KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

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IMPACT OF PROCUREMENT SELECTION CRITERIA ON PROCUREMENT PERFORMANCE

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DECLARATION

I hereby declare that this submission is my work towards the Masters of Science in Procurement and Supply Chain Management and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgment has been made in the text.

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DEDICATION

This work is dedicated to the Almighty God for His protection and guidance and my entire

family.

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I wish to express my sincere appreciation to Dr John Mensah who supervised this study. His advice, direction, guidance and suggestions made an invaluable difference to the study. I am greatly indebted to him. I am also most grateful to the Lord God Almighty for giving me the

strength to undertake this project.

ABSTRACT

The selection of an appropriate procurement method to procure any given project is known to result in successful procurement performance (and vice versa), but very little is known about the nature of this relationship from literature. In view of this, the study aimed at assessing the impact of procurement selection criteria on procurement performance. The study adopted the quantitative research approach and employed the cross-sectional research design for the study.

The purposive sampling technique was adopted for the study and the researcher used the survey questionnaire to collect data from 100 procurement experts and rectors of various public and private teachers training colleges. The study used and analysed the data using SPSS statistics and Amos to generate a SEM and linear regression model. The results of the study showed that procurement performance is significantly defined by time, cost, quality, value for money and industrial standards. A further results showed that all the overall procurement selection criteria has a positive impact on procurement performance. Lastly, the findings of the study showed that other factors that significantly influence procurement performance were procurement planning and staff competence. It is recommended that management should perform a meticulous assessment of their suppliers to determine their capacity in delivering cost-efficient products or services while maintaining outstanding quality measures, streamline acquisitions, capitalize on cost efficiencies, bargain for beneficial agreements, and investigate different vendors or resources. Also, Management develops robust partnerships with suppliers to foster transparent communication and teamwork and participate in advance conversations to discover opportunities for reducing expenses and enhancing quality. Encourage a mentality of constant enhancement by creating an environment that motivates procurement employees to proactively search for novel approaches, pinpoint areas for decreased expenses, and facilitate persistent evolution.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The process of acquiring items for projects involves particular procedures, arrangements, and means of delivering items such as residences, corporate structures, retail establishments, transportation networks, etc., to the people who want them (Love et al, 2012; Rashid et al., 2006). In this situation, the plan created and used to complete a project is often called "Procurement Method" or strategy (Love et al., 2012; Naoum et al., 2004; Love et al., 2008).

The traditional approach has recently faced criticism for its contribution to poor project performance (Nikou et al., 2014; Doloi 2013). There are two main reasons for this: certain changes have made it more difficult to use the traditional approach than before. Nowadays, projects are not only very complicated, but they also have a lot of uncertainties in how they are done and delivered (Ericksson & Westerberg, 2011). Also, clients now expect projects to be completed quickly and with limited resources, but still with high quality (Francom et al., 2014; Alhazmi & McCaffer, 2000). The primary focus of professionals has been finding solutions to these challenges through the creation of various strategies for acquiring goods and cooperating with others. Some of the methods that have been used include management contracting, private finance initiative, and partnering (Francom et al., 2014; Ericksson & Westerberg, 2011).

Numerous methods exist for clients to cater to their evolving needs and intricate projects. However, clients are still very unhappy with how procurement routes are chosen for projects (Love et al., 2012; Mohsini & Davidson, 1991). Many studies have shown this to be a big problem (for example, Francom et al., 2014; Love et al., 2012; Rashid et al., 2006). Many industries, particularly in emerging countries like Ghana, are grappling with the widespread issue of dissatisfaction (Ngab, 2011; Grifa, 2005). Literature, including El-Gayed (2013) and

Omran et al. (2012), for example, has also confirmed that one of the most important reasons responsible for poor PP relates to the use of inappropriate procurement methods by project clients. The incorrect method used by clients to obtain necessary materials was identified as a significant factor contributing to inadequate project planning. This is a very concerning problem because a lot of projects, more than 70%, have recently faced big problems with costs and time going over what was planned (El-Gayed, 2013; Tumi et al., 2009).

Despite this, relatively little emphasis has been paid to improving procurement practice in Ghana, particularly in the procurement method selection process (Adamu, Sidik, & Ernest, 2017; Yevu, Yu, Darko, & Addy, 2021). Clients in this business frequently depend on previous experience and familiarity with previous procurement methods to influence their future procurement method selections. It is worth noting that the various procurement techniques differ in terms of features and characteristics (Jin et al., 2015), making each acceptable for usage in certain project situations (Jin et al., 2015; Perkins, 2009; El-wardani et al., 2006).
Despite this, relatively little emphasis has been paid to improving procurement practice in Ghana, particularly in the procurement method selection procedure (Adamu, Sidik, & Ernest, 2017; Yevu, Yu, Darko, & Addy, 2021). Clients in this business frequently depend on previous experience and familiarity with previous procurement methods to influence their future procurement method selections. It is worth noting that the various procurement techniques differ in terms of features and characteristics (Jin et al., 2015), making each acceptable for usage in certain project situations (Jin et al., 2015; Perkins, 2009; El-wardani et al., 2006).

Although selecting an effective procurement technique to acquire a particular endeavor is known to result in effective procurement performance (and vice versa), the literature provides little insight into the nature of this connection. Following a string of project failures over the years, Ghanaian enterprises stand to profit from the availability of precise knowledge and understanding of how procurement selection choices affect procurement success. As a result of

a lack of this critical knowledge, this study reports on a research examination into this link with the goal of clarifying which of the selection criteria functions in determining procurement performance.

1.2 Statement of the Problem

Many researchers (Jin et al., 2015; Love et al., 2012; Eriksson & Westerberg, 2011; Chan & Chan, 2000) have long identified the adoption of an appropriate procurement technique to deliver a project as an essential criterion for assuring effective project performance. According to Jin et al. (2015), employing the best strategy can result in a 5-10% decrease in project expenses. Zhao, Ying, and Tookey (2022) investigated the impact of procurement selection method on procurement performance in Malaysia and discovered that one of the main reasons for poor procurement performance in the Malaysian construction industry is that clients of projects frequently fail to consider the appropriate procurement selection criteria when deciding which purchasing techniques to use. Furthermore, Buzzetto, Bauli, and Carvalho (2020) suggested that many projects have underperformed as a result of customers' disdain for procurement selection criteria while deciding on the best procurement technique to use. Furthermore, Eriksson and Westerberg (2011) stated that the construction industry in many countries frequently receives criticism for poor customer satisfaction due to insufficient procurement practices involving little or no attention to procurement selection criteria.

While selecting a procurement technique is an important decision-making process for any particular project (Love et al, 2012; Mohsini & Davidson, 1991), customers have a significant issue in selecting a suitable approach. Clients often find this task difficult to tackle, not least because it necessitates the careful consideration of numerous factors (Jin et al., 2015; Laedre et al., 2006; El Wardani et al., 2006), many of which have implicit interrelationships and complex connections that project external factors (Sporrong, 2011). Furthermore, Thomas (2002) said that selecting an acceptable procurement technique is heavily reliant on the

precision with which each procurement selection criteria is assessed in light of the client's needs and the project's objectives. As a result, the nature of the issue with procurement choice of methods indicates that reasonable and meticulous decision-making tools or models based on procurement selection criteria (Naoum & Egbu, 2016; Popic & Moselhi, 2014) are required for success in the selection process.

Several businesses, however, lack such appropriate tools because all existing ones were purposefully built for certain industry settings with different environmental and cultural contexts to Ghana. Thus, independent of project features, procurement selection criteria among businesses are frequently impacted by customers' sheer knowledge and prior experience with procurement processes (Gidigah, Agyekum, & Baiden, 2022; Ren, Kwaw, & Yang, 2012). Another procurement difficulty is that consumers are only aware of a handful of the current procurement selection criteria, since they are unaware of more modern and new forms of procurement selection criteria (Omran et al., 2012; Nsiah-Asare & Prempeh, 2016; Hassouna, 2008). In view of this the study sought to identify the procurement selection criteria that significantly influence procurement performance in both public and private sector firms in Ghana.

1.3 Objectives of the Study

1.3.1 General Objectives

The general aim of the research is to examine the effect of procurement selection criteria on procurement performance among firms in Ghana.

1.3.2 Specific Objectives

However, the main research objectives embraced the following:

1. To identify the effective criteria for assessing and measuring procurement performance;

2. To explore the factors besides procurement selection (PSC) criteria that influence procurement performance (PP).
3. To establish the relationship between PSC and PP to demonstrate the criteria with significant influence on PP.

1.4 Research Questions

1. What are the effective criteria for assessing and measuring procurement performance?
2. Are there other factors besides procurement selection (PSC) criteria that influence procurement performance (PP)?
3. How does PSC influence PP to demonstrate the criteria with significant influence on PP?

1.5 Significance of the Study

The study provides valuable insights into the selection criteria used in procurement processes. It helps procurement professionals make informed decisions regarding the criteria to consider when selecting suppliers or vendors. By understanding which selection criteria have a positive impact on procurement performance, organizations can improve their decision-making processes and select suppliers more effectively.

The research study identified the procurement selection criteria that are most strongly associated with improved procurement performance. By focusing on these criteria, organizations can optimize their procurement processes and enhance overall performance. This should be included factors such as cost, quality, reliability, responsiveness, innovation, sustainability, and risk management.

The study enables organizations to allocate their procurement resources more efficiently. By understanding which selection criteria are most influential in driving procurement performance, organizations can prioritize their efforts and resources accordingly. This ensures

that resources are allocated to areas that have the greatest potential for improving performance and achieving desired outcomes.

The research study helps organizations develop and maintain effective relationships with suppliers. By considering the appropriate selection criteria, organizations can align their objectives with those of their suppliers and foster mutually beneficial partnerships. This can lead to improved collaboration, better communication, and enhanced supplier performance, ultimately contributing to overall procurement success.

Research studies on procurement selection criteria provide benchmarking opportunities for organizations. By comparing their current practices with the findings of the study, organizations can identify areas for improvement and adopt best practices. Benchmarking against industry standards and successful procurement strategies can help organizations stay competitive and achieve superior performance.

Overall, research studies on the effect of procurement selection criteria on procurement performance contribute to the advancement of knowledge in the field of procurement and help organizations make data-driven decisions to optimize their procurement processes, improve performance, and achieve strategic objectives.

This study identified other factors besides procurement issues that affect the performance. This, together with the critical review of the selection criteria provides an up-to-date information which would be very useful to the researchers and practitioners operating in this area.

1.6 Overview of Research Methodology

The main objective of this study was to examine the effect of procurement selection criteria on procurement performance among firms in Ghana. This study adopted cross-sectional approach and quantitative method with survey strategy. The study explored primary data which was gathered using a structured questionnaire. Population of study consisted of 100 respondents

who are made up of procurement managers and officers as well as project management personnel across several public and private firms. It should be noted that these respondents were selected randomly through purposeful sampling. Descriptive analysis was adopted to come out with the results with the assistance of Statistical Products for Social Sciences (SPSS) software version 25.

1.7 Scope of the Study

The scope of the study covered public and private teachers training colleges operating within the various regions in Ghana. These basically focused on the procurement departments of the various colleges which is in charge of major procurement projects. Also, the study takes into consideration key generic selection criteria and performance indicators across several sectors; hence, the key generic selection criteria numbered up to ten (10) with four (4) key performance indicators namely, time, cost, quality and value for money. The study variables included four other variables that could affect performance and these includes, procurement planning, staff competence, resource allocation and procurement procedure.

1.8 Limitations of the Study

The study relies on a single research method which is the quantitative research. This tends to prioritize breadth and generalizability over depth. The study gathered quite a substantial amount of data but misses the nuanced information or individual experiences. Also, the research relies on accurate measurement of variables. However, it is possible measurement errors can occur due to response bias, or inaccurate data recording. These errors can impact the validity and reliability of the findings and this may limited the level of generalization.

Some phenomena, such as emotions, cultural dynamics, or subjective experiences, are challenging to quantify accurately and this is what will enrich the research findings. But due to

time and resource limitations, sticking to quantitative methods may lead to a struggle of capturing the intricacies and subjective nature of these phenomena.

The research study is likely to focuses on general patterns and statistical relationships but may fail to provide in-depth understanding of the social, cultural, or historical context in which the research is conducted. This limitation can hinder the interpretation and application of the findings in other settings.

1.9 Organization of the Study

This study will be presented in five chapters. Chapter one addresses the background of the study, problem statement, the objectives of the study, the research questions, the justification and, the scope and organization of the study.

Chapter two continues with the literature review. The literature review takes into consideration, the theoretical and the empirical review, conceptual framework, as well as the definition of construct and concepts of the study.

Chapter three presents the research methodology. This takes account of the target population and sample size, sampling techniques that are in the study, the data collection instrument and data collection method as well as the data analysis procedure.

Chapter four presents the findings of the study as well as discussed, the findings of the chapter concerning the literature review. Chapter five focuses on the summary of the study, coming up with its conclusion, relevant recommendations, and limitations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter review the concept of procurement selection criteria and procurement performance and defined these variables. It further review the theories that underpin the study and the empirical study whilst defining the hypothesis for the study. It finally displayed the conceptual framework for the study.

2.2 Definition of Variables

2.2.1 Procurement Selection Criteria

Mahon (2011) define procurement selection criteria as the set of project specific requirements that have most weighting when deciding upon a procurement path. Tookey et al. (2001) define procurement selection as, a set of rationalistic decisions within a closed environment aiming to produce generic, perspective rules for clients to use to select the best procurement route for their project. According to Edquist and Zabala-Iturriagagoitia (2012), selection criteria are the minimum requirements or standards that bidders must meet in order to progress further in the procurement exercise.

2.2.2 Procurement Performance

Lysons & Farrington (2017) viewed procurement performance as consisting of (but not limited to) financial performance, return on investment, enhanced profitability, quality improvements, competitive advantage, cost reduction, customer satisfaction and social responsibility. Thus, it influences the added value of the purchase.

2.3 Conceptual Review

2.3.1 Procurement Selection Criteria

Procurement procedures have a significant impact on the contractual and professional ties that exist between construction project participants (Alhazmi & McCaffer, 2000). While the general

benefits and drawbacks of multiple procurement pathways are straightforward to compare, the increasingly complicated nature of construction procurement makes identifying alternative procurement routes challenging (Ive & Chang, 2007). Choosing the best project procurement strategy has been found to cut project expenses by 5-10% (Alhazmi & McCaffer, 2000).

A variety of factors for procurement selection/non-selection have been advanced in research on the issue, including (Luu et al 2003, Tookey et al 2001; Masterman 1994). Over the last two decades, the building construction sector has created a wide range of alternative procurement methods, creating a requirement for industry clients to use a set of clear, clearly defined procurement selection criteria (Hardcastle & Tookey, 1998).

The well-established project success indicators of time, cost, and quality are widely acknowledged and continue to be the dominant factors in procurement choices and client satisfaction (Love et al 1998). However, as procurement procedures have evolved, so have the criteria used to assess the acceptability of any particular project option (Luu et al 2003). Some have suggested recently a paradigm change in procurement thinking toward more of a manufacturing process that uses benchmarks and indicators of performance (KPIs) to quantify the project's achievement (Tookey et al 2001).

Luu et al. (2003) found 34 procurement selection principles (PSPs) in their research of the procurement selection requirements of Australian clients. These PSPs were culled from the study's authors' literature research (Luu et al 2003). A table based on Luu et al. (2003) study of the 34 PSPs found has been adjusted for the needs of this research project and is shown below.

Table 2.1. Procurement selection parameters

Selection Factors	Description
Client experience	Client experience levels should play a significant role in establishing the best procurement method

Client type	Which procurement systems are most suited depend on the type of customer in the construction business
Clients' financial position	The weighting of procurement criteria will be determined by the client's financial situation.
Client risk profile	The client's willingness to take chances and use new technologies will impact procurement decisions.
Level of client involvement	The level of involvement from clients will mostly depend on their experience. Usually, clients with more experience like to be more involved, while less experienced clients tend to be less handson.
Level of technical performance	The effectiveness of various purchasing methods relies on the specific technical requirements.
Time completion	When making purchasing decisions, it is crucial to consider the project's completion timeline.
budget/cost requirements	The price of a project is usually the biggest thing to think about when deciding if it's the right choice for a purchase.
Value for money	Several well-known writers in the field of procurement believe that the importance of getting good value for money is not given enough consideration compared to simply finding the lowest cost option.

Authors

Ive & Chang (2007),
Luu et al (2003),
Kadefors et al. (2021), Habibi et al. (2019).

Love et al (2010),
Taherdoost and Brard, (2019), de Araújo et al. (2017)

Taherdoost and Brard, (2019), Ecer, (2018),

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Luu et al (2003),
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Luu et al (2003),

Alhazmi & McCaffer
(2000),

Masterman (1994)

McWilliam & Lorenti

(2009), Eriksson et al. (2019)

Briscoe et al (2004),
Sönnichsen and
Clement (2020),
Giunipero et al. (2019)

Ng et al (2005), Luu (2003),

Agapiou, (2020)

Luu et al (2003),
Dávid-Barrett and Fazekas, (2020),

Selection Factors	**Description**	**Authors**
Project scope	The overall project size will partly determine the importance given to each factor.	Morledge et al (2006), Noorzai, (2020)
methodology	Some ways to purchase goods and services and ways to determine if a project is successful.	(2003), Alhazmi & McCaffer (2000)
Potential impact of unknown risk factors	Risk allocation structures are important to think about when deciding if a procurement system is right. A good procurement system should assign project risks to the party who is able to handle them best.	Ive & Chang (2007), Luu et al (2003), Kinra et al., (2020)
Management of known risk elements	The responsibility of managing risk in project procurement systems should be assigned to the party with the greatest capacity to handle it.	Ive & Chang (2007), Luu et al (2003), Cole and Aitken, (2019)

Potential for innovation	Before choosing a procurement system, it is important to think about the potential new ways it may bring innovation in technology or methodology.	Luu et al (2003), Tookey et al (2001), Kumaraswamy & Dissanayaka (1996),
Technological feasibility	Evaluating other choices involves examining the potential of the technology and its ability to be efficiently utilized within the procurement system.	Luu et al (2003), Kumaraswamy & Dissanayaka (1996)
Regulatory feasibility	The project's ability to meet regulations and perform well is an important factor to think about when deciding how to get the necessary resources.	Briscoe et al (2004), Luu et al (2003)
Availability of materials	Some ways of obtaining materials and services are better at helping suppliers become part of the construction process.	Moreledge et al (2006),Than Luu et al (2003)
Availability of experienced contractors	The number of skilled contractors will determine to some extent which way of purchasing is the best.	Cartlidge (2004), Luu et al (2003)
Productivity of labour force	Enhancing worker productivity and efficiency can be achieved by employing specific methods of purchasing goods and services that prove to be more effective than others.	Luu et al (2003), Alhazmi & McCaffer (2000)
Selection Factors	**Description**	**Authors**
Cultural influences	Some purchasing systems are better than others at accommodating cultural requirements or features.	Strikland & Kirkendall (2008), Luu et al (2003)

Source: Mahon (2011)

2.3.2 Procurement selection criteria groupings

In Luu et al's (2003) study the authors identified eight groups into which the 34 PSPs can be separated into. These groups include,

External environment: A client's procurement needs will mostly depend on the environment in which their organization operates (Luu et al., 2003; Vluggen et al. 2019). External factors

on a project level can include things like laws, money, culture, and the physical surroundings (Luu et al. 2003; Popovic, et al. 2019).

Project risks: How project risk is divided among project participants is the main factor in choosing a procurement system (Deep, Gajendran & Jefferies, 2021; Luu et al 2003). Some common risks that can happen in a project include things like running out of time or money, problems with the quality of work, bad weather, strikes by workers, and natural disasters (Luu et al 2003; Taherdoost & Brard, 2019).

Clients' long term objectives: The clients' goals for their business in the long term and their goals for the building they want to make will help them choose the right way to get what they need. The goals of the client organization will affect the amount of money they spend on operating and maintaining their business (Allal-Chérif, Simón-Moya & Ballester, 2021; Luu et al 2003).

Project characteristics: The special features of a project will greatly affect how important certain criteria are when choosing who to buy from. Projects have certain features, such as what the project includes, how it is built, and what the finished product is meant to do (Lam & Yang, 2020; Luu et al 2003).

Clients' short term objectives: Normally, temporary client goals are focused on objectives that cover the entire time of the projects. Short-term or project goals are basically about finishing on time, within budget, and providing good value for money (Luu et al., 2003; Rezaei et al., 2019).

Client characteristics: The level of experience, type, and access to internal expertise of the client are considered crucial client characteristics that impact the most appropriate method for selecting a procurement system (Allal-Chérif et al., 2021; Luu et al., 2003).

Client involvement and risk allocation: The level of client involvement and trust among individuals will impact the selection of project members. The responsibility for handling risk should be given to the party that is most capable of managing it. The client's readiness to take risks will affect many purchasing decisions (Dahlmann & Roehrich, 2019; Luu et al., 2003).

