiveness.

### 4.3 INVENTORY MANAGEMENT

**Table 6: INVENTORY MANAGEMENT**

N O	DETAILS	5		4		3		2		1		TOTAL	
		SA		A		N		D		SD		FR E	PE R
		Fre	Per	Fre	Per	Fre	Per	Fre	Per	Fre	Per		
1	The effective management of inventory has helped the Ministry of Energy maintain optimal stock levels for critical supplies.	10	27	18	48.6	6	16.2	3	8.1	0	0	<b>37</b>	<b>100</b>
2	The Ministry of Energy's inventory management practices determine the quantities and timing of inventory orders effectively	9	24.3	18	48.6	8	21.6	2	5.4	0	0	<b>37</b>	<b>100</b>

	to avoid overstocking and stock outs.												
3	The implementation advanced inventory management systems has improved the accuracy of inventory records at the Ministry of Energy.	8	21.6	20	54.1	8	21.6	1	2.7	0	0	<b>37</b>	<b>100</b>
4	The inventory management strategies at the Ministry of Energy contribute to better financial planning and cost control.	11	29.7	16	43.2	8	21.6	2	5.4	0	0	<b>37</b>	<b>100</b>
5	The Ministry of Energy conducts regular audits and reviews to ensure the effectiveness of its inventory management processes.	9	24.3	20	54.1	6	16.2	2	5.4	0	0	<b>37</b>	<b>100</b>
6	The Organizations procedures for inspecting and verifying received inventory for quality and accuracy are thorough.	7	18.9	22	59.5	6	16.2	2	5.4	0	0	<b>37</b>	<b>100</b>
7	MEMD measures and improves the efficiency and accuracy of its order fulfilment process well. Through processes like communication styles, quality control, employee training and Data analytics	8	21.6	18	48.6	9	16.2	2	8.1	0	0	<b>37</b>	<b>100</b>

8	Ministry of Energy organizes and store's inventory effectively to ensure easy access and efficient space utilization.	10	27.0	18	48.6	6	<b>16.2</b>	3	8.1	0	0	<b>37</b>	<b>100</b>
9	Efficient Operations in the Ministry have streamlined production and procurement processes, leading to better resource utilization.	9	24.3	18	48.6	8	21.6	2	5.4	0	<b>0</b>	<b>37</b>	<b>100</b>
10	Ministry of Energy uses technologies (e.g., barcode systems, RFID, inventory management software) efficiently to track inventory levels in real-time.	11	29.7	18	48.6	6	16.2	2	5.4	0	<b>0</b>	<b>37</b>	<b>100</b>

The majority of respondents lean towards agreement (either "Strongly Agree" or "Agree") on most statements. This trend indicates a positive perception of the Ministry's inventory management practices.

Statements 2, 5, 6, 8, and 10 show high percentages of agreement (SA + A), with more than 70% of respondents indicating agreement. This suggests strong confidence in practices like inventory management systems, quality checks, regular audits, and the use of technology.

The Neutral (N) responses are consistently present across the statements, indicating some level of uncertainty or ambivalence among respondents. Disagreement (D) and Strong Disagreement (SD) are minimal, with no statement having more than 3 respondents expressing any form of disagreement. This further emphasizes the overall positive sentiment.

Some statements, like Statements 4 and 10, have higher levels of Strong Agreement (SA), which may indicate particularly well-regarded practices in financial planning, cost control, and technology utilization.

Statement 3 shows a notable distribution with 21.6% strongly agreeing and 54.1% agreeing that advanced inventory management systems have improved accuracy, highlighting the importance of technological advancements in inventory management.

Across all statements, there is a consistent trend of high agreement (SA + A), with most statements receiving over 70% agreement from respondents. This indicates a strong overall confidence in the Ministry of Energy’s inventory management practices, especially in areas involving advanced systems, regular audits, and the use of technology. The neutral responses suggest there might be some areas for further clarification or improvement, but the low levels of disagreement indicate that significant dissatisfaction is rare.

The trend is generally positive, reflecting a good perception about inventory management practices at the Ministry of Energy. There is a broad agreement on the workability of these practices strongly pegged on technological implementation and quality control and efficiency of the process. Low levels of disagreement suggest that strategies directed at inventory management are well received, though the presence of neutral responses hints at areas where further improvements or clarifications might be required for all stakeholders to be fully convinced.