Most purchasing decisions for construction projects can be made using these large groups (Luu et al. 2003). These groups of criteria can be compared to other important ways of selecting things that have been found in studies done around the world. (Ng et al., 2005, Ng et al., 2002, Kaur & Singh 2021; Mohammed, Harris & Govindan, 2019). Other typical procurement selection criteria include,

Allocation of responsibilities: Similar to how risk is divided and assigned, this concept also involves reporting and information systems (Ive & Chang, 2007). It also includes the people that the clients can communicate with during the construction process. This is especially important for clients who have less experience and need to clearly know what their project responsibilities are, as mentioned by Kaur and Singh (2021). How project tasks are assigned can greatly influence the choice of one procurement system over another (Love et al 1998).

Client Image considerations: In evaluating the perception of a client, our main focus tends to be on the design and branding aspects of their projects (Ng et al 2002). However, it also needful to think about how they acquire their goods and services. Both construction industry clients from the public and private sectors often prefer to use different methods of purchasing and working with contractors to show their image (Alhazmi & McCaffer, 2000).

Minimal risk exposure: Many client organizations, both public and private, prioritize reducing their own risk when making procurement decisions (Kinra et al., 2020). Reducing the chances of clients experiencing problems is not always the same as assigning the responsibility for those problems to the party that can handle them best (Cole & Aitken, 2019). From a client's point

of view, minimal risk exposure can mean not using new or innovative construction methods and instead sticking to traditional ones (Ng et al., 2002). This fear from clients about trying new and different ways of doing things might help explain why some firms have been seen as being slow to accept new ideas (Kinra et al., 2020).

Early and firm indication of price: Many client organizations need to know their budget early on and have a clear idea of how much it will cost, instead of just wanting to know the cheapest price. (Tookey et al 2001) This trend is most common among industry clients who have less experience. Some people see it as a rigid approach that can have a negative effect on making decisions for projects. This could also help explain why design and build systems are becoming more popular. In these systems, the fees and costs are usually agreed upon earlier in the process (Ive & Chang, 2007).

Ability to accommodate changes: Procurement systems that make it easy to add design changes should generally be seen as very beneficial. Making changes to the design of a project can lead to increased costs and delays in its completion. Clients who have worked in the industry for a longer time usually prefer procurement systems that make it easy to include design changes (Mohammed et al., 2019).

Early project start date: Procurement routes that allow construction to start early, even while design work is still ongoing, are generally preferred because they often lead to projects being completed on time. Starting a project earlier is usually seen as a way to finish it sooner, but that is not always true (Hardcastle & Tookey, 1998).

Information flows between client, consultants and contracting organisations: Procedures that encourage clear communication between participants in projects are usually seen as positive. (Mohammed et al., 2019) Experienced clients in the construction industry have their

own knowledge and involvement during the process of getting materials and resources (Mohammed et al., 2019).

The combination of client type, project type and various other factors described above will ultimately dictate the procurement path deemed most appropriate for any given project.

2.3.3. Project Performance Evaluation/ Measurement

Measuring whether a project is successful or not is actually a complicated task, even though it may seem easy at first. Many researchers have studied this process in recent years. (Polat et al., 2014; Iyer and Jh, 2005). Project performance evaluation (PPE) or measurement is a systematic way of assessing how well a project is doing by looking at the inputs and outputs during procurement activities and the final project results. It also helps identify areas for improvement (Zavadsks et al., 2014; Enshassi et al., 2009; Takim et al., 2003).

In the last few decades, many researchers and studies have looked at project performance in across several sectors. They have suggested different ways to evaluate and measure how well a project is doing. In this situation, Williams aet al. (2015), Cserhati and Szabo (2014) as well as Enshassi et al. (2009), looked at how one can judge or measure procurement performance (PP). Numerous methods can be employed to examine and evaluate the performance of PP and determine its effectiveness, as mentioned by them. These ways can look at different aspects like how long it takes, how much it costs, how good it is, how safe it is, how it affects the environment, and more. But the main ways to check how well PP is doing are looking at how long it takes, how much it costs, and how good it is. Iyer and Jha (2005), Bassioni et al. (2004), Albert et al. (2002) and De wit (1988) confirmed that, projects are typically evaluated in terms of time, cost and quality. When evaluating project performance, the emphasis is often placed on its conformity to time, budget, and quality expectations, as suggested by Bryde and Brown

(2004). The results of PP, which are measured using these criteria, depend on them. Polat et al. (2014), as well as Edmond et al. (2008) added five new things to consider. These are: making sure people are safe and healthy, making money, communicating well, taking care of employees, and managing risks.

Konchar and Sanvido (1998) and Molenaar and Songer (1998) created ten ways to measure how well a project is doing. These performance measures focus on the various aspects of a project being successful. The objectives of the project were successfully accomplished, encompassing cost, time, and quality, with an additional emphasis on client satisfaction. The performance metrics has been classified as follows:

- In terms of cost they include unit cost and cost growth.
- In terms of time they include construction speed, delivery speed and schedule growth.
- In terms of quality they include workmanship quality, material and equipment quality and system quality.

The performance metrics also measured how much work the client had to do and how satisfied they were. Cheung et al. (2004), a team created a website to help project managers keep track of projects. This system, called the Project Performance Monitoring System (PPMS), helps project managers' control and manage construction projects more effectively. There are eight ways to check and track how well a project is doing. These include checking how much money and time is being spent, making sure the work is good quality, ensuring everyone's safety and health, considering the needs of the people involved, protecting the environment, making sure the client is happy, and having good communication. The PPMS helps senior project managers (like project directors and project managers) keep track of and evaluate how well the project is going. Jin and their colleagues. Jin et al. (2007) examined how factors related to relationships can impact the success of projects in China. They found eight ways to measure how well PP is

doing. These metrics can be divided into two groups. The first group is made up of hard performance indicators like cost, time, and quality. The second group is made up of soft performance indicators related to building relationships, like how satisfied clients are and how often there are legal issues.

Asiedu (2009) found that the main ways to measure performance are through objective measures and subjective measures. The things we measure to see how well a construction project is going include how long it takes to build, how fast it is built, how costs change over time, how much accidents happen, and how it impacts the environment. In addition to evaluating the final outcome, we also assess the effectiveness, user satisfaction, client satisfaction, and team satisfaction of the project. Shamas and Stephen (2010) studied the important factors used to measure how well a project is doing in large construction projects in Thailand. The results of the survey showed that the most important factors for determining and measuring PP from the perspective of clients, contractors, and consultants are time, cost, and quality. However, other things like being safe, making clients happy, and talking to each other are not as important.

The study found that projects were only measured and evaluated based on their time, cost, and quality. Even though there are many ways to measure and evaluate performance, the most common ones are time, cost, and quality. We consider other factors like the environment, health and safety, being innovative, making clients happy, and good communication because different people have different opinions on what makes a project successful. Many authors have defined the three most important factors used to measure PP (Williams et al., 2015; Arti et al., 2013; Lai and Lam, 2010; Shamas and Stephen, 2010; Asiedu, 2009; Cheung et al., 2004 and Konchar, 1997) as following:

a) Cost performance:

It means how much the overall conditions help finish a project within the planned budget. The cost only includes the money needed for planning and building the project. It can be determined by looking at how much something costs, if the cost increases over time, and if the cost goes over the planned budget.

b) Time performance:

It means how much the overall conditions help a project finish on time. One way to assess it is by comparing the actual time with the expected time, evaluating the construction duration, considering the speed of building, examining the delivery timeline, and determining if it is finished within the designated timeframe.

c) Quality performance:

In basic terms, the quality of a project involves modifying it to meet the client's preferences or adhere to their directives. It can be measured by how well it meets expectations, how satisfied the clients are, how well the work is done, how experienced the contractor is, and how skilled the project staff are.

2.4 Theoretical Review

2.4.1. Contingency theory

Contingency theory says that there is no one perfect way to manage organizing, decisionmaking, and leadership because different situations require different approaches (Grötsch, Blome, & Schleper, 2013; Luthans 1976). This comprises of factors that influence the company's activities and external circumstances. This includes factors that affect the company's operations and external conditions (Safari & Saleh, 2020; Waterhouse and Tiessen 1978). The first part of the text is talking about the things that make up an organization like its structures, processes, and technologies. These things can be controlled by the management of the organization. The second part of the text is saying that the things that make up the

organization are not the same as the things that exist outside of the organization. Therefore, these external things are not easily influenced by the organization. Dubey et al. (2021) used a contingency framework to plan purchases. Their perspective is that there is no singular approach to purchasing items that can be applied universally to all organizations and situations. Instead, it is recommended that the specific factors of a suitable procurement selection system will be based on the particular situation of the organization.

Talukdar (2020) argues that according to contingency theory, companies are regarded as open systems in which information is exchanged through the process of input, processing, and output generation. The input includes both things happening within the organization and things happening outside of it. "Process" refers to how the organization responds to these inputs, like their plans and actions. The outputs are the results of these processes. Normally, these outcomes are related to measures of how well the procurement process is doing. In this study, we suggest that it is important to have good procurement performance and we refer to it as the desired outcome. So, contingency theory provides a way to explain the situations in which procurement performance changes.

This study is interested in the number of times an organization has had problems with purchasing things that were not satisfactory in the past. The risk of procurement outcomes changing unpredictably is a big problem for companies (Giunipero & Eltantawy, 2004). If a supplier goes out of business, there is a risk that companies will lose the supplier and an important part needed for production. If this happens, it can cause big problems in the supply chain. (Hendricks & Singhal, 2015). So, companies that have had problems in the past with selecting the right criteria for procurement projects may have different relationships between the factors that cause these problems and the performance of their procurement activities. Although previous research has discussed this context variable, we still do not fully understand how the selection criteria affect procurement performance.

Choosing the best option from a long list of requirements depends on the person making the decision and the information they have. It is believed that the way a person thinks affects their decision-making abilities. Scientists have recognized that how our brains work can affect the choices we make. This has been demonstrated in various studies by Chenhall and Morris (1991), Henri (2006), and Mikes (2011). Decision makers play important roles in organizations and they also inspire and motivate employees. Neglecting certain standards can result in harm to others, and they are the ones liable for the consequences. Furthermore, the way people make decisions can be influenced by different types of information they use. It is important to consider how a person's own thinking style can impact their decision-making process. The theory of managerial cognition suggests that the way managers think can affect how well they make decisions and how well the organization performs (Hayes & Allinson, 1994; Fuller & Kaplan, 2004; Elbanna & Child, 2007).

2.4.2. Transaction cost theory

The Transaction Cost Theory focuses on the idea that if organizations reduce the costs of exchanging goods or services, they can become more efficient economically (Williamson, 1993). This theory helps understand how contracts work in a supply chain. The theory explains the different things that help organizations work together in supply chains. The methods used for supplier development are based on the criteria for selecting suppliers and aim to maximize the benefits, like improving procurement performance. Depending on how companies choose to purchase goods or services (either directly or indirectly), there are costs associated with these transactions. Some of these costs can be seen, while others may be hidden in the relationship between the buyer and supplier. Research has shown that using certain methods for selecting suppliers can help reduce costs (Bergman & Lundberg, 2013; Landale, Rendon & Hawkins, 2017).

The TCT helps manage procurement contracts and other important agreements well (Rasheli, 2016). Therefore, since the agreements control how buyers and suppliers interact, buyers can work towards better controlling suppliers to make sure they meet the requirements for purchasing. The TCT theory says that buyers might have to spend more money and put in more work to handle the contracts (Williamson, 993; Zhao et al., 2018). So, if organizations have trouble managing procurement contracts with suppliers and it costs them a lot of money, they are less likely to get the results they want when it comes to procurement. These challenges can be measured by looking at the time and money spent on managing formal agreements with suppliers.

2.5 Empirical Review and Hypothesis

2.5.1 High price competition and Performance

This criterion is about how much a procurement method allows for getting things at a good price that provides quality and benefits to the client. How companies choose their suppliers) (Park et al., 2009). There are different supplier selection methods that companies can use, and the choice of method can depend on several factors such as the company's specific needs and requirements. By using a systematic approach to supplier selection, companies aim to ensure that they choose suppliers who can meet their needs effectively and efficiently (Eriksson and Westerberg, 2011). This helps to minimize risks and maximize the benefits of the companysupplier relationship. The type of process used to choose a contractor. No matter what kind of buying you are doing, you can choose a supplier by either having everyone submit their bids, having only certain suppliers submit bids, or by negotiating directly with the supplier. The main reason for competitive tendering is to encourage suppliers to compete on price, which gives the client a better chance of getting lower prices when buying things (Brook, 2004, p.88). The price quoted by the suppliers is usually the most important factor in deciding which one to choose.

According to a study by Hai & Watanabe (2014), the way public works projects are bought in Vietnam has not been good. The money allocated for public projects and the construction industry has been adversely affected due to this situation. In addition, the research by Foros, Nguyen-Ones, and Steen (2021) found that looking for the best price before buying lowers companies' profits. Another finding suggested that customers who know about the buying cycle and make an effort to decide when to make purchases can benefit companies by increasing their profits. If people think about the best time to buy things, they try to get the items when they are on sale or cheap. This makes it harder for consumers to compare prices at different stores. In contrast to these empirical findings we proposed that:

H_1. High price competition has a positive effect on the performance of the procurement.

2.5.2 Clarity of scope definition and Performance

The scope of work explains what needs to be done or the services that will be given. In the document by Cruzbuy (2013), detailed information regarding the tasks, objectives, materials, details, methods, costs, and timeline for purchasing and constructing something is thoroughly explained.The scope of work can also explain how the job should be done. Unclear job description can cause work that is not satisfactory and takes longer and costs more than expected (Cruzbuy, 2013). The scope of work for any procurement should include these points: (i) what is needed to be done, (ii) who will do the tasks, (iii) when the tasks should be completed, (iv) where the tasks should be done, and (v) how performance will be evaluated. Xia et al. (2016) conducted a study and discovered that having a clear understanding of a project's definition can have an impact on how well the project performs. The clarity of the project's definition affects the quality of the project's design and the communication within the project team. The quality of the design then indirectly affects the project's performance through communication. Just like the study by Ghadamsi and Braimah (2016), the recent study by Rasul, Rogger, and Williams (2021) also found similar results. According to their study, when

tasks are clear from the beginning, the impact of incentives and monitoring on task completion is less negative, which supports the theories of task clarity and goal ambiguity. Therefore, it hypothesizes that:

H_2. Clarity of scope definition has a positive effect on the performance of the procurement

2.5.3 High-quality level required and Performance

To make sure that the things we buy are of good quality, we need to pay attention to three things: the materials used, how well they are made, and how they are designed (Thomas et al. , 2002) These rules are usually said in a way that describes how something works, what it does, and how it looks (Love et al. , 1998; Thomas et al. , 2002) You need to pay close attention to these requirements when building something because they are important for making sure the procurement is of high quality. This factor was measured by looking at how well the work was done, whether the final product was good for the users, and if the clients were happy with the quality of the final product. Vaidyanathan & Devaraj (2008) found strong evidence that process quality, logistics fulfilment quality processes, and e-procurement satisfaction performance are related to each other. Additionally, the discoveries made by Balaeva et al. (2022), a study shows that most people think that having good quality items available and completing contracts on time are the most important factors for making procurement efficient. To make procurement better, the regulator should clearly say what they need and think about what the main people involved want. Therefore, we hypothesize that:

H_3. High-quality level required has a positive effect on the performance of the procurement.

2.5.4 Clear definition of procurement parties' responsibilities and Performance

The duties of the people involved in the procurement process (client, supplier, and consultants) depend on how much they are involved in delivering the procurement. How well the parties understand and explain their roles directly helps with the success of purchasing (Chan et al.,

2001). It is important for everyone to know their duties and responsibilities clearly in order to avoid confusion and prevent negative effects on performance (Alkhalil, 2002). Therefore, it is hypothesized that:

H_4. A clear definition of procurement parties' responsibilities has a positive effect on the performance of the procurement.

2.5.5 Client involvement in the procurement and Performance

Client involvement in procurement is really helpful in many ways. One important benefit is that it allows clients to work well with the rest of the procurement team. This makes it easier for everyone on the team to communicate with each other. The procurement client can be involved in different ways based on the contract, their experience, and the resources available (Lim & Ling, 2002). This then helps determine the best procurement method to use. The study by Janipha, Ahmad, and Ismail (2015) found that when clients participate in specific purchasing activities, it indirectly affects the quality of the construction environment and the overall success. Furthermore, a study by Kipkorir (2013) showed that involving suppliers early in strategic procurement is very important. Most of the people surveyed strongly agreed that early supplier involvement is important in strategic public procurements and it affects performance. Therefore, it is hypothesized that:

H_5. Client involvement in the procurement has a positive effect on the performance of the procurement.

2.5.6 Controllable procurement variations and Performance

Changes that happen during the procurement process can have a bad impact on how well the procurement works. According to Turner (1990), things often change while building something and this happens because there is not enough or wrong information about buying and getting things for the building. Changes in what you want to buy or how you want it can make it more

expensive and take longer to get it (Hashim, 2006). From the perspective of clients, variations can be grouped into two categories based on how predictable they are before starting the procurement process. Controllable variations are ones that could be managed or prevented, such as design errors. Uncontrollable variations are ones that cannot be controlled or anticipated, such as unexpected changes. Modifying your desired purchase or preferences may lead to higher expenses and a lengthier waiting time to acquire it (Hashim, 2006). Controllable variation means how much the procurement can be changed and controlled before construction begins. The findings of studies by Ghadamsi and Braimah (2017) and Glock and Grosse (2021) indicate that both controllable variation and controlled production variation have a direct and indirect influence on performance. Therefore, the researcher hypothesized that:

H_6. Controllable procurement variation has a significant effect on the performance of the procurement.

2.6.7 Cost certainty and Performance

Clients want to know how much something will cost before they get it. This is important so they can plan and prepare for the money they will need (Thomas et al., 2002). It also helps them make a plan for any unexpected situations. This criteria shows how well the client and supplier agree on the costs and expenses of buying something at the beginning of the contract (Chan, 2007). The studies by Ghadamsi and Braimah (2017), Kumar and Ganguly (2021), and Eriksson and Westerberg (2011) show that the amount of money budgeted for a project has a strong and positive influence on how well the procurement process goes. Therefore, the researcher hypothesized that:

H_7. Cost certainty has a positive effect on the performance of the procurement.

2.5.8 Time certainty and Performance

Knowing how long a procurement will take is very valuable for the client. It helps them plan properly and use their resources wisely so they don't go over budget or take longer than expected. This refers to how sure we are that a particular purchase will be done by the date agreed upon by the customer and supplier. So, it became clear that the measure of how well a client and supplier agreed on a reasonable timeframe for procurement was important. Vaidyanathan and Devaraj (2008) found that how quickly orders are delivered is more important for customer satisfaction in online purchasing than how accurate the orders are.

Therefore, the researcher hypothesized that:

H_8. Time certainty has a positive effect on the performance of the procurement.

2.5.9 Effective communication between procurement parties and Performance

Working well together and communicating well with each other helps suppliers be successful in procurement (Seng & Yusof, 2006). This is a key factor in choosing which suppliers to work with. It is very important in making sure that procurement goes well (Love, 2008). This standard was measured by seeing how well the people involved in procurement, like the client, supplier, and consultant, are able to talk and understand each other during the planning and building stages of the procurement process (Edmond et al., 2008; Mohsini and Davidson 1991; Seng and Yusof, 2006). Wiengarten et al. (2010) found that how well information is shared and decisions are made together can affect performance. However, it depends on the quality of the information shared in the supply chain. More simply, sharing information helps improve how well a task is done when both good and bad information is exchanged. However, working together and making decisions together only help improve how well a task is done when the information is good. Therefore, the researcher proposed that:

H_9. Effective communication between procurement parties has a positive effect on the performance of the procurement.

2.5.10 Level of competence and experience of the supplier and Performance

How experienced and skilled suppliers are affects how well they can understand and use ideas. According to Pramen et al. (2012), the skill and ability of suppliers in the procurement process played a big role in choosing them. This can be understood because when companies are buying things, they need to work with suppliers who are really good at managing the buying process. This criterion shows how skilled and experienced suppliers need to be in order to handle procurements well. (Adnan et al., 2012; Seng and Yusof, 2006). The Barsemoi, Mwangagi & Asienyo (2014) study found that when staff members are competent, it helps improve procurement performance. In other words, when staff members are skilled and capable, it has a positive impact on how well procurement tasks are carried out. Instead, Decarolis et al. (2020) discovered something different. They found that people mistakenly believe that competence is linked to performance results, even though the actual correlation is very weak and not statistically important. However, when factors like agency were taken into account, the association became stronger and statistically significant. However, the researcher hypothesized that:

H_{10}. The level of competence has a positive effect on the performance of the procurement

2.5.11 Moderating Effect of Size Firm and Age of the Firm

Firm size can change how the criteria for buying things affects how well the buying goes. Carr et al. (1999) suggested that the size of the company should be considered as a factor that affects the relationship between the supply chain or procurement and performance. Big construction companies and small construction companies have different ways of managing their supply chain and purchasing materials. Big companies focus more on the whole process of buying materials (Ullah, Narain & Singh, 2015). Big companies have enough abilities and money to put strategies into action, but smaller companies still have limitations because of their lack of

resources. Big companies have technology that helps them manage their relationships with customers and make decisions. This technology can also be used to help share information with partners and make it easier to manage supply chains (Fawcett et al., 2009).

The age of a company also affects how the selection criteria for buying things and how the buying process itself impacts the performance of the company. Older companies usually have more extra resources than younger companies (Penrose 1959). As companies get older, they become more set in their ways and less likely to change because they have already set up ways of doing things, plans, and gained specific knowledge for their purchasing needs (Hannan et al. 2007; Ranger-Moore 2017). Yu and Lee (2017) support this idea by proving that when procurement clients work together within organizations, it improves their innovation performance. More importantly, this impact is more powerful (less powerful) for companies that focus more on trying new things (using existing resources). Furthermore, older or bigger companies receive more advantages when they work together with research organizations. Therefore, it is hypothesized that:

H_{11}: *Firm size positively moderate the relationship between procurement selection criteria and procurement performance.*

H_{12}: *Firm age adversely moderate the relationship between procurement selection criteria and procurement performance.*

Table 2.2. Literature Review Table

Author(s)	Article Title	Method	Key Results/Findings
Hai & Watanabe (2014)	The status quo and perspective for improvement of public works procurement performance in Vietnam.	Quantitative	The findings showed that the public procurement under the price based environment has performed poorly and threatened not only value of public investment but also stability of the construction industry.
Foros, Nguyen-Ones & Steen (2021).	The effects of a day off from retail price competition: evidence on consumer behavior and firm performance in gasoline retailing.	Longitudinal	A conventional price search of where to buy reduces firms' profitability. In contrast, consumers who are aware of the cycle and spend effort on when to buy have a positive impact on firms' profitability. If consumers spend effort on when to buy, they attempt to tank during low price windows. By its very nature, this shrink consumers' ability to compare prices at several outlets.
Eriksson & Westerberg, (2011)	Effects of cooperative procurement procedures on construction project performance: A conceptual framework	Quantitative	cooperative procurement procedures (joint specification, selected tendering, soft parameters in bid evaluation, joint subcontractor selection, incentive-based payment, collaborative tools, and contractor self-control) generally have a positive influence on project performance (cost, time, quality, environmental impact, work environment, and innovation)

Author(s)	Article Title	Method	Key Results/Findings
Xia, Xiong, Skitmore, Wu & Hu, (2016).	Investigating the impact of project definition clarity on project performance: Structural equation modeling study.	Structual Equation Model	The results show that in the study population all three items impact the project performance, but the link between design quality and project performance is indirect. Instead, the clarity of project definition affects project performance indirectly through design quality and project communication and design quality affects project performance indirectly through project communication.
Ghadamsi & Braimah, (2016).	The impact of design-bid-build procurement methods on project performance in Libya.	Qualitative Method	The key findings of the study reveal that 11 out of its 12 common selection criteria exhibit a significant contribution to one or more project performance criteria (time, cost and quality). These common selection criteria includes, High price competition, Clarity of scope definition, Complexity of design, High quality level required, Clear definition of project parties' responsibilities, Client involvement in the project, Controllable project variations, Cost certainty, etc.
Rasul, Rogger & Williams, (2021)	Management, organizational performance, and task clarity: Evidence from ghana's civil service.	Quantitative	Consistent with theories of task clarity and goal ambiguity, the partial relationship between incentives/monitoring and task completion is less negative when tasks are clearer ex ante and the partial relationship between

Author(s)	Article Title	Method	Key Results/Findings
Vaidyanathan & Devaraj (2008)	The role of quality in e-procurement performance: An empirical analysis.	Quantitative	The results indicate strong support for the relationships between information flow process quality, logistics fulfillment quality processes, and e-procurement satisfaction
autonomy/discretion and task completion is more positive when task completion is clearer ex post.			
Balaeva et al. (2022)	Public procurement efficiency as perceived by market participants: The case of Russia.	Quantitative	The analysis reveals that, despite the importance of fighting corruption and increasing competition, most participants consider the supply of high-quality goods and timely contract execution the most important criteria that influences procurement efficiency. To improve procurement efficiency, the regulator should clearly specify requirements and consider the main participants' interests
performance. One of the surprising findings of our study is that fulfilled order timeliness has a significantly greater impact on satisfaction than fulfilled order accuracy.			
Janipha, Ahmad & Ismail (2015).	Clients' involvement in purchasing process for quality construction environment.	Sytematic Literature Review	The results indicate that clients does involve in certain purchasing process activities and indirectly give impact to the quality of construction environment.

Author(s)	Article Title	Method	Key Results/Findings
Kipkorir, J. (2013).	The role of proactive procurement on strategic procurement performance at public institutions in Kenya: a survey of Rongai sub-county in Nakuru county.	Descrptive Research	On Early Supplier Involvement, research findings showed that 81% of the respondents atRongai Sub-County were aware of and held that Early Supplier Involvement in strategic procurement performance was of great importance while 19% of the respondents were of the contrary opinion on the importance of Early Supplier Involvement. 58% of the respondents Strongly Agreed and that 6% strongly disagreed that Early Supplier Involvement was of any importance in Strategic Public Procurements.
Ghadamsi & Braimah, (2017).	Examining Relationship between Design-Bid-Build Selection Criteria and Project Performance.	Survey	The study findings show that only 8 out of the 12 common selection criteria exhibit significant correlations with one or more project performance outcomes (time, cost and quality) as follows: (1) the criteria relating to “certainty of project duration”, “ cost certainty”, “clarity of project functionality” and “involvement of project client” are positively associated with project cost performance; (2) those relating to “design complexity” and “organising and reviewing project activities” are positively associated with time performance;

Author(s)	Article Title	Method	Key Results/Findings
			(3) the criterion relating to "project quality level required" is negatively associated with time and cost performance, whilst it is positively associated with quality performance; and finally (4) criteria relating to "controllable project variations" and "clarity of project functionality are a positively associated with quality performance outcome
Glock & Grosse, (2021)	The impact of controllable production rates on the performance of inventory systems: A systematic review of the literature	Systematic Literature Review	We identified a strong focus on the rigid control case in the sampled papers. The flexible control case that has enjoyed less attention, however, offers the production planner the opportunity to better align production and demand, leading to lower inventory levels. Especially in today's dynamic business environment, flexibility demands are increasing in production, and controllable production rates are one option to handle dynamics in customer demand leading to performance
Kumar and Ganguly, (2021)	Non-financial e-procurement performance measures: Their interdependence and impact on production cost	Structural equation modelling	The present empirical study found that non-financial performance measure of e-procurement, namely, transparency, coordination, efficiency and effectiveness are leading indicators of the impact of e-procurement adoption

Author(s)	Article Title	Method	Key Results/Findings
			on production cost. This paper suggests that managers should try to design the e-procurement platform or opt for third party platform which reduces transaction cost to a minimum for enhanced coordination, work on transparency policy with maximum disclosure of information for enhanced transparency and ask for a fast and responsive system for enhanced efficiency and effectiveness.
Wiengarten, et al. (2010)	Collaborative supply chain practices and performance: exploring the key role of information quality	Quantitative	The study illustrates that the impact of collaborative supply chain practices (i.e. information sharing, incentive alignment, joint-decision making) on performance varies significantly depending on the quality of information that is exchanged throughout the supply chain. Specifically, whilst information sharing improves operational performance when low and high quality information is exchanged, incentive alignment and joint decision making only improve operational performance when the information is of high quality.

Author(s)	Article Title	Method	Key Results/Findings
Decarolis et al. (2020)	Bureaucratic competence and procurement outcomes.	Ordinary Least Square	In line with the descriptive evidence, a naive association between competence and performance results in an estimate that is negative (but close to zero) and not statistically significant; but the coefficient turns positive and significant as soon as additional controls are such as agency was included.
Barsemoi, Mwangagi & Asienyo, (2014).	Factors influencing procurement performance in private sector in Kenya.		The study establish a strong positive correlation of 70% between staff competence and procurement performance indicating that staff competence positively affect procumbent performance of Henkel Chemicals (E.A), that is to say that when staff competence improves, it automatically improves procurement performance measured through the company's service delivery.
Fawcett, Allred, Magnan, and Ogden, (2009)	Benchmarking the viability of SCM for entrepreneurial business model design	Survey	Benchmarking the viability of collaborative SC business models using a contingency, resource-based-view assessment paradigm reveals a perplexing paradox. Managers at small firms suggest that the majority of the benefits of SCM are within their reach. They also note that the barriers to implementation do not intimidate them.

Author(s)	Article Title	Method	Key Results/Findings
			However, they also report that they are not actively pursuing SCM as a strategic weapon. The research shows that the best way to avoid the cost squeeze and death spiral encountered by small business in today's global SC environment is to create the collaborative capabilities promoted by SCM. That is, while large firms leverage size firms must leverage creative collaboration to insinuate themselves into competitive SC teams to drive long-term growth
Yu & Lee, (2017)	When should a firm collaborate with research organizations for innovation performance?	Quantitative	The results show that collaboration with research organizations has a positive impact on innovation performance. More importantly, this effect is stronger (weaker) for firms with a strong orientation toward exploration (exploitation). In addition, older or larger firms obtain greater benefits from collaboration with research organizations.

Table 2.3. Lessons from Empirical Findings

Author(s)	Article Title	Lesson
Hai & Watanabe (2014)	The status quo and perspective for improvement of public works procurement performance in Vietnam.	Relying solely on price-based public procurement can lead to subpar performance, undermining both the quality of public investments and the stability of the construction industry.
Foros, Nguyen-Ones & Steen (2021).	The effects of a day off from retail price competition: evidence on consumer behaviour and firm performance in gasoline retailing.	Client awareness of timing purchases can enhance firm profitability, as opposed to conventional price-focused searches, which can diminish profitability by limiting price comparisons across outlets.
Eriksson & Westerberg, (2011)	Effects of cooperative procurement procedures on construction project performance: A conceptual framework	Implementing cooperative procurement procedures positively impacts various aspects of project performance, including cost, time, quality, environmental impact, work environment, and innovation.
Xia, Xiong, Skitmore, Wu & Hu, (2016).	Investigating the impact of project definition clarity on project performance: Structural equation modeling study.	The key takeaway is that while design quality, project definition clarity, and project communication all influence project performance, their relationships are interconnected, with project definition clarity impacting performance through design quality and communication, and design quality impacting performance through project communication.

Author(s)	Article Title	Lesson
Ghadamsi & Braimah, (2016).	The impact of design-bid-build procurement methods on project performance in Libya.	Most of the widely used selection criteria, such as high price competition, clear scope definition, design complexity, high-quality standards, defined project responsibilities, client engagement, controlled variations, and cost certainty, notably impact project performance across dimensions of time, cost, and quality.
Rasul, Rogger & Williams, (2021)	Management, organizational performance, and task clarity: Evidence from ghana's civil service.	Clear task definitions and goal clarity play a crucial role in influencing how incentives/monitoring and autonomy/discretion impact task completion: when tasks are clearly defined beforehand, the negative impact of incentives/monitoring is reduced, and when task completion is evident after the fact, autonomy/discretion tends to have a more positive effect.
Vaidyanathan & Devaraj (2008)	The role of quality in e-procurement performance: An empirical analysis.	The significant influence of information flow, logistics fulfilment quality, and e-procurement satisfaction, revealing the unexpected insight that timely order fulfilment has a greater effect on satisfaction compared to order accuracy.
Balaeva et al. (2022)	Public procurement efficiency as perceived by market participants: The case of Russia.	While addressing corruption and promoting competition is crucial, procurement efficiency is primarily driven by the supply of quality goods and timely contract execution; thus, effective regulation should focus on specifying requirements and aligning with participants' interests.

Author(s)	Article Title	Lesson
Janipha, Ahmad & Ismail (2015).	Clients' involvement in purchasing process for quality construction environment.	Client involvement in specific purchasing activities can indirectly influence the quality of the construction environment.
Kipkorir, J. (2013).	The role of proactive procurement on strategic procurement performance at public institutions in Kenya: a survey of Rongai sub-county in Nakuru county.	Most people recognize the significant importance of Early Supplier Involvement in strategic procurement performance.
Ghadamsi & Braimah, (2017).	Examining Relationship between Design-Bid-Build Selection Criteria and Project Performance.	Some selection criteria, such as project duration certainty, cost certainty, client involvement, and clear functionality, positively impact project cost performance, while design complexity and effective project activity organization positively influence time performance, underscoring the complex interplay between selection criteria and project outcomes.
Glock & Grosse, (2021)	The impact of controllable production rates on the performance of inventory systems: A systematic review of the literature	While the rigid control case has been the main focus, the flexible control case, which enables better production-demand alignment and reduced inventory in dynamic business environments, presents an essential option for enhancing performance amidst increasing demands for production flexibility.

Author(s)	Article Title	Lesson
Kumar and Ganguly, (2021)	Non-financial e-procurement performance measures: Their interdependence and impact on production cost	Non-financial performance measures such as transparency, coordination, efficiency, and effectiveness serve as leading indicators for the impact of eprocurement adoption on production cost, emphasizing the importance of designing or selecting platforms that minimize transaction costs, promote transparency through information disclosure, and prioritize a fast and responsive system for improved overall performance.
Wiengarten, et al. (2010)	Collaborative supply chain practices and performance: exploring the key role of information quality	The effectiveness of collaborative supply chain practices on performance is contingent upon the information quality exchanged, where while information sharing enhances operational performance regardless of information quality, incentive alignment and joint decision-making specifically enhance operational performance only when high-quality information is exchanged.

Author(s)	Article Title	Lesson
Decarolis et al. (2020)	Bureaucratic competence and procurement outcomes.	Establishing a connection between competence and performance may yield a non-significant negative estimate, but when accounting for additional factors like agency, the coefficient becomes positive and statistically significant, revealing a more nuanced relationship.
Barsemoi, Mwangagi & Asienyo, (2014).	Factors influencing procurement performance in private sector in Kenya.	Enhancing staff competence directly contributes to improved procurement performance, as evidenced by enhanced service delivery within the company.
Fawcett, Allred, Magnan, and Ogden, (2009)	Benchmarking the viability of SCM for entrepreneurial business model design	Small businesses must proactively foster collaborative capabilities, utilizing creative collaboration to integrate into competitive supply chain
Yu & Lee, (2017) When should a firm collaborate with research organizations for innovation performance? The moderating role of innovation orientation, size, and age. teams for sustained	growth and to avoid cost pressures seen in the global supply chain landscape.	Collaboration with research organizations positively influences innovation performance, with its impact being more pronounced for firms focused on exploration, and older or larger firms tend to gain more substantial benefits from such collaborations.

2.6 Conceptual Framework

As an initial step toward critically exploring this relationship, this sub-section presents a conceptual framework that sheds light on the theoretical basis of the perceived link.

The conceptual framework diagram displayed below (Fig. 2.1) shows the link between the items of the dependent variable and the independent variable as well as the mediating variable. Thus, the conceptual diagram establishes the link between high price competition, controllable project variations, effective communication, competence and experience of the supplier, clarity of scope definition, high-quality level required, time certainty, cost certainty, client involvement in the project and clear definition responsibilities as dependent variables on procurement performance as independent variable. It further establish the moderating role of firm size and age on the relationship between the procurement selection criteria and procurement performance.

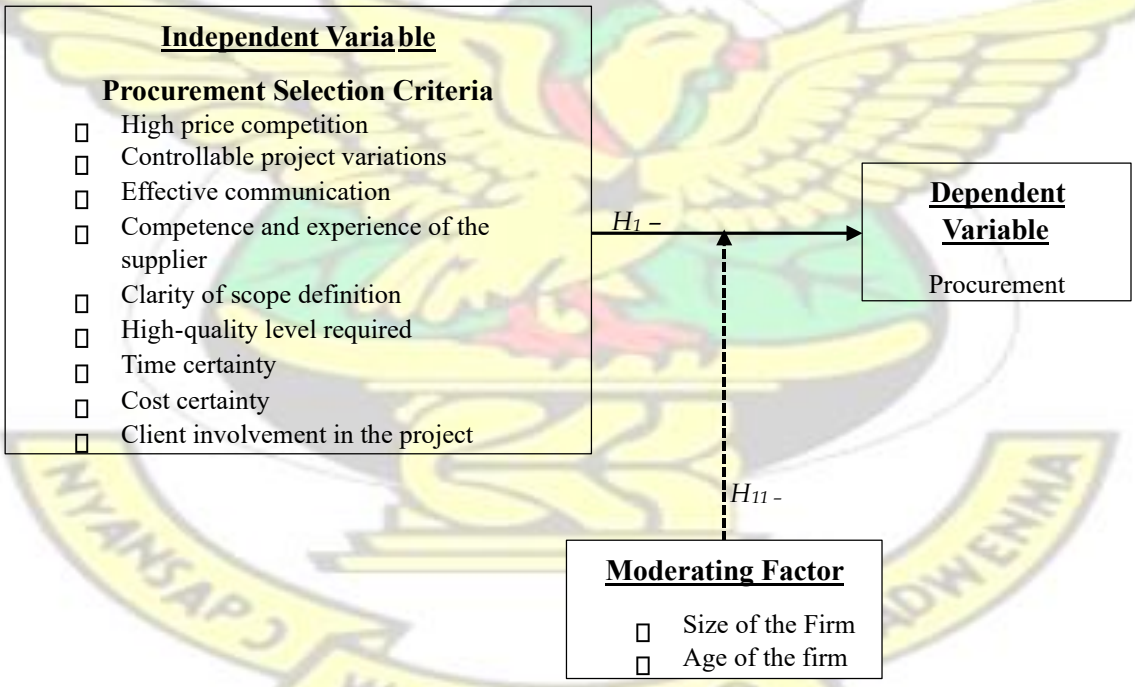


Fig. 2.1. Conceptual Framework Diagram (Source: Author's own construct

Sporrong (2011), noted that there are differences in procurement selection criteria across different sectors that influence project performance. Hence, procurement selection criteria may differ between public and private firm and between small firms and large firms (Testa et al., 2016). In view of this, Zhao et al. (2022), Kumar Kar, and Pani (2014) and Sporrong (2011) proposed that further research should be undertaken in different sectors to establish the best selection criteria, this defines the objective to identify the effective criteria for assessing and measuring procurement performance.

The objective underlying this study is that an appropriate procurement method rightly chosen for a given procurement delivery leads to successful procurement outcomes. Put differently, the level of performance expected of any procurement is influenced by the extent to which the procurement method used was suitable for the procurement in question (Eriksson & Westerberg, 2011; Mahon, 2011). With this in mind, clients are increasingly making use of a rational decision-making approach to select procurement methods based on suitable selection criteria (Jin et al., 2015; Eyitope et al, 2012; Love et al., 2008). The suitability of a given procurement method for a particular procurement as determined by such an approach (Jin et al., 2015; Chan, 2007) is often established by the extent to which the selection criteria favor or best suit the characteristics and requirements of the procurement in question (Xia et al., 2012). In order words, using a particular procurement method that best satisfies all the criteria that ensure its optimum use for a given procurement will result in successful performance and vice versa.

Beside the existing traditional procurement selection criteria as defined in the conceptual framework, studies such as these findings are supported in partial by studies such Adjepong and Anane (2022), Hamza, Gerbi and Ali, (2016), Mesa et al. (2017), Kiage (2013) and Kwakezi and Nyeko (2019) revealed that there are other factors such as procurement planning, staff competence, resource allocation and procurement procedure that affect procurement performance. According to Willy and Njeru, (2014), effective procurement planning significantly influences procurement performance by ensuring optimal allocation of resources, timely sourcing, and strategic supplier partnerships, leading to cost savings, reduced risks, and streamlined processes that enhance overall procurement outcomes. According to Kiage (2013) staff competence substantially impacts procurement performance by enhancing negotiation skills, contract management, supplier relationships, and decision-making abilities, resulting in more efficient processes, reduced errors, and better strategic alignment, thereby driving overall procurement effectiveness and success. Regarding resource allocation profoundly shapes procurement performance by determining budget distribution, workforce assignment, and technology investments, directly impacting procurement efficiency, supplier relationships, and risk management, thereby influencing the quality, timeliness, and cost-effectiveness of procurement outcomes (Adjepong and Anane, 2022; Kwakezi & Nyeko 2019). The procurement procedure on the other hand is noted to significantly shape procurement performance by setting the guidelines and steps for sourcing, supplier selection, contract negotiation, and quality control, directly influencing transparency, compliance, efficiency, and risk mitigation, which collectively determine the overall success and effectiveness of procurement activities (Kwakezi & Nyeko 2019; Kumar, Ozdamar, & Peng Ng, 2005).

CHAPTER THREE

METHODOLOGY AND ORGANIZATIONAL PROFILE

3.1 Introduction

The section discusses how the research was carried out, including the study design, population and sampling processes utilized for the investigation, the instrumentation used, and the data gathering and evaluation procedures are detailed below.