#### 4.4 SUPPLIER SELECTION

**Table 7: SUPPLIER SELECTION**

N O	DETAILS	5		4		3		2		1		TOTAL	
		SA		A		N		D		SD		FR E	PER
		Fr e	Per	Fr e	Per	Fr e	Per	Fr e	Per	Fr e	Per		
1.	The organization cares out cost assessments which include total cost of ownership, purchase price, delivery costs, and other associated expenses in order to stay within the budget	15	40.5	16	43.2	6	16.2	0	0	0	0	37	100
2.	The organizations evaluate suppliers based on the quality of their products and services, including adherence	18	48.7	14	37.8	5	13.5	0	0	0	0	37	100

	to specifications, defect rates, and consistency.												
3.	The organization ensures that all potential suppliers are compliant to legal regulations and ensures adherence to industry standards.	18	48.7	14	37.8	5	13.5	0	0	0	0	37	100
4.	The organization assesses the financial health of all suppliers to ensure they have the resources to meet contractual obligations	18	48.7	14	37.8	5	13.5	0	0	0	0	37	100
5.	The evaluation criteria are well-defined and consistently applied to all supplier proposals.	18	48.7	14	37.8	5	13.5	0	0	0	0	37	100
6.	The organization effectively negotiates contracts to ensure favorable terms and conditions.	16	43.2	16	43.2	5	13.5	0	0	0	0	37	100
7.	The organization regularly reviews and updates the supplier selection process based on feedback and performance data.	18	48.7	14	37.8	5	13.5	0	0	0	0	37	100

Strong Agreement (SA): The majority of respondents generally "Strongly Agree" with the statements. This is particularly evident in questions 2, 3, 4, 5, and 7, where nearly half of the respondents (around 48.65%) expressed strong agreement. This indicates a favorable view towards key aspects of the supplier selection process, such as evaluating suppliers based on quality, compliance with legal regulations, financial health, and regular review of processes.

A significant portion of respondents also selected "Agree." The highest percentages of "Agree" responses were found in Question 1 (43.24%) and Question 6 (43.24%). This suggests that while there is strong support for the supplier selection processes, there is also a

substantial group of respondents who agree but may not feel as strongly as those who selected "Strongly Agree."

The "Neutral" responses are consistently lower than the "Strongly Agree" and "Agree" responses, ranging from 13.51% to 16.22%. This suggests that a smaller proportion of respondents are indifferent or undecided about the effectiveness of the supplier selection processes.

There are no responses indicating "Disagree" or "Strongly Disagree." This suggests that there is general satisfaction with the supplier selection process, with no respondents expressing a negative view.

The overall trend of the table shows that the process followed by the organization for the selection of suppliers is rated very highly. It is crystal clear that, for all questions, "Strongly Agree" and "Agree" options are dominant to identify a satisfactory trend of the procedures performed. This is further supported by the fact that there is no "Disagree" or "Strongly Disagree" response. The "Neutral" answers, while present, are low in number to confirm the above-mentioned suggestion that a large part of the responses falls into either positive or negative categories rather than ambivalence concerning the issues in the supplier selection process

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the summary, conclusion, and recommendations of the study on the impact of procurement planning on supplier selection within the Ministry of Energy. The findings discussed in Chapter 4 are summarized, key conclusions are drawn, and actionable recommendations are provided to enhance the effectiveness of procurement planning and supplier selection processes.

#### **5.1 Summary of Findings**

The investigation focused on the relationship of procurement planning and selection of suppliers in terms of demand forecast, inventory management, and supplier evaluation within the Ministry of Energy. The following are the key findings identified:

**Demand Forecasting:** The study established that the Ministry of Energy indeed conducts demand forecasting in procurement planning. The majority of the respondents agreed that

demand forecasting enhances inventory management, costs reduction, and identification of some risks. Advanced forecasting tools, including feedback loops, could be further improved.

**Inventory Management:** The results indicated that, overall, inventory management practices were perceived as good within the Ministry. Advanced systems in place, frequent auditing, and full quality control measures made for easier financial planning and operational efficiency.

**Selection of Suppliers:** In the Ministry, the selection process is highly organized, putting a great emphasis on the cost appraisal of the tenders, analysis of quality, legality in application, and financial stability of the supplier. Yet, there is some high consensus among the respondents that these criteria are followed consistently, although negotiation effectiveness and process reviews could be further improved.

## **5.2 Conclusion**

Therefore, the results infer that procurement planning bears much influence on the selection of suppliers in the Ministry of Energy. Conducive demand forecasting and inventory management enable the Ministry to pick those suppliers who are acceptable with regard to its operational requirements and quality standards. At the same time, great scope exists for the improvement of procurement planning processes through advanced tools and continuous feedback mechanisms.