3.2 Research Design

Method and procedure preference should be suitable for evaluating purposes and priorities. The qualitative and quantitative methodologies are the two increasing methods of study. It is also possible to merge these two techniques, known often as the mixed method. In a single research report, Denscombe (2017) outlines the function of a blended approach to qualitative and quantitative approaches and noted these two methods can be combined. The two different types of approaches should be combined in terms of the two paradigms (Ritchie, Lewis, Nicholls, & Ormston, 2013) which have all very different ontological and epistemological contexts. With the end goal of this study, the research adopted the quantitative research approach.

The decision of this methodology depends on the assertion of Creswell (2013) who expressed that the researcher basically uses post-positivist case for creating knowledge when the quantitative methodology is received and uses processes of request, for example, examination and surveys, and gathering of information on predetermined instruments that yield factual information. Bryman and Cramer (2012) further noticed that the use of experiments, data, content investigation, social review and organized perception has been recognized as quantitative strategy. It is worth noting that the quantitative research method was adopted by the researcher helps to development knowledge base developed hypothesis and test theories (Creswell, 2013) which have all been discussed thoroughly in Chapter two. Also, the adoption of the quantitative method according to Bryman and Cramer (2012) helps to establish the causes

(that's, the determinants of work environment and job satisfaction) and effect. This current study is purely based on statistics and collection of statistical data. This is justified by Bryman and Cramer (2012) as a quantitative technique as they further noted that the quantitative method employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data and uses of experiments, statistics, social survey and structured observation.

This study also adopted a cross-sectional approach which allows the investigator to measure the outcome and the exposures in the study participants at the same time (Setia, 2016). The participants in a cross-sectional study are just selected based on the incl usion and exclusion criteria which in this study has to do with all employees associated with the organization chose for the study (Setia, 2016). Once the participants have been selected for the study, the investigator follows the study to assess the exposure and the outcomes. The cross-sectional research design was selected because it allows the investigator can study the association between the main variables of the study, recruit the study participants and examine the outcomes from the targeted population and also, because the investigator may estimate the prevalence of the outcome in those surveyed (Setia, 2016).

Financial and time has been noted as limitations to the study, hence, the cross-sectional design was adopted base on the assertion of Sedgwick (2013) who noted that cross sectional studies are generally quick, easy, and cheap to perform. More so, Sedgwick (2013) noted that the crosssectional research design is often based on a questionnaire survey and this is the data collection tool to be employed by the research. However, a cross sectional study may be prone to nonresponse bias if participants who consent to take part in the study differ from those who do not, resulting in a sample that is not representative of the population.

3.3 Research Purpose

The overall purpose of the study is to assess the impact of the procurement selection criteria on procurement performance. Thus, it is to establish the level of significance these selection criteria. Also, it is the aim of the study to establish if beyond the procurement selection criteria. There are other factors that can be considered to influence procurement performance.

3.4 Population

Population is defined as the collection of all individuals or items under consideration in a study (Weiss, 2012). It is the set of all elements of interest in a particular study. The target population includes all procurement managers and officers including management of the 46 public colleges in Ghana.

3.5 Sampling technique and sample size

In order to answer the research questions, it is doubtful that researcher should be able to collect data from all cases. Thus, there is a need to select a sample. It is the collection of elements of interest to a specific study. Since, researchers neither have time nor the resources to analysis the entire population so they apply sampling technique to reduce the number of cases.

3.5.1 Sampling technique

This research employed probability sampling, in that the sample is selected using a random selection method (Saunders & Lewis, 2017). Probability sampling is a research technique where each individual or unit in a population has a known and non-zero chance of being selected for inclusion in a sample (Singh & Masuku, 2014). This method ensures that the sample is representative of the larger population, allowing researchers to make valid statistical inferences and draw accurate conclusions about the entire population based on the characteristics observed in the sample. Common probability sampling methods include simple random sampling, stratified sampling, systematic sampling, and cluster sampling.

A simple random sampling was adopted for the study in order to give all participants that falls within the sample size drawn an equal chance to be selected to partake in the survey (Meng,

2013). Simple random sampling procedures have two advantages; first, this strategy doesn't rely upon the accessibility of specific workers or a particular individual, so all the members of the population will have the chance to respond on an equitable premise; also, human predisposition is negligible or avoided. Such qualities are the method of reasoning behind using the simple random sampling technique (Pimenta, Pinho, Silveira & Botelho, 2015). A good representative sample is the one that does away with bias and must be sufficiently enormous to cover the research focus and serve the research objectives. In this manner, utilizing simple random sampling was viewed as appropriate for this study, permitting any worker to be arbitrarily chosen, which would yield results that could represent the entire population and it would have a high tendency of generalization (Bryman & Bell, 2015).

3.5.2 Sample size

In determining the sample size, first the researcher established a sample frame of individuals responsible for negotiating and managing contracts with suppliers as well as those handling relationships with key suppliers to ensure effective collaboration and performance were established and this was aligned to the various research questions. In view of this, the researcher deliberately selected project management personnel, procurement managers, and purchasing officers, finance managers, top management, contractors and project financiers since they were able to appropriately answer the research questions and due to the fact that meet the sample frame criteria. The researcher subsequently selected the sample size on the basis on previous study establishing the thumb rule for quantitative study.

The appropriate sample size for a survey is generally not a straightforward decision and can sometimes be very complex. The question is one that usually has no conclusive answer (Bryman & Bell, 2015). Nevertheless, there are different methods that can be used to estimate the sample size, based on the statistical power required to report significance or nonsignificance accurately. For example, Brewerton and Millward (2001) projected the required participants of a survey for various statistical tests to range from 14 to 50 for a large effect size, and to range

from 35 to 133 for a medium effect size. Ogunbiyi (2014) presented a rule-ofthumb dictating a minimum of 30 responses being adequate for research based in the procurement and supply chain. By using a standard error of, say, not more than 5 per cent the minimum sample size would be 100. On the basis of the foregoing argument the researcher chose a sample size of 100 which comprises of procurement manager and the college finance managers who are known to have a first-hand information on the procurement methods and selection criteria and performance.

3.6 Data Collection Instrument and Procedure

There are several methods to carry out a survey. Questionnaires are widely used, but other techniques such as in-depth interviews, content analysis, and observation can also be used (de Vaus, 2014). Owing the quantitative nature of the study and the nature of research questionnaires to be addressed, the survey questionnaire was selected for the study. According to Creswell (2013), a survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population, by studying a sample of that population. A well-designed survey questionnaire was used as the data collection instrument. Saunders and Lewis (2017) asserted that using a survey instrument as a data collection tool is productive, particularly when capturing information from a sizable number of people because participants will be asked to answer the same set of queries, preventing prejudices in the data gathering process.

The questionnaire was created with closed-ended questions that were graded on a Likert scale. According to Batchelor and Miao (2016), attitudinal measures in the form of Likert scale, can generate more valid data than single measures. The five-point scale was seen as the most appropriate to choose options that are far enough apart while at the same time, keeping them close enough to ensure that the researcher does not lose important point. Similarly, a Likert scale of 4 or more is also acceptable (Joshi, Kale, Chandel, & Pal, 2015). The use of a Likert scale of 6 or more was not considered, as they are perceived by the researcher to cause confusion

among respondents. Bernard (2000) stated that there is no best format on the choice of Likert scale; most Likert scale items have an odd number of response choices: three, five, or seven with the idea of including a neutral midpoint; there can also be an even number of response choices which forces respondents to ―take a stand while an odd number of choices allows the respondents to ―sit on the fence.

The questionnaire was divided into five sections. Section 'A' presented the respondents' demographic information such as years of experience, sector of the organization, educational status, size of the organization and years of operation. Section 'B' covered the questions on the criteria for assessing and measuring procurement performance. Section 'C' was also on the procurement selection criteria and the final section addressed the other factors affecting procurement performance. The measurement from the close-ended questions in all the sections were; *1= strongly disagree; 2= disagree; 3 = uncertain; 4= agree; 5= strongly agree*.

The common types of surveys are mailed, telephone and interview surveys. Out of these, a mailed questionnaire survey was chosen as the mode for the data collection process. The sample size for the study was quite huge and dispersed, hence to aid easy accessibility, an online Google survey questionnaire was developed and a short link was generated which was sent through email addresses and other internet communication platforms to the various respondents. According to Menon and Muraleedharan (2020), mailed questionnaire surveys tend to have a lower response rate, which will distort and hence flaw a sample. However, one of the main reasons for choosing a mailed questionnaire survey was to ensure anonymity of the respondents. Also, mailed questionnaire through electronic means facilitate an immediate submission of responses which the researcher can collect, accumulate and use immediately after getting a reasonable number. Most of the Google links were mainly sent through the social media (WhatsApp) page and email addresses provided by the respondents of the workers who were sampled for the study. Also, this data was collected and accumulated within 10 working days

for collective analysis. In addition to the Google survey questionnaire, a hard copy was administered to other workers who do not have the dexterity to respond through the Google survey questionnaire. This was also completed and taken immediately after it is done.

3.7 Data Analysis

The data collected from the respondents were analysed with SPSS 25.0 statistics and AMOS graphics tool to produce a descriptive analysis, correlation, linear regression and structural equation model analysis as well (to establish the latent relationship between the variables and test the hypothesis of the study). Upon the completion of entering the data into the SPSS software, data was proofread and checked for errors. This was achieved by checking the data at random. Although this was time consuming, it was necessary to ensure the accuracy of the data entry process. Data type identification was also given due consideration. Type of data can be identified in four different ways based on the scales of measurement (George & Mallery, 2019) i.e. Nominal, ordinal, interval and ratio. These data types are further grouped into categorical data and continuous data. Melhart et al. (2020) presented nominal and ordinal scales as categorical data; internal and ratio scales as continuous data. Categorical scale data use nonparametric measures, such as logistic regression models and log linear models. Continuous scale data use parametric measures such as t-test, ANOVA, regression (George & Mallery, 2019).

The gathered data from the questionnaire survey in this study were categorical data, mainly ordinal and nominal data. Identifying the type of data was important as this enables the researcher to apply the appropriate statistics in the data analysis process. Descriptive statistics was used for the data analysis. Chakraborty, Byshkin, and Crestani, (2020) stated that descriptive statistics generally characterise or describe a set of data elements, by displaying the information graphically or describing its central tendencies and how it is distributed while inferential statistics try to infer information gathered by sampling. The significant level adopted

throughout the analysis was 5% (0.05). The description of methods and tests adopted for this study are given below.

3.8 Measures, Validity, and Reliability

This study relies heavily on earlier work for key constructs that have been quantitatively examined. Specifically, items were adapted from previous studies by making changes to words and sentences to enhance understanding of Procurement selection criteria and procurement performance. The study explained the specific items used to measure the constructs and their reliability below. The study incorporates past research to numerically assess crucial variables under investigation. The researchers changed the words and sentences of previous studies to help people in Ghana better understand procurement selection criteria and its impact on procurement performance.

The procurement selection criteria items were adopted from Ghadamsi (2016) study which identified 23 items of such procurement selection criteria which were identified as the most commonly use criteria for decision making in the construction firm. The items were grouped under two main methods; namely, Design and Build procurement method (DB) and Design, Bid and Build (DBB). The key items adopted were, "High price competition", "Clarity of scope definition", "High-quality level required", "Clear definition of project ***parties'*** responsibilities", "Client involvement in the procurement", "Controllable procurement variations", "Cost certainty", "Time certainty, "Effective communication", "Level of competence and experience of the supplier".

Procurement Performance items were adopted from Thomas et al. (2002) and Eriksson and Westerberg (2011) studies who identified cost and time certainty and quality respectively as key indicators of procurement performance. Some of the items were "Procurements are completed on timely basis", "Procurements is cost effective", "Procurements of resources meets quality standards" and "Procurement process meets Value for money."

Regarding procurement planning and staff competence 9 and 10 items were identified respectively in Adjepong and Anane (2022) study. These items for each variable were adopted for this study. Procurement planning items adopted include statements such as, “Procurement plan identify materials as per the company needs”, “Procurement plan helps to decide when to buy”, “Procurement planning helps in resource allocation”, “Procurement planning helps to determine a total value of the anticipated cost of the requirement”, “Poor procurement planning leads to big budget deficits”, etc. Staff competence items includes statement such as, “Staff training improves procurement performance”, “loss of key competencies affects procurement performance”, “Staff creativity improves procurement performance”, “Conflict among procurement participants”, “Inadequate supplier experience”, “Poor leadership skills for procurement manager” etc. Procurement Procedure and resource allocation items were adopted from Hamza, Gerbi and Ali, (2016) study which has 8items and 5 items respectively. The key item statements for resource allocation includes, “Unavailability of resources as planned through the procurement duration”, “Adequate allocation of resource”, “Resource availability and confirmation should be the basis of tender award”, “Resource allocation should be adequate to ensure efficiency”, “Budget reviews should be able to cater for changes in the economic environment”. Also, some of the items for procurement procedure items statements are; “Knowledge of Procurement procedure reduces complexity of procurement process and compliance”, “Procurement procedure eases the organizing and reviewing procurement activities”, “Effective procurement procedure reduces delay in delivery of materials”, “Validity means how accurately something represents the things being studied”, etc.

Content validity means making sure the questions in a survey are asking about the right things. In this study, the focus is on making sure the survey is given the same way every time. To make things fair, the researcher made sure that each company received the same set of questionnaires. This was done so that nobody would be shown any special treatment. To check if the tool used in the study is accurate, the researchers calculated the Cronbach Alpha reliability coefficient,

composite reliability test and average variance estimate (AVE). Cronbach's alpha helps to determine if a test is reliable or not. A score of 0.7 or higher is good for the Cronbach alpha test, according to Hair, Black, Babin, Anderson, and Tatham (2010). George and Mallery (2003), provided the following thumb rule for a cronbach alpha and composite reliability results: $\alpha >$ 0.9 (Excellent), > 0.8 (Good), > 0.7 (Acceptable), > 0.6 (Questionable), > 0.5 (Poor), and < 0.5 (Unacceptable).

3.9 Ethical Consideration

Singer and Vinson (2012) argue that ethical considerations must be made in the design stage of a case study. According to Runeson and Höst (2014), there are several key elements in ethical considerations informed consent, and confidentiality. The form of informed consent included the purpose and scope of the study, introduction of the researcher, and participation means of the participants and the estimated time required from them. In the consent form which was attached as in the introductory part of the questionnaire, the principles of confidentiality and voluntary participation were emphasized. The data collection wouldn't be conducted if the potential participation didn't give their consent for participating in the research. The participants were also informed that they could exit the research at any stage of the research if they wanted to.

To deal with the dual relationships occurring in the data collection, the researcher mentioned the following points to the participants the principle of voluntary participation, the participants' right to exit the research at any stage of the research, the researcher's role as an external researcher, who was independent in the case organisations, and the principles of anonymity and confidentiality. These points were mentioned in the form of consent before asking the participants to partake in the study (Ritchie et al., 2013).

Anonymity means the identity of the participating parties not being recognized by the people outside the research team (Ritchie et al., 2013). Confidentiality means avoiding the direct and

indirect attributions of comments, in reports, publications or presentations of the research findings, to identify participating parties (Ritchie et al., 2013). The anonymity and confidentiality issues were related to the two levels of the participating companies in this research: the participating organizations and the respondents (Andrews & Pradhan, 2011).

3.10 Organizational Profile

National educational systems are not static. They have changed in response to national development plans and will continue to do so, so long as governments continue to search for new schemes and initiate policies that will improve the living conditions of their people. In Ghana, such changes in the educational systems have over the years influenced the growth of educational opportunities, which have resulted in expansion in teacher education institutions.

The first teacher training institution (i.e. Presbyterian Training College [PTC]) in the country was established by the Basel Mission in 1835 at Akropong in the Eastern Region, after that several missions followed and by 1937 (i.e. a century after the establishment of PTC) there were only six teacher training institutions (Aboagye, 2000). The location and years in which the five other colleges were established during the period, according to Aboagye (2000), are Amedzofe, 1894; Wesley College Aburi, 1922, later Kumasi, 1924; OLA Cape Coast, 1928;

Hohoe St Francis, 1930;

Navrongo, John Bosco, 1937. Before 1950 there were twelve teacher training colleges with only two (i.e. Kommenda and Tamale) being established by the Central Government (Aboagye, 2000). The Government Training College (GOVCO) at Peki, which was later named Peki Training College and now called Peki College of Education was one of the colleges established by government in 1954 following the implementation of the Accelerated Development Plan for Education (ADPE) in 1951. Currently, there are 48 Colleges of Education (CoE) in Ghana, up from 38 in 2014. The increase is due to the government absorbing 10 private CoE with the aim

of expanding the infrastructural facilities in the colleges. These CoE, prior to the current reforms which began in 2014, offered three-year Diploma in Basic Education (DBE) programmes. However, there are also two universities (University of Cape Coast and University of Education, Winneba) which are traditional teacher education institutions with the mandate to prepare teachers to teach at various educational levels including at the basic schools.

In Ghana, the vision of pre-tertiary teacher education programme is to "prepare teachers to enable them function in the basic and second cycle schools and to develop and nurture them to become reflective and proficient practitioners capable of providing quality education for Ghanaian children" (Ministry of Education [MOE], 2012).

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presented the analysis from the data that was collected from hundred (100) respondents on their socio-demographic background, criteria for assessing and measuring procurement performance, and factors besides procurement selection (PSC) criteria that influence procurement performance (PP). These descriptive analyses are presented in the tables and diagrams below. It also discussed the findings of the study after running a correlation and regression analysis to establish the relationship between PSC and PP to demonstrate the criteria with significant influence on PP.

4.1 Demographic/Background Information of Respondents

This section presented information of the respondents on employees' experience, the sector the organizations operate in, employees' educational background, the size of the organization and years of operation.

Table 4.1. Personal and Organizational Information

Variables		*Frequency*	*Percent*
Indicate your years of experience with the firm	Less than 5	24	24.0
	5-10 years	57	57.0
	11-15 years	6	6.0
	16-20 years	10	10.0
	More than 20 years	3	3.0
	Total	**100**	**100.0**
Which of the following best describes the sector of your organization?	Public Sector	99	99.0
	Private Sector	1	1.0
Variables		*Frequency*	*Percent*
	Total	**100**	**100.0**
Please indicate which of the following best describe your academic degree	Diploma/HND	5	5.0
	Bachelor's Degree	63	63.0
	Master's Degree	31	31.0
	Doctorate Degree	1	1.0
	Total	**100**	**100.0**
What is the number of employ in your organization?	1-19	8	8.0
	20-49	2	2.0
	50-79	2	2.0
	80-99	1	1.0
	100 & above	87	87.0

	Total	**100**	**100.0**
How many years havethe organization been operating?	6-10 years	2	2.0
	11-15 years	2	2.0
	16-20 years	3	3.0
	above 20 years	93	93.0
	Total	**100**	**100.0**

Source: Field Data, 2023

The analysis displayed in table 4.1 showed that 24% (24) of the respondents have worked with the firm at a maximum of 4 years. The study also indicated that 57% (57) of the respondents have worked with their respective organizations for not less than 10 years and 6% (6) have worked with their respective firms for a maximum of 15 years. The category of workers who had worked with their firms for a maximum of 20 years is 10% (10). More so, 3% of the total sampled respondents have worked with their firms for a minimum of 20 years. This indicates that most of the workers have worked for the firm for quite some time to know issues surrounding their procurement criteria their firms use in selecting in appraising a procurement project and the factors use measure procurement performance of a project.

The analysis displayed in Table 4.1 also showed that most of the respondents work in the public sector and this represents 99% of the total respondents. This indicates that only 1% of the total respondents works within the private sector. The public sector is known to be strictly guided by the procurement law and hence, they have strict procurement rules and principles guiding their procurement actions. They indicates that, the procurement criteria and performance indicators cannot be easily compromised. Although the private sector are guided by the same procurement law, the firms can compromise a performance criteria or procurement selection criteria for their sole benefit. This further indicates that majority of the respondents will be on the basis of stringent establish rules for procurement selection criteria and performance measurement.

Additionally, the analysis on educational background showed that most of respondents' highest education was Bachelor's Degree and this was represented by 63% (63). The educational qualification with the least number of respondents was doctorate degree with a 1% representation. Other known qualifications were HND/Diploma and Master's Degree with a representation of 5% (5) and 31% (31) respectively. The implication of this indicates that the respondents have the right educational qualification on this field of procurement and supply chain management to be able to understand and provide suitable answers to questions on regarding procurement selection criteria and procurement performance for their respective organizations.

On the size of the organization, the study analysis indicates that majority of the respondents work in a firm with a workforce of more than 100 employees. This indicate that most of the firms are a large scale companies that is likely to undertake large scale project and hence, conduct several or huge procurement. Nonetheless, other small and medium scale enterprises were also represented in the study. The analysis showed that 8% of the respondents work in a firm with a workforce between 1 and 19, while 2% of the respondents worth in a firm with a maximum of 49 employees and 79 employees respectively. However, the firm with a maximum employees of 99 has only 1% representation. This results on enterprise categorization was confirmed by the study of Oppong, Owiredu and Churchill (2014) when they noted that according to the NBSSI, Micro and Small Enterprises refer to companies with a workforce of 29 or less individuals. Micro enterprises refer to businesses that have a maximum of five employees and possess a total of assets, excluding real estate, that do not surpass USD 10,000. Small businesses are categorized as those that have either 6-29 employees or possess assets worth less than USD 100,000, not including land and buildings. The NBSSI has segmented SMEs into four categories based on their workforce size: Micro enterprises (with less than 5 employees), Small enterprises (with 6-29 employees), Medium enterprises (with 30-99 employees), and Large enterprises (with 100 or more employees) (Oppong et al., 2014).

Regarding the years of operation of the firms the company works in, the study revealed that majority of the firms representing 93% had operated more than 20 years. However, the other firms had representing 2% each had operated 6-10 years and 11-15 years respectively. Nonetheless, only 3% of the firms had operated for a maximum of 20 years. This implies that, majority of the firms had operated for several years to understand the procurement criteria that helps them to achieve the expected performance. Hence, they are capability of judging what criteria they use in selecting a procurement activity and in measuring performance.

4.2 Reliability and Validity Test

This section of the analysis presents analysis on the cronbach alpha which test the instrument reliability, the composite reliability which measures the aggregate reliability of two or more similar items and average variance extracted (AVE) which measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error.

Table 4.2 Reliability Statistics

Variable	No. of Items	Cronbach's Alpha	Composite reliability	AVE
Procurement Performance	5	0.872	0.810	0.5
Procurement Selection Criteria	10	0.910	0.903	0.5
Procurement Planning	9	0.882	0.877	0.4
Resource Allocation	5	0.523	0.673	0.3
Staff Competence	8	0.759	0.870	0.5
Procurement Procedure	7	0.691	0.795	0.4

Source: Field Data, 2023

The Cronbach alpha for each variable was within the acceptable score except resource allocation variable. The procurement performance variable which has 5 items scored a Cronbach alpha coefficient of 0.872, while procurement selection criteria variable which has 10 items showed a Cronbach alpha coefficient of 0.910. Also, the procurement planning

variable with 9 items and resource allocation variable with 5 items showed showed a coefficients of 0.882 and 0.523 respectively when the Cronbach Alpha measurement was taken. Additionally, the staff competence variable with 8 items and procurement procedure with 7 items showed a coefficients of 0.759 and 0.691 respectively. George and Mallery (2003), provided the following thumb rule for a cronbach alpha results: $\alpha > 0.9$ (Excellent), > 0.8 (Good), > 0.7 (Acceptable), > 0.6 (Questionable), > 0.5 (Poor), and < 0.5 (Unacceptable). This therefore implied that the thumb rule affirms that most of the variables are with the excellent and acceptable range. Also, according to Shuttleworth (2015), a results of a Cronbach alpha ranges are from 0 to 1, of which reliability score is acceptable when it is 0.7 and above. Regarding the discriminant validity, although the composite reliability shows a high acceptable value because they are above 0.7 except resource allocation variable; only the average variance extracted for procurement performance, procurement selection criteria and staff competence are within the acceptable range (thus, 0.5). However, the rest of the variable are below the acceptable range. The overall reliability and validity test indicates that the instrument are reliable and valid for the analysis.

4.2.1 Correlation analysis on Key items

The Table below shows that two tail correlation analysis on the key items of the various variables.

	PP1	PP2	PP3	PP4	PP5	PSC1	PSC2	PSC3	PSC4	PSC5	PSC6	PSC7	PSC8	PSC9	PSC10	PPL1	PPL2	PPL3	PPL4	PPL5	PPL6	PPL7	PPL8	PPL9	RAL1	RAL2	RAL3	RAL4	RAL5	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	PPR1	PPR2	PPR3	PPR4	PPR5	PPR6	PPR7
PP1	1	.559**	.520**	.334**	.348**	.245**	.419**	.423**	.347**	.467**	.427**	.669**	.574**	.347**	.495**	.214*	.249**	.245**	0.123	-0.009	.227*	0.139	0.138	0.132	-0.048	0.11	.188*	0.083	.177*	.255**	.187*	.174*	-.219*	-.314**	-.367**	-.402**	-0.056	0.114	0.123	.308**	.168*	.228*	-.185*	-0.099
PP2	.559**	1	.642**	.636**	.658**	.230*	.388**	.436**	.422**	.459**	.482**	.556**	.499**	.517**	.521**	.170*	.296**	.261**	.236**	0.128	.263**	.197*	.193*	.181*	-0.05	0.147	.482**	.167*	.197*	.319**	.264**	.331**	-0.095	-0.136	-.177*	-.262**	0.104	0.124	.232*	.266**	.210*	0.107	-.197*	-0.124
PP3	.520**	.642**	1	.727**	.675**	.211*	.450**	.588**	.393**	.319**	.351**	.590**	.617**	.442**	.542**	.256**	.459**	.339**	.389**	0.151	.350**	.388**	.226*	.330**	-0.102	.196*	.480**	.225*	.205*	.361**	.249**	.298**	-0.066	-.201*	-0.165	-.244**	0.046	.228*	0.149	.391**	.300**	.275**	-0.133	-0.118
PP4	.334**	.636**	.727**	1	.776**	.233**	.434**	.622**	.433**	.364**	.411**	.491**	.529**	.503**	.534**	.252**	.405**	.348**	.396**	.336**	.373**	.353**	.318**	.425**	-0.052	0.116	.499**	.178*	.268**	.467**	.419**	.449**	-0.008	-0.14	-.176*	-.214*	0.161	.356**	.318**	.434**	.415**	.250**	-.229*	-.238**
PP5	.348**	.658**	.675**	.776**	1	.269**	.571**	.604**	.573**	.458**	.539**	.455**	.595**	.556**	.546**	.363**	.473**	.452**	.439**	.377**	.431**	.420**	.411**	.431**	-0.032	0.136	.478**	.185*	.296**	.398**	.374**	.462**	-0.118	-.212*	-.233**	-.247**	.208*	.311**	.268**	.443**	.341**	.245**	-.248**	-.206*
PSC1	.245**	.230*	.211*	.233**	.269**	1	.340**	.270**	.249**	.295**	.302**	.216*	.261**	.281**	.324**	-0.037	0.05	.203*	.290**	0.137	.217*	.199*	0.141	.170*	0.027	.318**	.255**	0.157	.205*	0.151	.325**	.227*	0.067	-0.065	-0.022	-0.096	0.114	.347**	.465**	.351**	.282**	0.083	0.073	0.156
PSC2	.419**	.388**	.450**	.434**	.571**	.340**	1	.642**	.575**	.511**	.617**	.587**	.649**	.504**	.577**	.461**	.434**	.449**	.451**	.285**	.329**	.317**	.256**	.362**	-0.067	0.148	.337**	.265**	.440**	.352**	.283**	.450**	-.197*	-.333**	-.365**	-.385**	0.164	.295**	.305**	.521**	.323**	.245**	-.389**	-.313**
PSC3	.423**	.436**	.588**	.622**	.604**	.270**	.642**	1	.504**	.389**	.532**	.596**	.686**	.601**	.632**	.306**	.435**	.372**	.342**	0.116	.263**	.377**	.220*	.331**	-0.064	.167*	.422**	.230*	.328**	.363**	.388**	.367**	-.206*	-.264**	-.306**	-.293**	0.105	.236**	0.127	.467**	.317**	.173*	-.296**	-.251**
PSC4	.347**	.422**	.393**	.433**	.573**	.249**	.575**	.504**	1	.488**	.650**	.537**	.492**	.490**	.480**	.422**	.467**	.462**	.307**	.278**	.251**	.295**	.369**	.419**	-0.071	0.096	.407**	.319**	.458**	.394**	.369**	.502**	-.238**	-.290**	-.333**	-.311**	.192*	.330**	.277**	.514**	.302**	.316**	-.241**	-.259**
PSC5	.467**	.459**	.319**	.364**	.458**	.295**	.511**	.389**	.488**	1	.572**	.562**	.577**	.400**	.524**	.292**	.304**	.243**	0.123	.262**	.348**	0.091	0.123	.235**	-0.069	0.156	.208*	0.156	.304**	.304**	.427**	.335**	-0.096	-.231*	-.286**	0.058	.214*	.323**	.363**	.308**	.175*	-0.093	-0.055

PS C6	.427**	.482**	.351**	.411**	.539**	.302**	.617**	.532**	.650**	.572**	1	.646**	.687**	.640**	.649**	.262**	.371**	.380**	.314**	.220*	.313**	.283**	.375**	.382**	-0.108	0.091	.426**	.318**	.495**	.333**	.289**	.405**	-0.164	-.225*	-.296**	-.336**	.184*	.364**	.327**	.472**	.270**	.255**	-.272**	-.198*
PS C7	.669**	.556**	.590**	.491**	.455**	.216*	.587**	.596**	.537**	.562**	.646**	1	.837**	.544**	.710**	.232*	.351**	.360**	.279**	0.102	.279**	.269**	.276**	.308**	-0.057	0.067	.286**	.206*	.374**	.416**	.312**	.305**	-0.139	-.234**	-.292**	-.345**	0.021	.220*	0.132	.388**	.274**	.342**	-.214*	-0.144

	PP 1	PP 2	PP 3	PP 4	PP 5	PS C1	PS C2	PS C3	PS C4	PS C5	PS C6	PS C7	PS C8	PS C9	PS C10	PP L1	PP L2	PP L3	PP L4	PP L5	PP L6	PP L7	PP L8	PP L9	RA L1	RA L2	RA L3	RA L4	RA L5	ST C1	ST C2	ST C3	ST C4	ST C5	ST C6	ST C7	ST C8	PP R1	PP R2	PP R3	PP R4	PP R5	PP R6	PP R7
PS C8	.574**	.499**	.617**	.529**	.595**	.261**	.649**	.686**	.492**	.577**	.687**	.837**	1	.629**	.707**	.293**	.495**	.403**	.379**	0.152	.309**	.358**	.275**	.374**	-0.056	.204*	.322**	.257**	.370**	.443**	.336**	.310**	-0.095	-.167*	-.212*	-.268**	0.124	.249**	.175*	.474**	.341**	.310**	-.178*	-0.081
PS C9	.347**	.517**	.442**	.503**	.556**	.281**	.504**	.601**	.490**	.400**	.640**	.544**	.629**	1	.688**	.190*	.349**	.276**	0.155	0.103	0.165	.199*	.175*	.186*	-0.064	0.121	.427**	.202*	.305**	.167*	.247**	.373**	-0.128	-.172*	-.221*	-.212*	0.123	.234**	.217*	.271**	.169*	0.117	-.263**	-.184*
PS C10	.495**	.521**	.542**	.534**	.546**	.324**	.577**	.632**	.480**	.524**	.649**	.710**	.707**	.688**	1	.240**	.345**	.372**	.232*	0.161	.329**	.299**	.262**	.322**	-0.09	.194*	.522**	.297**	.436**	.340**	.236**	.352**	-0.16	-.246**	-.233**	-.308**	0.071	.228*	.222*	.369**	.246**	.263**	-.196*	-0.127
PP L1	.214*	.170*	.256**	.252**	.363**	-0.037	.461**	.306**	.422**	.292**	.262**	.232*	.293**	.190*	.240**	1	.553**	.346**	.281**	0.16	.171*	0.164	.183*	.290**	-0.019	-0.053	.258**	.218*	.368**	.222*	.257**	.385**	-.264**	-.389**	-.281**	-.261**	0.03	0.1	0.102	.293**	.197*	0.135	-.268**	-.300**
PP L2	.249**	.296**	.459**	.405**	.473**	0.05	.434**	.435**	.467**	.304**	.371**	.351**	.495**	.349**	.345**	.553**	1	.570**	.517**	.333**	.274**	.399**	.354**	.550**	-0.083	0.016	.366**	.275**	.413**	.504**	.316**	.443**	-0.141	-.220*	-.212*	-.246**	0.05	.287**	.182*	.347**	.288**	.254**	-.216*	-.263**
PP L3	.245**	.261**	.339**	.348**	.452**	.203*	.449**	.372**	.462**	.243**	.380**	.360**	.403**	.276**	.372**	.346**	.570**	1	.619**	.452**	.314**	.429**	.435**	.526**	-0.077	0.063	.372**	.344**	.367**	.401**	.309**	.478**	-0.117	-.266**	-.217*	-.227*	0.079	.306**	.256**	.426**	.304**	.205*	-.207*	-.175*
PP L4	0.123	.236**	.389**	.396**	.439**	.290**	.451**	.342**	.307**	0.123	.314**	.279**	.379**	0.155	.232*	.281**	.517**	.619**	1	.546**	.497**	.601**	.499**	.560**	-0.087	.171*	.291**	.248**	.233**	.466**	.242**	.328**	-0.104	-.253**	-.212*	-.235**	0.032	.436**	.338**	.394**	.289**	.225*	-0.11	-0.127
PP L5	-0.009	0.128	0.151	.336**	.377**	0.137	.285**	0.116	.278**	.262**	.220*	0.102	0.152	0.103	0.161	0.16	.333**	.452**	.546**	1	.713**	.535**	.594**	.497**	-0.104	0.128	0.161	0.139	.204*	.334**	.202*	.260**	0.046	-0.08	-0.026	-0.05	.191*	.371**	.305**	.428**	.255**	.294**	-0.144	-0.151
PP L6	.227*	.263**	.350**	.373**	.431**	.217*	.329**	.263**	.251**	.348**	.313**	.279**	.309**	0.165	.329**	.171*	.274**	.314**	.497**	.713**	1	.652**	.561**	.527**	-0.11	.196*	.219*	0.079	0.096	.302**	0.123	.241**	-0.017	-0.029	0.009	-0.053	0.117	.340**	.318**	.498**	.272**	.368**	-0.04	-0.032
PP L7	0.139	.197*	.388**	.353**	.420**	.199*	.317**	.377**	.295**	0.091	.283**	.269**	.358**	.199*	.299**	0.164	.399**	.429**	.601**	.535**	.652**	1	.626**	.635**	0.025	0.096	.299**	.227*	.263**	.361**	0.156	.291**	-0.018	-0.119	-0.018	-0.027	.173*	.296**	.203*	.460**	.345**	.410**	-0.047	-0.112

PP L8	0.138	.193*	.226*	.318**	.411**	0.141	.256**	.220*	.369**	0.123	.375**	.276**	.275**	.175*	.262**	.183*	.354**	.435**	.499**	.594**	.561**	.626**	1	.680**	-0.149	-0.014	.284**	.332**	.337**	.307**	0.123	.207*	-0.103	-.223*	-0.102	-0.152	.202*	.365**	.270**	.419**	.277**	.280**	-.174*	-.195*
PP L9	0.132	.181*	.330**	.425**	.431**	.170*	.362**	.331**	.419**	.235**	.382**	.308**	.374**	.186*	.322**	.290**	.550**	.526**	.560**	.497**	.527**	.635**	.680**	1	-0.05	0.057	.400**	.307**	.463**	.498**	.249**	.434**	-0.019	-.185*	-0.086	-0.143	.270**	.276**	.349**	.472**	.277**	.233**	-0.086	-.184*
RA L1	-0.048	-0.05	-0.102	-0.052	-0.032	0.027	-0.067	-0.064	-0.071	-0.069	-0.108	-0.057	-0.056	-0.064	-0.09	-0.019	-0.083	-0.077	-0.087	-0.104	-0.11	0.025	-0.149	-0.05	1	.236**	-0.049	-0.008	.169*	-0.035	-0.01	0.013	0.129	.243**	.266**	.256**	0.103	-0.096	-0.001	-0.029	0.039	0.047	.180*	.211*
RA L2	0.11	0.147	.196*	0.116	0.136	.318**	0.148	.167*	0.096	0.156	0.091	0.067	.204*	0.121	.194*	-0.053	0.016	0.063	.171*	0.128	.196*	0.096	-0.014	0.057	.236**	1	0.093	0.072	-0.001	0.026	-0.078	-0.015	0.149	.170*	.185*	0.151	0.091	-0.029	0.008	0.145	-0.084	-0.065	.177*	.259**

	PP 1	PP 2	PP 3	PP 4	PP 5	PS C1	PS C2	PS C3	PS C4	PS C5	PS C6	PS C7	PS C8	PS C9	PS C10	PP L1	PP L2	PP L3	PP L4	PP L5	PP L6	PP L7	PP L8	PP L9	RA L1	RA L2	RA L3	RA L4	RA L5	ST C1	ST C2	ST C3	ST C4	ST C5	ST C6	ST C7	ST C8	PP R1	PP R2	PP R3	PP R4	PP R5	PP R6	PP R7
RA L3	.188*	.482**	.480**	.499**	.478**	.255**	.337**	.422**	.407**	.208*	.426**	.286**	.322**	.427**	.522**	.258**	.366**	.372**	.291**	0.161	.219*	.299**	.284**	.400**	-0.049	0.093	1	.723**	.556**	.428**	.297**	.528**	-0.072	-.186*	-0.093	-0.165	0.138	.245**	.312**	.308**	.285**	.220*	-.216*	-.201*
RA L4	0.083	.167*	.225*	.178*	.185*	0.157	.265**	.230*	.319**	0.156	.318**	.206*	.257**	.202*	.297**	.218*	.275**	.344**	.248**	0.139	0.079	.227*	.332**	.307**	-0.008	0.072	.723**	1	.637**	.244**	0.162	.400**	0.014	-0.112	-0.047	-0.083	0.141	0.145	0.14	.260**	.169*	0.134	-.191*	-.172*
RA L5	.177*	.197*	.205*	.268**	.296**	.205*	.440**	.328**	.458**	.304**	.495**	.374**	.370**	.305**	.436**	.368**	.413**	.367**	.233**	.204*	0.096	.263**	.337**	.463**	.169*	-0.001	.556**	.637**	1	.402**	.338**	.509**	-0.019	-.247**	-0.137	-.172*	.202*	.234**	.184*	.357**	.251**	.230*	-0.112	-0.094
ST C1	.255**	.319**	.361**	.467**	.398**	0.151	.352**	.363**	.394**	.304**	.333**	.416**	.443**	.167*	.340**	.222*	.504**	.401**	.466**	.334**	.302**	.361**	.307**	.498**	-0.035	0.026	.428**	.244**	.402**	1	.543**	.623**	0.073	-0.123	-0.129	-.180*	0.148	.381**	.333**	.376**	.419**	.360**	-0.04	-0.086
ST C2	.187*	.264**	.249**	.419**	.374**	.325**	.283**	.388**	.369**	.427**	.289**	.312**	.336**	.247**	.236**	.257**	.316**	.309**	.242**	.202*	0.123	0.156	0.123	.249**	-0.01	-0.078	.297**	0.162	.338**	.543**	1	.569**	0.02	-.176*	-.199*	-.231*	0.081	.341**	.436**	.315**	.533**	.182*	-0.087	-0.07
ST C3	.174*	.331**	.298**	.449**	.462**	.221*	.450**	.367**	.502**	.335**	.405**	.305**	.310**	.373**	.352**	.385**	.443**	.478**	.328**	.260**	.241**	.291**	.207*	.434**	0.013	-0.015	.528**	.400**	.509**	.623**	.569**	1	0.066	-0.125	-0.157	-.224*	.277**	.323**	.396**	.438**	.425**	.333**	-.199*	-.224*
ST C4	-.219*	-0.095	-0.066	-0.08	-0.118	0.067	-.199*	-.206*	-.238**	-0.096	-0.164	-0.139	-0.095	-0.128	-0.16	-.264**	-0.141	-0.117	-0.104	0.046	-0.017	-0.018	-0.103	-0.019	0.129	0.149	-0.072	0.014	-0.019	0.073	0.02	0.066	1	.580**	.587**	.588**	.363**	-0.058	-0.1	-0.111	-.180*	-0.127	.426**	.420**
ST C5	-.314**	-0.136	-.201*	-0.14	-.212*	-0.065	-.339**	-.264**	-.290**	-0.131	-.225*	-.234**	-.167*	-.172*	-.246**	-.389**	-.220*	-.266**	-.253**	-0.08	-0.029	-0.119	-.223*	-.185*	.243**	.170*	-.186*	-0.112	-.247**	-0.123	-.176*	-0.125	.580**	1	.847**	.801**	.292**	-.253**	-.250**	-.214*	-.295**	-0.118	.363**	.337**