On the whole, the process of selecting suppliers is effective in the Ministry since the criteria for selection are clear and consistently applied. This therefore means that the suppliers are selected on comprehensive evaluations but also in agreement with the goals of the Ministry to ensure that high quality standards are maintained within set budgets. The limited number of respondents disagreeing may mean that the existing practices of selecting suppliers are well-received and serve to make a positive contribution toward procurement outcomes in the Ministry.

## **5.3 Recommendations**

The following recommendations develop a little further the influence of procurement planning on the selection of suppliers: **Improve Utilization of Advanced Forecasting Tools:** The Ministry shall invest more in advanced demand forecasting tools, even AI-based systems, to enhance accuracy and efficiency in predicting future procurement needs. Training

programs shall be initiated that will increase familiarity and confidence in the use of advanced forecasting tools among staff members. **Feedback Mechanism Strengthening:** Robust mechanisms for feedback should be put in place to capture input at all times from both customers and suppliers for the continuous revision of demand forecasts and methods of inventory management. **Review and Revision of Supplier Selection Criteria Periodically:** The Ministry needs to devise a system where supplier selection criteria are periodically reviewed and revised in accordance with performance data and market trends. By doing so, it will remain appropriate and efficient. **e) Enhanced Negotiation Training:** Negotiation training is to be made available on a specialist basis to the buying staff so that the most favorable terms in the contracts are obtained for the Ministry. In this way, they are considerably trained in order to negotiate favorable terms and conditions with suppliers. **Improve stakeholder engagement:** In this, there is a need to have more cross-functional teams and collaboration between various functions in the procurement, finance, and operations department to ensure that the procurement planning supports the overall strategic objectives set by the Ministry. **Perform Periodic Audits and Process Reviews:** It is highly essential that procurement planning and the selection of suppliers need to carry out periodic audits and process reviews to help identify avenues for improvement on one hand, while on the other ensure that the best practices are followed.

#### **5.4 Suggestions for Further Research**

Future research could explore the impact of digital transformation on procurement planning and supplier selection, particularly in how emerging technologies such as blockchain and AI could further enhance these processes within public sector organizations like the Ministry of Energy. Additionally, comparative studies across different ministries or sectors could provide deeper insights into best practices and common challenges in procurement planning and supplier selection.

#### **5.5 Conclusion**

The study underscores the importance of well-structured procurement planning in achieving effective supplier selection. By addressing the areas identified for improvement, the Ministry of Energy can enhance its procurement processes, leading to better resource utilization, cost savings, and improved service delivery. The recommendations provided in this chapter serve

as a roadmap for strengthening procurement planning and supplier selection practices, ultimately contributing to the Ministry's overall operational efficiency and success.

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## **APPENDICES**

### **APPENDIX : 1 QUESTIONNAIRE.**

Dear respondent,

I, Muhumuza Joel, a student of Uganda Christian University, am carrying out academic research on the topic 'Impact of Procurement Planning on Supplier Selection in the Ministry of Energy Uganda' as part of the requirement for partial fulfilment for the award of the degree of Bachelor of Procurement and Logistics Management at Uganda Christian University. I therefore humbly request you to spare a few minutes of your time and fill in this questionnaire. Please note that whatever information you provide here will be strictly for academic purposes and will be treated with utmost confidentiality.

**Thank you for your positive cooperation.**

### **PART A: PERSONAL DATA**

Kindly tick  in the blank spaces, the items that best describe your choice for each question

#### **1. Gender:**

MALE	
FEMALE	

**2. Age of the respondent:**

Below 20 years	21 – 25 years	26 – 30 years	31 – 35 years	36 – 40 years	Above 41 years

**3. Level of Education:**

Masters	Bachelors	Diploma	Certificate	Others (Specify)

**4. Position Held:**

Assistant Officer	Officer	Senior Officer	Principal Officer	Manager

**4. Years of Experience:**

Below 4 years	5 – 10 years	11 – 15 years	16 – 20 years	Above 20 years

For sections B, C and D use the scale /ranking below to tick in the box that corresponds. Please evaluate the statement by ticking in the box with the number that best suits your response.

Scale	5	4	3	2	1
Opinion	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

## PART B. DEMAND FORECASTING.

Is the process of estimating future customer demand for a product or service over a specified period. This process utilizes historical sales data, market analysis, and statistical techniques to predict future demand levels. Accurate demand forecasting helps businesses manage inventory, plan production, allocate resources efficiently, and make informed strategic decisions. For this section, use the scale /ranking below to tick the box that corresponds. Please evaluate the statement by ticking in the box with the number that best suits your response.