	PP1	PP2	PP3	PP4	PP5	PSC1	PSC2	PSC3	PSC4	PSC5	PSC6	PSC7	PSC8	PSC9	PSC10	PPL1	PPL2	PPL3	PPL4	PPL5	PPL6	PPL7	PPL8	PPL9	RAL1	RAL2	RAL3	RAL4	RAL5	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	PPR1	PPR2	PPR3	PPR4	PPR5	PPR6	PPR7
STC6	-.367**	-.177*	-0.165	-.176*	-.233**	-0.022	-.365**	-.306**	-.333**	-.232*	-.296**	-.292**	-.212*	-.221*	-.233**	-.281**	-.212*	-.217*	-.212*	-0.026	0.009	-0.018	-0.102	-0.086	.266**	.185*	-0.093	-0.047	-0.137	-0.129	-.199*	-0.157	.587**	.847**	1	.890**	.373**	-.305**	-.237**	-.225*	-.288**	-0.133	.430**	.360**
STC7	-.402**	-.262**	-.244**	-.214*	-.247**	-0.096	-.385**	-.293**	-.311**	-.286**	-.336**	-.345**	-.268**	-.212*	-.308**	-.261**	-.246**	-.227*	-.235**	-0.05	-0.053	-0.027	-0.152	-0.143	.256**	0.151	-0.165	-0.083	-.172*	-.180*	-.231*	-.224*	.588**	.801**	.890**	1	.354**	-.317**	-.330**	-.300**	-.335**	-0.164	.410**	.373**
STC8	-0.056	0.104	0.046	0.161	.208*	0.114	0.164	0.105	.192*	0.058	.184*	0.021	0.124	0.123	0.071	0.03	0.05	0.079	0.032	.191*	0.117	.173*	.202*	.270**	0.103	0.091	0.138	0.141	.202*	0.148	0.081	.277**	.363**	.292**	.373**	.354**	1	-0.003	0.12	.186*	0.165	0.148	0.004	-0.046
PPR1	0.114	0.124	.228*	.356**	.311**	.347**	.295**	.236**	.330**	.214*	.364**	.220*	.249**	.234**	.228*	0.1	.287**	.306**	.436**	.371**	.340**	.296**	.365**	.276**	-0.096	-0.029	.245**	0.145	.234**	.381**	.341**	.323**	-0.058	-.253**	-.305**	-.317**	-0.003	1	.737**	.534**	.513**	.502**	-0.039	-0.001
PPR2	0.123	.232*	0.149	.318**	.268**	.465**	.305**	0.127	.277**	.323**	.327**	0.132	.175*	.217*	.222*	0.102	.182*	.256**	.338**	.305**	.318**	.203*	.270**	.349**	-0.001	0.008	.312**	0.14	.184*	.333**	.436**	.396**	-0.1	-.250**	-.237**	-.330**	0.12	.737**	1	.501**	.617**	.412**	0.013	0.003
PPR3	.308**	.266**	.391**	.434**	.441**	.351**	.521**	.467**	.514**	.363**	.472**	.388**	.474**	.271**	.369**	.293**	.347**	.426**	.394**	.428**	.498**	.460**	.419**	.472**	-0.029	0.145	.308**	.260**	.357**	.376**	.315**	.438**	-0.111	-.214*	-.225*	-.300**	.186*	.534**	.501**	1	.554**	.576**	-.230*	-.179*
PPR4	.168*	.210*	.300**	.415**	.344**	.282**	.323**	.317**	.302**	.308**	.270**	.274**	.341**	.169*	.246**	.197*	.288**	.304**	.289**	.255**	.272**	.345**	.277**	.277**	0.039	-0.084	.285**	.169*	.251**	.419**	.533**	.425**	-.180*	-.295**	-.288**	-.335**	0.165	.513**	.617**	.554**	1	.682**	-.171*	-0.154
PPR5	.228*	0.107	.275**	.250**	.245**	0.083	.245**	.173*	.316**	.175*	.255**	.342**	.310**	0.117	.263**	0.135	.254**	.205*	.225*	.294**	.368**	.410**	.280**	.233**	0.047	-0.065	.220*	0.134	.230*	.360**	.182*	.333**	-0.127	-0.118	-0.133	-0.164	0.148	.502**	.412**	.576**	.682**	1	-0.107	-0.089
PPR6	-.185*	-.197*	-0.133	-.229*	-.248**	0.073	-.389**	-.296**	-.241**	-0.093	-.272**	-.214*	-.178*	-.263**	-.196*	-.268**	-.216*	-.207*	-0.11	-0.144	-0.04	-0.047	-.174*	-0.086	.180*	.177*	-.216*	-.191*	-0.112	-0.04	-0.087	-.199*	.426**	.363**	.430**	.410**	0.004	-0.039	0.013	-.230*	-.171*	-0.107	1	.814**
PPR7	-0.099	-0.124	-0.118	-.238**	-.206*	0.156	-.313**	-.251**	-.259**	-0.055	-.198*	-0.144	-0.081	-.184*	-0.127	-.300**	-.263**	-.175*	-0.127	-0.151	-0.032	-0.112	-.195*	-.184*	.211*	.259**	-.201*	-.172*	-0.094	-0.086	-0.07	-.224*	.420**	.337**	.360**	.373**	-0.046	-0.001	0.003	-.179*	-0.154	-0.089	.814**	1

4.3 Descriptive Statistics Analysis

4.3.1 Procurement Performance Criteria

Table 4.3 below shows that descriptive statistics on the key measures regarding procurement performance. The minimum response was strongly disagree and it was weighted 1 while the maximum response was strongly agree and it was weighted 5. Therefore an average response range of 2 and indicates disagreement on the key performance criteria. Furthermore an average response between 2 and 3 indicate neutrality while responses above 3 indicate agreement on the key performance criteria items

Table 4.3 Procurement Performance

	N	Minimum	Maximum	Mean	SD
Procurements are completed on timely basis	100	1.00	5.00	4.4600	.86946
Procurements is cost effective	100	1.00	5.00	4.5900	.68306
Procurements of resources meets quality	100	1.00	5.00	4.4700	.85818
Value for money procurement is achieved in the procurement process	100	1.00	5.00	4.5400	.77094
Procurement process meets standards	100	1.00	5.00	4.5100	.78490
Valid N (listwise)	100				

Source: Field Data, 2023

From the table 4.3 above it was discovered that the minimum average response was 4.46 and the maximum average response was 4.59. This analysis of the indication that, majority of the respondents strongly agreed procurement performance are measured favorably when procurements are completed on timely basis, within budget (thus, cost effective), resources use for the project meets quality and industrial standards and creates value for money. This shows that, the firm uses multiple criteria to assess project performance.

4.3.2 Procurement Selection Criteria

The descriptive statistics analysis displayed on Table 4.4 shows the various procurement selection criteria. The minimum response was strongly disagree and it was assigned 1 while

the maximum response was strongly agree and it was assigned 5. Therefore an average response range of 2 and indicates disagreement on the key performance criteria. Furthermore an average response between 2 and 3 indicate neutrality while responses above 3 indicate agreement on the key procurement selection criteria items

Table 4.4 Procurement Selection Criteria

	N	Minimum	Maximum	Mean	SD
High price competition	100	1.00	5.00	4.0300	.97913
Clarity of scope definition	100	2.00	5.00	4.3900	.72328
High-quality level required	100	2.00	5.00	4.5300	.70288
Clear definition of project parties' responsibilities	100	2.00	5.00	4.4600	.73057
Client involvement in the procurement	100	1.00	5.00	4.3300	1.01559
Controllable procurement variations	100	2.00	5.00	4.4000	.77850
Cost certainty	100	1.00	5.00	4.3900	.85156
Time certainty	100	1.00	5.00	4.3500	.86894
Effective communication	100	2.00	5.00	4.4900	.71767
Level of competence and experience of the supplier	100	2.00	5.00	4.4300	.75552
Valid N (listwise)	100				

Source: Field Data, 2023

The analysis displayed on Table 4.4 is of the indication that majority of the respondents agreed that all items on the procurement selection criteria. Thus, the respondents agreed that price competition, clarity of scope definition, high quality level requirement, clarity in defining project parties responsibilities, how clients get involve in their procurement process, how variations in procurement are controlled, the level of cost and time certainty, how effective communication is carried out and the level of competence and experience of suppliers are all criteria used across public and private sector organizations in selecting procurement suppliers. This is because all the items score an average response of 4 and above, indicating strongly agree. Thus, the minimum mean score was 4.03 and the maximum mean score was 4.53.

4.3.3 Procurement Planning

To assess the various items considered in the procurement planning process, a descriptive statistics analysis displayed on the various items were carried out. Table 4.5 displays the results. The minimum response was strongly disagree and it was assigned 1 while the maximum response was strongly agree and it was assigned 5.

Table 4.5 Procurement Planning

	N	Minimum	Maximum	Mean	SD
Procurement plan identify materials as per the company needs	100	2.00	5.00	4.5500	.74366
Procurement plan helps to decide when to buy	100	1.00	5.00	4.6100	.64971
Procurement planning helps in resource allocation	100	2.00	5.00	4.6100	.56667
Procurement planning helps to determine a total value of the anticipated cost of the requirement	100	1.00	5.00	4.5600	.68638
Poor procurement planning leads to big budget deficits	100	2.00	5.00	4.6000	.76541
Procurement planning results into compliance to set procedures	100	2.00	5.00	4.5600	.72919
Planning helps in clarity of scope definition	100	2.00	5.00	4.5500	.64157
Procurement mistakes and defective supply is as a result of poor procurement planning	100	3.00	5.00	4.5600	.60836
Procurement planning helps to estimate the time required to complete the procurement process	100	1.00	5.00	4.5700	.68542
Valid N (listwise)	100				

Source: Field Data, 2023

The results displayed on Table 4.5 showed that most of the respondents agreed that procurement planning process helps in the identification of company needs (Mean = 4.550, STD=0.74366), determining when to buy what the company needs (Mean=4.610, STD=0.64971), in resource allocation (Mean=4.610, STD=0.56667) and in determination of total value of an anticipated requirement of cost (Mean=4.560, STD=0.68638). Also, it was agreed that failure to plan procurement process leads to huge budget deficit (Mean=4.600, STD=0.76541) and leads to mistakes and defective supply (Mean=4.560, STD=0.60836) however, it was agreed that the ability to plan procurement helps to comply with procedures set (Mean=4.560, STD=0.72919) and clarity of procurement scope definition (Mean=4.550, STD=0.64157). Also, the participants agreed that procurement planning helps to estimate the time required to precisely complete a procurement process (Mean=4.570, STD=0.68542). Thus, procurement planning is agreed to play a key role in the procurement process and performance.

4.3.4 Resource Allocation

This section presents the descriptive findings on resource allocation. Table 4.6 displays the results on the resource allocation. The minimum response was strongly disagree and it was assigned 1 while the maximum response was strongly agree and it was assigned 5.

Table 4.6 Resource Allocation

	N	Minimum	Maximum	Mean	SD
Unavailability of resources as planned through the procurement duration	100	1.00	5.00	3.4800	.98964
Adequate allocation of resource essential to procurement performance	100	1.00	5.00	3.3400	1.19949
Resource availability and confirmation should be the basis of tender award	100	1.00	5.00	4.4300	.75552
Resource allocation should be adequate to ensure efficiency	100	2.00	5.00	4.4900	.62757
Budget reviews should be able to cater for changes in the economic environment	100	2.00	5.00	4.5600	.67150

Source: Field Data, 2023

The results displayed on Table 4.6 is of the indication that showed that majority of the agreed that lack of proper resource allocation leads to unavailability of resources through the procurement duration (Mean=3.480, STD=0.98964), and adequate resource allocation is central to procurement performance (Mean=3.340, STD=1.19949). Also, it was strongly agreed among majority of the participants that resource availability and confirmation is basic to awarding tenders (Mean=4.430, STD=0.75552) and resource allocation process should ensure resource adequacy (Mean=4.490, STD=0.62757). More so, the participants strongly agreed that budget review ensures that changes in economic environment are cater for (Mean=4.560, STD=0.67150).

4.3.5 Staff Competence

This section presents the descriptive statistical findings on staff competence. Table 4.7 displays the results on the resource allocation. The minimum response was strongly disagree and it was assigned 1 while the maximum response was strongly agree and it was assigned 5.

Table 4.7. Staff Competence

	N	Minimum	Maximum	Mean	SD
Staff training improves procurement performance	100	1.00	5.00	4.7100	.60794
Loss of key competencies affects procurement performance	100	1.00	5.00	4.6800	.66485
Staff creativity improves procurement performance	100	2.00	5.00	4.6500	.60927
Conflict among procurement participants	100	1.00	5.00	3.0800	1.20336
Inadequate supplier experience	100	1.00	5.00	2.8000	1.32574
Poor leadership skills for procurement manager	100	1.00	5.00	2.6100	1.33254
Lack of coordination between clients and suppliers	100	1.00	5.00	2.7500	1.31330
The ability to leverage interpersonal skills improves procurement performance	100	2.00	5.00	4.0400	.80302

Source: Field Data, 2023

From the study findings, as observed from Table 4.7 above, majority of the respondents strongly agreed that training of staffs improves procurement performance, loss of core competencies affects procurement performance, staff creativity improves performance and ability to leverage interpersonal skills improves procurement performance as shown by the mean of 4.71, 4.68, 4.65 and 4.04 respectively. More so majority of the respondents agree that sometimes conflicts occurs among procurement participants as it showed a mean of 3.08. Nonetheless, majority of the respondents were neutral on whether the company have inadequate number of suppliers, managers possess poor leadership skills and there is lack of coordination between clients and suppliers as indicated by the mean of 2.80, 2.61 and 2.75 respectively.

4.3.6 Procurement Procedure

This section presents the descriptive findings on resource allocation. Table 4.8 displays the results on the Procurement procedure.

Table 4.8 Procurement Procedure

	N	Minimum	Maximum	Mean	SD
Knowledge of Procurement procedure reduces complexity of procurement process and compliance	100	1.00	5.00	4.5500	.78335
Procurement procedure eases the organizing and reviewing procurement activities	100	2.00	5.00	4.4800	.74508
Effective procurement procedure reduces delay in delivery of materials	100	2.00	5.00	4.5800	.65412
Procurement procedure helps in solving legal problem	100	2.00	5.00	4.5500	.67232
Procurement procedure enhances transparency	100	2.00	5.00	4.6700	.62044
procurement procedure has caused delays in decision making	100	1.00	5.00	2.8900	1.31729
procurement procedure has caused delays in service delivery	100	1.00	5.00	2.9100	1.27204

Source: Field Data, 2023

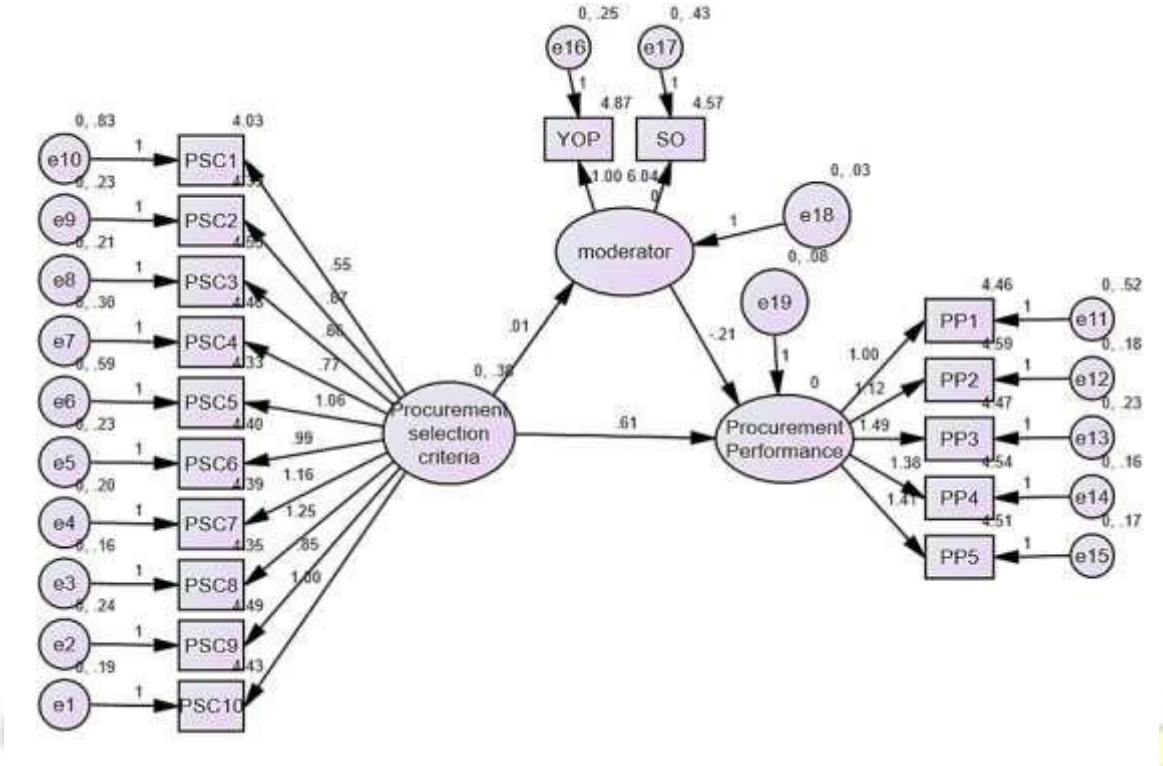
From Table 4.8 it was observed that majority respondents strongly agree that knowledge of procurement procedure reduces complexity of procurement process and compliance, eases the organizing and reviewing and procurement activities and effective procurement procedure reduces delay in delivery of materials as shown by average score of 4.55, 4.48, and 4.58 respectively. Also, majority of the respondents strongly agree that procurement procedure helps in solving legal problem and procurement procedure enhances transparency as it display mean of 4.55 and 4.67 respectively. On the contrary, majority of the respondents were neutral on procurement procedure causing delays in decision making and causing delays in service delivery. These responses recorded a mean of 2.89 and 2.91 respectively.

4.4 Inferential Analysis

4.4.1 Confirmatory Factor Analysis (CFA) Model

The present study employs the CFA (Confirmatory Factor Analysis) methodology to assess the efficacy of extant impact of procurement selection criteria on procurement performance among selected firms in Ghana.

Figure 4.1. Confirmatory Model for the Impact of Procurement selection criteria on Procurement Performance



Prior to evaluating the adequacy of the structural model, it is imperative to first exhibit a measurement model to corroborate the 17 apparent variables expressing the three variables. The constructed measurement model, exhibiting loaded factors and estimated items, is illustrated in Figure 4.1 above. In the context of conducting statistical analyses using Amos in SPSS, it is imperative to observe the restriction that items are solely authorized to load on a single construct without the occurrence of cross-loading. Furthermore, the allowance of correlation among latent variables is a permissible practice. There are three latent factors namely, Procurement selection criteria, procurement performance and the moderator with thei related observed variables.

Also, the three-factor model precisely hypothesized the current selection and performance mechanism for procurement among firms in Ghana. These factors which is also known as the

unobserved or latent variables determine the relationship among the 17 observed variables. Furthermore, for each of the 19 indicators, there is a corresponding error term that has been recognized. The resulting model reveals the standardized regression weights connecting the latent factors and observable variables.

4.4.2 Assessment of the fit and unidimensionality of the Model

The analysis from the structural equation modelling (SEM) provides an absolute goodness-offit measures and these are displayed in Table 4.9 below.

Table 4.9 Model Fit Analysis

Model			RMSEA	TLI	CFI
Default model			.012	.938	.962
Saturated model			.179		1.000
Independence model			.000	.000	.000
IModel	**NPAR**	**CMIN**	**DF**	**P**	**CMIN/DF**
Default model	54	260.523	116	1.000	2.246
Saturated model	170	.000	0		
Independence model	34	1181.210	136	.000	8.685

Source: Field Data, 2023

The *p-value* of the chi-square (x^2=*260.523, df = 116*) was 1.000, and it was statically insignificant. This shows proof that the proposed model accurately corresponds to the observed data, indicating a successful fit of the model. More so, the root mean error of approximation (RMSEA) was 0.012 and this estimate provide evidence of model fits as it is below 0.05. Also, the Tucker Lewis Index (TLI) was 0.938 and the CFI was 0.962. Both are fit indices and their values exceeded the recommended level of 0.90 according to Lu et al. (2004), further supporting acceptance of the model. The normed Chi-square (x^2/df) had a value of 2.25 and this falls well within the recommended range for conditional support to be given for model

parsimony. To sum up, the multiple indicators evaluating the overall quality of fit for the model provided enough evidence to consider the outcomes a satisfactory portrayal of the theoretical constructs.

4.5 Hypotheses Testing

4.5.1 Criteria for Procurement selection and Measuring Procurement Performance

This section of the study discusses the directional relationship among the variables. It discussed the relationship between the independent variables and dependent variables as well as the moderating variables and their impact on the relationship between the predator variables and the independent variables.

Table 4.10. Structural Equation Modelling Results

Variables			*Estimate*	*S.E.*	*C.R.*	*P*	*Decision*
PP	→ PSC		.608	.120	5.087	***	*Accepted*
PSC10	→ PSC		.185	.030	6.162	***	*Accepted*
PSC9	→ PSC		.849	.103	8.272	***	*Accepted*
PSC8	→ PSC		1.246	.113	10.987	***	*Accepted*
PSC7	→ PSC		1.163	.114	10.178	***	*Accepted*
PSC6	→ PSC		.992	.108	9.175	***	*Accepted*
PSC5	→ PSC		1.060	.151	7.019	***	*Accepted*
PSC4	→ PSC		.773	.108	7.141	***	*Accepted*
PSC3	→ PSC		.864	.099	8.726	***	*Accepted*
PSC2	→ PSC		.871	.103	8.476	***	*Accepted*
PSC1	→ PSC		.552	.158	3.486	***	*Accepted*
PP1	→ PP		.525	.078	6.757	***	*Accepted*
PP2	→ PP		1.119	.205	5.462	***	*Accepted*
PP3	→ PP		1.494	.265	5.637	***	*Accepted*
PP4	→ PP		1.376	.241	5.706	***	*Accepted*
PP5	→ PP		1.409	.246	5.721	***	*Accepted*
PSC	→ YOP	→ PP	.011	.045	.239	.811	*Rejected*
PSC	→ SO	→ PP	6.044	18.401	.328	.743	*Accepted*

NB: Fit indices: x^2 = 260.523, (p = 1.000), df = 116, x^2/df = 2.25, CFI = 0.962, TLI = 0.938, RMSEA = 0.012.

a) S.E. is an estimate of the standard error of the covariance.

b) C.R. is the critical ratio obtained by dividing the covariance estimate by its standard error.

The AMOS 25 was used to estimate and evaluate the common measures of goodness-of-fit of the model with the data. As a whole, our model displayed a satisfactory correspondence with the gathered data. Moreover, the evaluator evaluated the adequacy of the model by employing

additional prevalent indicators of fit including the comparative fit index (CFI), root mean square error of approximation (RMSEA), standardized residual, and Tucker Lewis Index (TLI).

The model performed well and met or surpassed the suggested benchmarks for the specific indices, such as achieving a fit value of 0.962 and 0.938 for CFI and TLI, respectively. These values are considered acceptable, as they are higher than the recommended threshold of 0.9.

The hypotheses were subjected to testing in accordance with the model depicted in Figure 4.1. The empirical findings, presented in Table 4.10, have confirmed the designated correlation between procurement selection criteria and procurement performance, as discerned by a noteworthy critical ratio (C.R.), a value of 5.087 was obtained. The critical ratio (CR) may be mathematically expressed as the quotient of the estimated covariance and its corresponding standard error, calculated as a t-value. This relationship is subject to the influence of various additional factors, which also play a role in procurement performance. A numerical value surpassing 1.96 denotes a level of statistical significance of 0.05. The aforementioned observation suggests that the procurement selection criteria play a significant role in determining the effectiveness of procurement performance.

More so, the effects of high price competition (C.R. = 3.486), controllable project variation (C.R. = 8.476), effective communication (C.R. = 8.726), competence and experience of suppliers (C.R. = 7.141) and clarity of scope definition (C.R. = 7.019) on procurement selection criteria are significant. In addition high quality level requirement (C.R. = 9.175), time certainty (C.R. = 10.178), cost certainty (C.R. = 10.987), client involvement in the procurement project (C.R. = 8.272), and clear definition of responsibilities (C.R. = 6.162) were found to have a significant effect on procurement selection criteria. These implies the results of the high price competition, controllable project variations, effective communication, competence and experience of the supplier, clarity of scope definition, high-quality level required, time

certainty, cost certainty, client involvement in the project, and clear definition responsibilities as significant determinants of procurement selection criteria were accepted.

The results further showed that, timeliness (C.R. = 6.757), cost effectiveness (C.R. = 5.462), quality resource (C.R. = 5.637), value for money (C.R. = 5.706) and meeting standard (C.R. = 5.721) on procurement performance are significant. The results suggest that timeliness of delivery procurement, effectiveness of cost, quality of resource, value of money and meeting procurement standards significantly determine procurement performance. Hence, the hypotheses regarding the variables prediction of procurement performance is accepted.

Nevertheless, there was a lack of support for an adverse relationship between procurement selection criteria and procurement performance, when moderated by years of operation (thus, firm age) (C.R = 0.239) but there was a positive but insignificant relationship between procurement selection criteria and procurement performance when moderated by size of the organization (C.R. = 0.328) and this was supported. The results imply that both years of firms' operation and size of the firm positive define the criteria use by firms in its procurement selection to influence procurement performance.

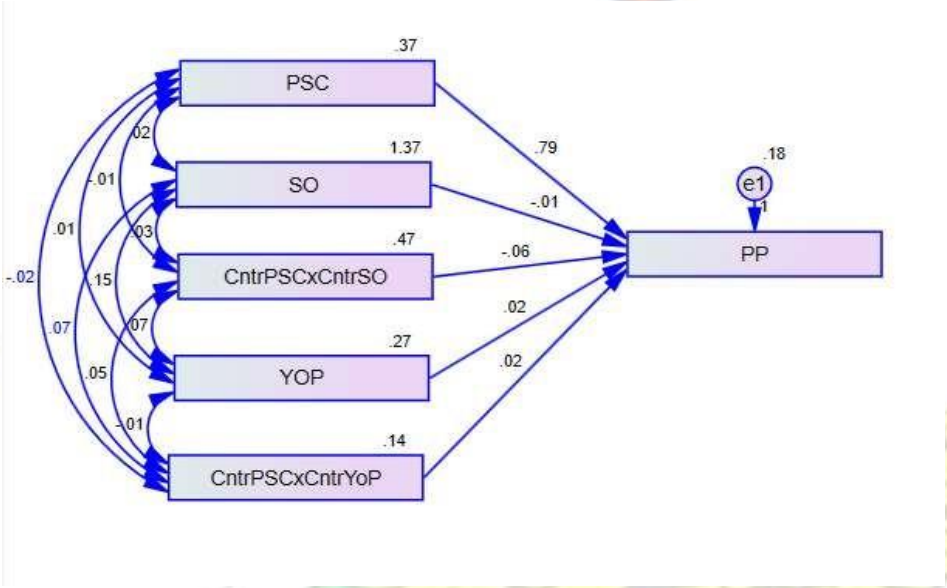
To summarize, the structural model examinations revealed that the selection criteria for a procurement project have an influence on its performance regarding the timely delivery, the cost-effectiveness of procurement, procurement quality, the value it provides for the invested money, and how well it conforms to standards. The data also showed that high price competition, controllable project variations, effective communication, competence and experience of the supplier, clarity of scope definition, high-quality level required, time certainty, cost certainty, client involvement in the project, and clear definition responsibilities positively affect the criteria used in procurement project and process selection. In the same

vein, timeliness of delivery procurement, effectiveness of cost, quality of resource, value of money and meeting procurement standards positively determine procurement performance.

4.5.2 Moderation Analysis

To assess the moderation effect on the relationship between the dependent and the independent variables, a moderation analysis was carried and the analysis was displayed in figure 4.2.

Figure 4.2. Moderation Analysis



The output estimates as displayed in Table 4.11 below showed that both organizational size (SO) and age of the organization (YoP) do not moderate the relationship between procurement selection criteria and procurement performance since the interaction variables show an significant effect although the moderation effect of the size of organization shows a negative coefficient (estimate = -0.062, p=0.340) and a positive moderation effect of age of firm (estimation = 0.024, p=0.842). The hypotheses regarding both moderation effect (thus, H_{11} and H_{12}) were rejected since it was proposed that firm size (SO) will positively moderate the relationship between procurement selection criteria and procurement performance and firm age

will adversely moderate the relationship between procurement selection criteria and procurement performance.

Table 4.11 Interaction Estimation

		Estimate	S.E.	C.R.	P	Decision
PP ←	PSC	.792	.071	11.141	***	
PP ←	SO	-.007	.039	-.174	.862	
PP ←	CntrPSCxCntrSO	-.062	.065	-.955	.340	*Rejected*
PP <---	YOP	.018	.087	.203	.839	
PP <---	CntrPSCxCntrYoP	.024	.121	.200	.842	*Rejected*

4.5.3 Other factors Influencing Procurement Performance

This section discusses other factors that may affect procurement performance other than the criteria used in selecting a procurement project. Five variables were regressed against procurement performance and it include, procurement planning, staff competence, resource allocation and procurement procedure. In view of this, a correlation and linear regression was conducted to substantiate the relationship among these variables and the results are displayed in Table 4.11 and Table 4.12 respectively.

Table 4.12. Pearson Correlation

Variables	***1***	***2***	***3***	***4***	***5***
1. Procurement Performance	1				
2. Procurement Planning	.497**	1			
3. Staff Competence	.328**	.317**	1		
4. Resource allocation	-.094	-.011	.213*	1	
5. Procurement Procedure	.158	.257**	.211*	.192	1

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

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

From the results displayed in table 4.12, the dependent variable (procurement performance) correlates positively with all the independent variables (thus, procurement planning, staff competence, and procurement procedure) except resource allocation which negatively correlates with procurement performance. Thus, procurement performance has a positive correlation coefficient (r = 0.497) with procurement planning, (r = 0.328) with staff competence; and (r = 0.158) with procurement procedure. Conversely, the results displayed in Table 4.13 shows that resource allocation have an adverse relationship with procurement performance (r = -0.094). However, the study shows that there is a moderate correlation between procurement performance and procurement planning ($r = 0.4 \leq 0.6$) and a weak correlation with staff competence (thus, $r = 0.2 \leq 0.4$). Nonetheless, the resource allocation and procurement procedure shows a weak relationship with the procurement performance ($r = 0.0 \leq 0.2$). In summary, only procurement planning and staff competence have a significant relationship with procurement performance.

Table 4.13. Regression

	Unstandardized Coefficients		*Standardized Coefficients*	*t*	*Sig.*
	B	**Std. Error**	**Beta**		
(Constant)	-4.271E-15	.086		.000	1.000
Procurement Planning	.418	.093	.418	4.483	.000
Staff Competence	.219	.094	.219	2.341	.021
Resource allocation	-.142	.090	-.142	-1.587	.116
Procurement Procedure	.032	.091	.032	.351	.727
	R Square =.298		Adjusted R Square = .269		
	F = 10.096		Sig. = .000[b]		

a. Dependent Variable: Procurement Performance

From Table 4.13, the procurement planning, and staff competence are statistically significant at 1% level. Thus, the procurement planning ($\beta = 0.418$, $p<0.05$) and staff competence ($\beta = 0.219$, $p= 0.021$) have a significant and positive relationship with the procurement performance. Thus, holding all other variables constant, whiles the procurement planning influences procurement performance by 41.8%; staff competence influences procurement performance level by 21.9%. However, the results displayed on the regression tables shows that resource allocation and procurement procedure do not statistically influence procurement performance significantly; although, resource allocation adversely influence performance at 14.2% and procurement procedure positively affect procurement performance.

4.6 Discussion of Findings

The underlying aims of the study is to identify the effective criteria for assessing and measuring procurement performance, to explore the factors besides procurement selection (PSC) criteria that influence procurement performance (PP) and to establish the relationship between PSC and PP to demonstrate the criteria with significant influence on PP. Therefore, the discussion of the findings is done in light of these objectives. The subsequent subsections are dedicated to discussing these findings.

4.6.1 Criteria for Assessing and Measuring Procurement Performance

In defining the criteria for assessing and measuring procurement which is the first objective of the study, the opinions of the participants were collected on five main key items which includes, timeliness of delivery procurement, effectiveness of cost, quality of resource, value of money and meeting procurement standards significantly determine procurement performance. The study analysis conducted using structural equal modeling reveal that, how effect the cost of the procurement is, how quality the procured resources are, how it creates value for money and meet the procurement standards of regulations and industry significantly determine

procurement performance. Hence, procurement is deemed successful when it is executed on within the time schedules, budget (thus, at a minimal of cost), creates value for money (when benefit outweighs the cost of the procurement), and meets quality standards in terms of regulations and materials. The study findings was confirmed by several study results including Kirande and Rotich (2014) who discovered that budget and quality management system defines procurement performance. Flynn, A. (2018) also revealed through their study that value for money maximization is a core determinant of procurement performance in Europe. Regarding cost effectiveness and timeliness findings fropm studies such as Kumar et al. (2005), Tas (2020), Lundberg and Marklund (2013), Vaidyanathan, and Devaraj (2008) and Mbae (2014).

4.6.2 Factors besides PSC criteria that influence procurement performance

The second of objective of the study, the researcher probed further to know what other factors influence procurement performance. Therefore base on literature, procurement planning, staff competence, resource allocation and procurement procedure were proposed for testing. Both the correlation analysis and linear equation shows that only procurement planning and staff competence significantly and positively affect procurement performance. Thus, the more the firm improves its procurement planning and pool competent personnel, the better the procurement performance will be. More so, the procurement procedure have weak positively and an insignificant impact on procurement. This means that, although procurement procedure may in a way influence procurement performance, it will not be significant enough to be notice. However, resource allocation have a negative but insignificant influence on procurement performance. This implies that resources allocated in its greater quantum rather leads to a decline in performance, although it might not be significant. These findings are supported in partial by studies such Mesa et al. (2017), Kiage (2013) and Kwakezi and Nyeko (2019). Their study results revealed that procurement planning, staff competence, resource allocation and procurement procedure significantly and positively determine procurement performance. This

studies finding on resource allocation and procurement procedure however, disagree with this current study's results.

4.6.3 Relationship between PSC and PP and Factors that have significant influence on PP

The final research objectives seeks to address the relationship between procurement selection criteria and procurement performance and to determine which procurement criteria significantly define the selection process. This research finding showed that there is a significant positive relationship between procurement selection criteria and procurement performance. This indicates that the type of selection criteria use influences the performance of the procurement project in terms of timeliness, cost effectiveness, quality, regulatory standard, and value for money. Nonetheless, the relationship is expected to be positive when moderated by firm size but negative when moderated by years of operating the firm. But the results revealed that the both firm size and years of operation positively influence the relationship between procurement selection criteria and procurement performance.

More so, the research study finding revealed that all the ten enlisted factors significantly determines criteria for procurement procure and method selection. This indicates that when procurement project is selected, the firm due to its years of operation and size prioritize price competition, controllable procurement project variation, effectiveness of communication among teams and between stakeholders, competence and experience of the supplier, the clarity to which the scope is define, the level of quality required, the certainty with delivery cost and timelines, how involving the client will be and the level of clarity on how the responsibilities of individuals and teams are defined.

Numerous studies, such as those conducted by Alkhalil (2002), Ameyaw (2009), Chan (2007), Chan et al. (2001), Cherns and Bryant (1984), Cheung et al. (2001), Hashim (2006), Love et al. (1998), Lim and Ling (2002), Thomas et al. (2002), and Tooky et al. (2001) have backed up

these findings. The procurement plan is explicitly detailed to include both the initial and final stages, and is characterized by intense pricing competition. The project details, materials quantity, client objectives and requirements, as well as the scope of work are precisely and lucidly depicted in the project specification. Additionally, the procurement verification and approval procedures are established. The positive reflection of these elements serve as a standard and eventually impact the procurement's efficiency. Cruzbuy (2013) has verified that a scope of work explicitly outlines and specifies all tasks to be accomplished. An important contributor to project success is the clear definition and communication of project tasks, specifications and materials.

Shirikyan (2017) discovered that when project variation is controllable, it can enhance performance by avoiding cost and time excess. This shows that controllable project variation is a crucial factor for success. These findings were consistent with Hashim's (2006) research, revealing that suppliers frequently review contract documents before bidding and procurement phases. This practice can effectively manage alterations during the procurement process and prevent a rise in both time and expenses.

Meng (2012) discovered that it is crucial to establish successful communication among project stakeholders in order to choose the right procurement client and prevent procurement duplicity. Inducing effective communication and direct contact between clients and suppliers, the overlapping procurement responsibilities allow for swift responses and adaptations to each other's needs. Enhancing the works accomplished and swiftly addressing any difficulties encountered was made possible by the contractors' and clients' direct communication. The project's performance is typically enhanced by effective communication between all parties involved, according to Seng and Yusof's (2006. According to Pinto and Slevin's (1998) findings, the adoption of this standard facilitates effective collaboration and communication

between stakeholders and customers, allowing for timely and cost-effective resolution of issues and completion of projects.

Arvidsson and Melander (2020) and Eckerd et al. both corroborated the utilization of competence and experience of suppliers as a criterion for selection. In the year 2022. These studies revealed that many qualified suppliers possess the requisite expertise, aptitude, and proficiency to skillfully navigate and oversee procurement initiatives. Procurement performance was positively impacted by all of these factors. As per research carried out by Seng and Yusof (2006) and Chan et al. (2001). Effective procurement outcomes heavily rely on the expertise, proficiency and know-how of suppliers in project management and control.

Mirza, Pourzolfaghar, and Shahnazari (2013) as well as Pheng and Pheng's (2018) research outcomes have provided evidence in favor of having a well-defined and unambiguous scope of work. According to their research, a well-defined scope outlines the project plan and enables procurement bidding throughout all stages of project activities. The document provides a precise and transparent depiction of the project details, including the specifications, material quantities, client goals and expectations. Moreover, it establishes guidelines for verifying and approving the finished project, as well as ensuring resource procurement adheres to quality standards. All endeavors have a favorable impact on the execution of projects. According to Cruzbuy's (2013) findings, a scope of work provides a comprehensive description and explanation of all the tasks to be carried out. Clear project tasks, specifications, and materials are crucial for achieving success in a project.

The notion of quality is strongly linked with satisfying the customer, who evaluates if the supplier has successfully delivered on the contracted objectives. This was noted in Eriksson and Westerberg's study in 2012. To achieve a high level of quality, it is crucial to ensure that top-notch materials, equipment, machinery, and workmanship are employed, according to

scholars such as Oyedele (2003) and Thomas et al. (2002). As per the research conducted by Thomas et al. (2002). To attain superior project quality, three key factors must be present: the quality of materials and equipment, and the skill level of the workers. The absence of any of these factors will have a negative impact on procurement performance.

Various research investigations, including studies by Antoine et al. (2019), Chan (2007), Cheung et al. (2001), Love et al. (1998), and Mitchell (2012), have shown that having knowledge of project duration and cost enables clients and suppliers to effectively strategize, coordinate, and regulate project activities to prevent any potential rise in project duration and cost. Thomas et al. posits that as per their research, it can be inferred that. In the context of larger projects, clients place great importance on two key factors: "time certainty" and "cost certainty". These factors are deemed significant in the selection process for procurement suppliers. According to them, a correlation exists between time and cost certainty and the efficiency of procurement systems in ensuring timely and cost-effective project completion. The greater the level of certainty in these factors, the faster the system can facilitate the completion of projects within the set time and cost parameters.

Various authors, including Chaudhry et al (2018), Trigunarsyah (2017), and Fu et al (2023), have corroborated the findings regarding client participation in the selection and procurement process of suppliers. According to these researchers, when clients participate in a project, it leads to positive rapport and effective communication between the project team and clients. Working collaboratively with the consultants and project team, the clients are able to address project issues successfully. Clients who consistently involve consultants in crucial technical decisions can authorize project managers to oversee, supervise, and streamline the project's execution. Client participation contributes to the successful implementation of projects, as noted by Ameyaw (2009), Cherns and Bryant (1984), and Lim and Ling (2002).

Researchers who were in favor of it suggested that the primary cause for the failure of project parties to fulfill their duties was the lack of precise and well-defined allocation and definition of their respective responsibilities (Lahdenperä, 2012; Ward & Chapman, 2003), emphasizing the importance of clearly defining the parties' roles. As a consequence, there is an overlap in the duties assigned to the project stakeholders. The factors mentioned contributed to elevating disagreements among the parties involved in the project, consequently resulting in adverse impacts on the PP, as stated by Alkhalil (2002), Chan et al. (2001), and Hashim (2006).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This section of the study highlights the major findings of the study in relation to the study objectives and makes a conclusion to that respect. It further makes recommendation on the basis of the study findings and on areas of further study.

5.2 Summary

The purpose of this research is to examine the effect of procurement selection criteria on procurement performance. In view of this, the study findings were summarized as follows:

5.2.1 Identify the effective criteria for assessing and measuring procurement performance

The measures and criteria that is used by both private and public sector firms to measure the performance of procurement includes timeliness of delivery procurement, effectiveness of cost, quality of resource, value of money and meeting procurement standards significantly determine procurement performance. Thus, the results through the structural equation modelling shows that these variables significantly define the procurement performance. Hence, the procurement of a firm is considered successful when the materials are received on time and within the schedules it was planned. Also, a procurement is considered efficient if it’s able to meet the

company's budget but still meets the both quality and regulatory standards and its benefit outweighs its cost.

5.2.2 Explore the factors besides procurement selection (PSC) criteria that influence procurement performance (PP)

Also, the study findings revealed that there are several other factors that affect procurement performance, and these factors includes procurement planning, staff competence, resource allocation and procurement procedure. However, the correlation analysis revealed that there is a moderate positive relationship between procurement performance and procurement planning and weak positive relationship between procurement performance and staff competence. But the relationship shows a very weak positive to no relationship between procurement procedures and a negative relationship between procurement performance and resource allocation. Nonetheless, the study revealed that procurement planning and staff competence significantly influences procurement performance. It was also revealed through the study that although an increase in resource allocation may lead to a decrease in performance, the adverse impact is insignificant. In the same vein, procurement procedure may improve procurement performance but at an insignificant level.