NO	DETAILS	Tick Appropriately				
		5	4	3	2	1
		SA	A	N	D	SD
1	The Ministry of Energy incorporates demand forecasting to effectively plan and manage its inventory levels.					
2	Ministry of Energy ensures cross-functional collaboration between departments such as sales, marketing, operations, and finance to incorporate multiple perspectives and data sources					
3	The Ministry uses historical data effectively in its demand forecasting processes through examining past sales data and trends to understand seasonal fluctuations, market trends, and historical patterns					
4	Ministry of Energy uses advanced forecasting tools and software such as EGP and IFMS that utilize algorithms, AI,					
5	Ministry of Energy conduct market analysis such as consumer behaviour analysis, etc. during demand forecasting which helps in strategic decision-making					
6	Implementing demand forecasting techniques has reduced costs associated with energy production and procurement.					
7	Demand forecasting aids in identifying potential risks and uncertainties in energy supply and demand.					
8	The Organisation's demand forecasting processes have improved the overall efficiency and effectiveness of its operations.					

9	Ministry of Energy incorporates feedback loops to collect customer feedback, analyse it, acknowledge it, act on the findings, and bring users up-to-date with changes.					
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## PART C. INVENTORY MANAGEMENT.

Inventory management is the process of overseeing and controlling the ordering, storage, and use of a company's inventory. This includes the management of raw materials, components, and finished products, as well as warehousing and processing these items. Effective inventory management is crucial for ensuring that MEMD can meet customer demands promptly while minimizing costs and avoiding overstocking or stock outs. This questionnaire is designed to assess the current practices and effectiveness of MEMD's inventory management system.

NO	DETAILS	Tick Appropriately				
		5	4	3	2	1
		SA	A	N	D	SD
1	The effective management of inventory has helped the Ministry of Energy maintain optimal stock levels for critical supplies.					
2	The Ministry of Energy's inventory management practices determine the quantities and timing of inventory orders effectively to avoid overstocking and stock outs.					
3	The implementation advanced inventory management systems has improved the accuracy of inventory records at the Ministry of Energy.					
4	The inventory management strategies at the Ministry of Energy contribute to better financial planning and cost control.					
5	The Ministry of Energy conducts regular audits and reviews to ensure the effectiveness of its inventory management processes.					
6	The Organizations procedures for inspecting and verifying received inventory for quality and accuracy are thorough.					
7	MEMD measures and improves the efficiency and accuracy of its order fulfilment process well. Through processes like communication styles, quality control, employee training and Data analytics					
8	Ministry of Energy organizes and store's inventory effectively to ensure easy access and efficient space utilization.					

9	Efficient Operations in the Ministry have streamlined production and procurement processes, leading to better resource utilization.					
10	Ministry of Energy uses technologies (e.g., barcode systems, RFID, inventory management software) efficiently to track inventory levels in real-time.					

**PART D. ‘ SUPPLIER SELECTION**

Supplier selection is the process by which an organization identifies, evaluates, and contracts with suppliers to procure goods and services. This involves assessing potential suppliers based on a variety of criteria, such as quality, cost, reliability, and delivery capabilities, to ensure they can meet the organization’s needs. This questionnaire is designed to assess the current practices and effectiveness of MEMD's supplier selection processes.

NO	DETAILS	Tick Appropriately				
		5	4	3	2	1
		SA	A	N	D	SD
1	The organisation carries out cost assessments which include total cost of ownership, purchase price, delivery costs, and other associated expenses in order to stay within the budget					
2	The organization evaluates suppliers based on the quality of their products and services, including adherence to specifications, defect rates, and consistency.					
3	The organisation ensures that all potential suppliers are compliant to legal regulations and ensures adherence to industry standards.					
4	The organisation assesses the financial health of all suppliers to ensure they have the resources to meet contractual obligations					
5	The evaluation criteria are well-defined and consistently applied to all supplier proposals.					

<b>6</b>	The organization effectively negotiates contracts to ensure favourable terms and conditions.					
<b>7</b>	The organization regularly reviews and updates the supplier selection process based on feedback and performance data.					

**APPENDIX 11: DATA COLLECTION LETTER**

**SCHOOL OF BUSINESS**

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

**TO WHOM IT MAY CONCERN**

Name: **MUHUMUZA JOEL**

Reg. No S21B12/039

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

**The Impact of Procurement Planning On Supplier Selection. A Case Study of Ministry Of Energy And Mineral Development.**

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

The Uganda Christian University School of Business thanks you in advance



.....  
Mukisa Simon Peter  
Research coordinator