5.2.3 Examining the Relationship between PSC and PP to demonstrate the criteria with significant influence on PP

Finally to test the rest of the hypotheses to establish the relationship between procurement selection criteria and procurement performance, a structural equation modeling was conducted. The study results shows that there is a significant positive relationship between procurement selection criteria and procurement performance. This indicates that each criteria adopted in procurement selection significantly determines the level of performance and thus, shows that an improvement in the procurement selection criterion will significantly lead to the increase in procurement performance. This further explains the significant loadings of each procurement

criteria which implies that each of the 10 procurement selection criteria can significantly influence procurement performance as each factor significantly and positively determine procurement selection criteria

5.3 Conclusion

It is clear from the study analysis that procurement selection criteria that influences procurement performance are numerous but includes price competition, controllable project variations, effective communication, competence and experience of the supplier, clarity of scope definition, high-quality level required, time certainty, cost certainty, client involvement in the project, and clear definition responsibilities. Due to the noteworthy impact of these criteria on procurement performance, it is vital for project clients to prioritize them when choosing suitable procurement selection criteria. This can include measures like paying close attention to them during the selection process.

It is therefore important for firms to involve all parties in their procurement process. The involvement of project parties in procurement projects among firms may vary due to the method of procurement used but there is high level of involvement of all project parties which showed a strong correlation with high procurement performance. Good relationships and smooth communication between project parties should be built as result of the close involvement of clients in projects, and this will likely reflects positively on the projects.

The project scope should be very clear and well defined in terms of contract documents (quantities, specification, materials and equipment). The project objectives and the methods used to execute projects should be well defined. Also, the project stakeholders should be very accurate in the supplier selection stage. High price competition should be considered by suppliers in order to improve and enhance the price competition. The other thing is that the client should not be considering cost efficiency to be an overriding concern in the evaluation

and comparison of suppliers' bids. Other criteria such as work experience, reputation and financial and technical capabilities should be given priority.

The responsibilities and authorities of each party involved in the project should be clear and from free any overlap in their roles and responsibilities. The project client should be highly involved in the procurement process in order to take decisions in a timely manner, to work harmoniously with project teams and to create smooth communication between project members. This involvement plays an important role in solving any problems that may arise, especially, during early stages of the project.

The project cost should be accurately estimated in advance and before commencing the procurement process, to allow the client to budget for the procurement process and to plan for any contingencies. The client project stakeholders should pay great attention to the quality of the procurement, spending adequate time in order to develop good documentation in terms of materials and specification. The procured materials and equipment should be of high quality; the staff of the project should be highly skilled and qualified. The specification of the procurement should be clear and accurate. This issue can reflect positively on the level of project quality required.

The communication between parties should be effective. The parties in the project should be aware of the importance of mutual communication for project successes. In this regard, the project parties should communicate actively during the procurement stages, fostering direct and good relationships. They should also help each other sharing the information and ideas with regards to the project.

The stakeholders should be clearly aware of their responsibilities and duties for the procurement. The performance of the construction projects among the firms is measured and evaluated based on time, cost and quality criteria. These criteria are often used to assess the

level of success or failure of procurement among the firms, as they consider them as being more appropriate and relevant to project expectations and requirements. It is clear that there is no one single and widely accepted procurement selection criteria which can influence procurement performance significantly and consistently. It is therefore important for both private and public sector firms to remain flexible in their selection criteria in other to choose the best factors that will define procurement success.

5.4 Recommendation

On the basis of the study findings and conclusion drawn, the following recommendations were made:

5.4.1 Factors determining Procurement Performance

If management identifies cost reduction, adherence to quality standards, timely delivery, and good value for money as critical determinants for procurement effectiveness, the following are some suggested actions that can be taken.

Perform a meticulous assessment of your suppliers to determine their capacity in delivering cost-efficient products or services while maintaining outstanding quality measures. Take into account their history of delivering on schedule and their comprehensive offering of benefits. Utilize unbiased standards to evaluate their effectiveness, such as previous evaluations of their work, financial durability, and certifications of quality. A recommended approach to cost reduction and procurement optimization is to adopt strategic sourcing practices by formulating a plan to identify cost-saving potentials. This could imply streamlining acquisitions, capitalizing on cost efficiencies, bargaining for beneficial agreements, and investigating different vendors or resources.

Management should encourage cooperative efforts with suppliers. Therefore, they need to develop robust partnerships with suppliers to foster transparent communication and teamwork

and participate in advance conversations to discover opportunities for reducing expenses and enhancing quality. Also, management should frequently evaluate performance measures in collaboration with suppliers and establish agreed-upon objectives for ongoing enhancement. There is a need to encourage a competitive environment by promoting fair and advantageous competition among suppliers, resulting in reduced costs and higher value for money. To obtain reasonable market prices and quality standards, it is advisable to employ competitive bidding methods and assess several suppliers. One can accomplish this by means of tendering, auctions, or soliciting multiple quotations.

Make a wise investment by focusing on the development of your suppliers. By collaborating closely with them, you can enhance their abilities and bring them in line with your organization's desired levels of quality and delivery expectations and enhance the supplier base by offering training initiatives, exchanging successful strategies, and encouraging creativity. Making this investment can potentially lead to better performance and considerable cost savings over an extended period. Create a comprehensive system for monitoring and evaluating procurement performance by tracking crucial metrics such as achieved cost savings, delivery timelines, quality performance, and overall value for money. Consistently evaluate the performance of suppliers and offer constructive criticism to encourage ongoing enhancement.

Establish thorough contracts that unambiguously outline quality benchmarks, delivery schedules, and cost projections to effectively manage the process. Regular audits and inspections should be conducted to guarantee adherence to the contracted terms and conditions. Also, there is a need to ensure suppliers fulfil their contractual obligations, and quickly deal with any instances of non-compliance. Optimize procurement workflows, pinpoint chances to save costs, and track performance efficiently through the use of procurement software and analytics tools. To improve effectiveness and cut down on administrative expenses, it is

advisable to mechanize repetitive responsibilities like the handling of invoices and purchase order processing.

Encourage a mentality of constant enhancement by creating an environment that motivates procurement employees to proactively search for novel approaches, pinpoint areas for decreased expenses, and facilitate persistent evolution. Encourage proactive thinking and outstanding performance by implementing reward schemes and recognition initiatives and involve representatives from diverse departments, such as finance, quality assurance, and operations, in procurement decision-making processes to create cross-functional teams. This partnership guarantees comprehensive cost reduction, quality control and punctual delivery efforts, all while maximizing the value received for the investment.

5.4.2 Other Criteria influencing Procurement Performance aside the selection criteria

More so, the study discovered that the procurement planning and staff competence were discovered to substantially influence performance; hence, it is important for management of firms staff their procurement and supply department as well as stores with competent personnel. This will go a long way to planning the procurement process efficiently and choosing the criteria to influence procurement performance positively and substantially.

5.4.3 Demonstrating the criteria with significant influence on PP by Examining the Relationship between PSC and PP

Selection of inappropriate criteria can be considered one of the main reasons responsible for poor procurement performance wherein a large number of projects are delivered with poor performance as results of the inappropriate procurement selection. The main reason is that clients did not consider the procurement criteria when they decide which the method of procurement should be used for delivering projects. There is no specific technique or systematic approach used to help clients determine which criteria need to be given more focus

and when it is best to use for project delivery. Therefore, the criteria for procurement selection are usually used intuitively, largely based on firm's experience with previous projects. This issue has created a considerable number of problems for firms such as time and cost overruns. Due to this, there is the need to develop a systematic approach which can aid clients to determine the right and significant criteria for selecting the most appropriate project that would ensure successful PP outcomes.

Central to the procurement criteria is information and/or communication. The involvement of clients, clarity of responsibility and scope of work, time and cost certainty, price competition and quality requirement all centers on information that one party will provide to the other. Hence, it is suggested that in the light of recent technology, firms should leverage communication technology to build a solid information system to provide accurate information with clarity. This can go a long way to curb conflict and misquotation as well as mistakes in the procurement process.

5.5 Implication to Theory and Management

5.1.1 Theoretical Implication

Theoretical implications of procurement selection criteria such as cost and time certainty, quality, communication, client involvement, and clear definition of objectives can have significant effects on procurement performance. Here are some theoretical implications related to these criteria:

The consideration of cost certainty in procurement selection criteria can lead to more accurate budgeting and cost control. It helps in reducing the risk of cost overruns and enhances financial predictability (Bolomope et al., 2022; Davis et al., 2008; Luu et al., 2003). This, in turn, can contribute to improved procurement performance by ensuring that projects are completed within allocated budgets. Including time certainty as a selection criterion helps in establishing

realistic project schedules and timelines. It promotes efficient project planning and execution, reducing the likelihood of delays. Meeting project timelines contributes to overall procurement performance by ensuring timely completion and delivery of goods or services (Antoine, Alleman & Molenaar, 2019; Osman & Salah, 2020).

Emphasizing quality as a selection criterion leads to the procurement of superior goods or services. By considering quality aspects such as durability, reliability, and performance, organizations can enhance customer satisfaction and reduce the likelihood of product or service failures. Improved quality contributes to procurement performance by meeting or exceeding user expectations. Effective communication plays a crucial role in procurement success (Albano et al., 2017; Buzzetto et al., 2020). By including communication as a selection criterion, organizations can prioritize suppliers or contractors who demonstrate strong communication skills and responsiveness. This promotes collaboration, transparency, and the exchange of critical information throughout the procurement process. Effective communication can result in improved coordination, fewer errors, and better overall procurement performance (Atmo et al., 2017; Chavan et al., 2021).

Involving clients or end-users in the procurement process can enhance their satisfaction and buy-in. By considering client involvement as a selection criterion, organizations prioritize suppliers or contractors who actively engage with clients and consider their preferences and feedback. Engaged clients tend to have a higher sense of ownership, leading to better project outcomes and overall procurement performance. Procurement selection criteria should include a clear definition of objectives to align supplier capabilities with project requirements. When objectives are well-defined, suppliers can understand project expectations and deliver accordingly. This contributes to procurement performance by minimizing misunderstandings, rework, and the need for costly project revisions.

The RBV suggests that organizations can gain a competitive advantage by leveraging their unique resources and capabilities (Estensoro et al., 2022). In the context of procurement, effective planning and competent staff can be seen as valuable resources. Procurement planning helps optimize resource allocation and mitigate risks, while staff competence enables efficient execution of procurement processes. The RBV implies that organizations with superior procurement planning and staff competence are more likely to achieve better procurement performance compared to their competitors (Ogalo, 2021; Odero & Ayub, 2017).

Transaction Cost Theory (TCT) emphasizes the importance of minimizing transaction costs in economic exchanges. Procurement planning helps identify and select suppliers, negotiate contracts, and manage relationships, reducing transaction costs associated with procurement activities. Staff competence ensures effective communication, coordination, and monitoring, further minimizing transaction costs. Positive procurement performance resulting from efficient procurement planning and competent staff aligns with the principles of TCT (Bean, Mustapa & Mustapa, 2019; Deepradit et al., 2020).

Agency theory explores the relationships between principals (organizations) and agents (procurement staff) in situations where there may be conflicts of interest. Effective procurement planning provides clarity on organizational goals, reducing information asymmetry and the potential for agency problems (Maestrini et al., 2018; Panda & Leepsa, 2017). Competent staff can act as trustworthy agents, aligning their actions with the interests of the organization. Positive procurement performance arising from planning and staff competence supports the agency theory notion of aligning incentives and reducing agency costs (Adjei-Bamfo & Maloreh-Nyamekye, 2019; Heslina & Syahruni, 2021).

Contingency theory posits that the effectiveness of organizational practices depends on the fit between internal and external factors. Procurement planning and staff competence can be

considered as contingency factors that influence procurement performance. The theory suggests that aligning procurement planning with the organization's goals and strategies, and having competent staff capable of adapting to changing circumstances, enhances the likelihood of achieving better procurement performance (Bals, Laine & Mugurusi, 2018).

Overall, considering these selection criteria theoretically enhances procurement performance by promoting cost control, timely completion, high-quality deliverables, effective communication, client satisfaction, and objective alignment. Also, the theoretical implications highlight the importance of effective procurement planning and staff competence in enhancing procurement performance. By considering these theoretical perspectives, organizations can gain insights into the underlying mechanisms and relationships that drive positive outcomes in procurement.

5.1.2 Managerial Implication

The procurement selection criteria play crucial roles in determining procurement performance. Here are some managerial implications associated with these criteria:

Procurement managers should carefully evaluate the cost and time implications of procurement decisions. It is important to strike a balance between achieving cost savings and ensuring timely delivery of goods or services. Effective negotiation skills and supplier relationship management can help in securing competitive pricing and favorable terms, minimizing cost overruns, and avoiding delays. Regular monitoring of costs and timelines during the procurement process is essential to identify any deviations and take corrective action promptly.

Emphasize the importance of quality throughout the procurement process. Establish clear quality standards and specifications for the desired goods or services. Conduct thorough due diligence on potential suppliers to assess their ability to meet quality requirements. Implement quality control measures and conduct inspections or audits to ensure compliance with

agreedupon quality standards. Establish effective feedback mechanisms to capture and address any quality issues that may arise during the procurement process. Foster open and transparent communication channels with suppliers, stakeholders, and internal teams involved in the procurement process. Clearly communicate procurement requirements, expectations, and timelines to suppliers to avoid misunderstandings and facilitate smooth execution. Regularly communicate updates, changes, and progress to stakeholders and clients to maintain transparency and manage expectations effectively. Involve clients and stakeholders early on in the procurement process to understand their requirements, preferences, and constraints. Seek client input during supplier selection to ensure their needs and expectations are aligned with the chosen supplier. Maintain a collaborative relationship with clients throughout the procurement process, involving them in decision-making, and seeking their feedback to enhance client satisfaction.

Clearly define procurement objectives, including specific deliverables, timelines, and performance metrics, to provide a framework for evaluating procurement success. Align procurement objectives with organizational goals and strategies to ensure coherence and value generation. Regularly review and assess the progress towards objectives, making adjustments as needed to ensure alignment with evolving organizational priorities.

Effective procurement planning ensures that the right goods and services are procured in the right quantities, at the right time, and from the right suppliers. When coupled with staff competence, which refers to the knowledge, skills, and abilities of the procurement team, it can lead to improved efficiency in the procurement process. Competent staff can effectively execute the procurement plan, identify cost-saving opportunities, negotiate favorable contracts, and ensure timely delivery, thereby reducing procurement cycle times and optimizing resource allocation.

A positive relationship between procurement planning and staff competence can result in better decision-making within the procurement function. Planning provides a structured framework for decision-making, while competent staff possess the necessary expertise to analyze market conditions, evaluate supplier capabilities, assess risks, and select appropriate procurement strategies. This combination enables informed and strategic decision-making, leading to better procurement outcomes and alignment with organizational goals.

Procurement planning helps identify potential risks and develop mitigation strategies to address them. Staff competence plays a crucial role in implementing these strategies effectively. Competent procurement professionals are equipped to anticipate and manage risks such as supply disruptions, supplier failures, quality issues, and regulatory compliance. By proactively addressing risks, procurement performance can be safeguarded, ensuring continuity of supplies, minimizing disruptions, and protecting the organization from potential financial and reputational harm.

Effective procurement planning combined with staff competence can lead to cost savings. Well-planned procurement processes enable effective negotiation and competitive bidding, resulting in favorable pricing and terms. Competent staff can analyze supplier proposals, conduct effective supplier evaluations, and negotiate contracts that drive value for money. This, in turn, contributes to cost reductions, increased cost control, and improved overall procurement performance.

When procurement planning is integrated with staff competence, it enhances stakeholder satisfaction. Adequate planning ensures that stakeholder requirements are understood and considered in the procurement process. Competent staff can effectively communicate and collaborate with internal stakeholders, suppliers, and other relevant parties, addressing their concerns, and fostering positive relationships. Satisfying stakeholder needs contributes to a

smoother procurement process, promotes trust, and enhances overall procurement performance.

In summary, by considering these managerial implications it can result in improved efficiency, enhanced decision-making, risk mitigation, cost savings, and stakeholder satisfaction. By recognizing and leveraging this relationship, organizations can optimize their procurement processes and achieve better procurement outcomes.

5.6 Limitations and Areas for Further Study

The data collection was limited to stakeholders who were operating within northern regions of the country due to the level of proximity with the researcher. In addition, however accessing the respondents became a bit challenging pending their work and limited break hours. Therefore this limited the ability of the researcher to adopt the mixed research method which would have given the researcher expansive information to address the objectives of the study. In view of that, only ended questions were posed, thereby limiting the participants from explaining their choice of answer. Hence, a further research in this field might be necessary to conduct in future to cover most the regions in Ghana and adopt the mixed research methodology to enrich the study findings and the level of generalization for the study.

A second limitation is that only 10 criteria were considered in this study despite the various procurement criteria discovered in several studies including Ghadamsi (2016) who outline 24 criteria in his work. This was not because of any conceptual or theoretical deficiency in the study itself, but because these methods of procurement proved to be ubiquitous among firms in Ghana, to the exclusion of alternatives. However, expansive research can be undertaken to include most of these excluded criteria to assess their impact on procurement performance.

A third limitation is the fact that the main study data came from respondents' personal assessment of their experience of past procurement projects as opposed to basing it on actual

existing records of these projects. The subjectivity of the respondents was however directed towards specific past projects in which they actively participated in their selection and delivery but not to a hypothetical situation. However, a further study can be undertaken from a hypothetical purview to see if the results will remain or not.

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APPENDICE: QUESTIONNAIRE KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KNUST)

Introduction

In the partial completion of MSc Supply Chain and Procurement Management, I am conducting research on "Impact of Procurement Selection Criteria on Procurement Performance." The aim is not to infringe on your privacy and the privacy of your corporation. I would therefore like to ask you to provide me with the following details, so that I can carry out this work. All information will be treated as anonymous and confidential. You reserve the right to partake at your own will.

Thank You.

SECTION A: DEMOGRAPHIC INFORMATION

1. Please indicate your years of experience of working in your firm

❑ Less than 5
❑ 5-10 ❑ 16-20

❑ 11-15 ❑ More than 20

2. Which of the following best describes the nature of your organisation?

❑ Public Sector ❑ Private Sector

3. Please indicate which of the following best describe your academic degree.

❑ Diploma/HND ❑ Bachelor's Degree ❑ Doctorate Degree

❑ Other please (specify)…….

❑ Master's Degree

4. What is the number of employees in your organization?

❑1-19 ❑20-49 ❑50-79 ❑80-99 ❑100 & above

5. How many years has the organization been operating?

❑1-5 years. ❑6-10 years. ❑11-15 years. ❑16-20 years.

❑above 20 years.

SECTION B: CRITERIA FOR ASSESSING AND MEASURING PROCUREMENT PERFORMANCE

1=strongly disagree; 2=disagree; 3=uncertain, 4=Agree; 5=strongly agree

Project performance	**Response**				
	1	**2**	**3**	**4**	**5**
Procurements are completed on timely basis		❑	❑ ❑	❑	❑
Procurements is cost effective		❑	❑ ❑	❑	❑
Procurements of resources meets quality		❑	❑ ❑	❑	❑
Value for money procurement is achieved in the procurement process		❑	❑ ❑	❑	❑
Procurement process meets standards		❑	❑ ❑	❑	❑

SECTION C: PROCUREMENT SELECTION CRITERIA

1=strongly disagree; 2=disagree; 3=uncertain, 4=Agree; 5=strongly agree

Procurement selection criteria	**Response**				
	1	**2**	**3**	**4**	**5**
High price competition	❑	❑ ❑		❑	❑
Clarity of scope definition	❑	❑ ❑		❑	❑
High-quality level required	❑	❑ ❑		❑	❑
Clear definition of project parties' responsibilities	❑	❑ ❑		❑	❑
Client involvement in the procurement	❑	❑ ❑		❑	❑
Controllable procurement variations	❑	❑	❑	❑	❑
Cost certainty	❑	❑	❑	❑	❑
Time certainty	❑	❑	❑	❑	❑
Effective communication	❑	❑	❑	❑	❑
Level of competence and experience of the supplier	❑	❑	❑	❑	❑

SECTION D: FACTORS AFFECTING PROCUREMENT PERFOEMANCE

1=strongly disagree; 2=disagree; 3=uncertain, 4=Agree; 5=strongly agree

Statement	**Response**

	1	2	3	4	5
PROCUREMENT PALNNING					
Procurement plan identify materials as per the company needs	❑	❑	❑	❑	❑
Procurement plan helps to decide when to buy	❑	❑	❑	❑	❑
Procurement planning helps in resource allocation	❑	❑	❑	❑	❑
Procurement planning helps to determine a total value of the anticipated cost of the requirement	❑	❑	❑	❑	❑
Poor procurement planning leads to big budget deficits	❑	❑	❑	❑	❑
Procurement planning results into compliance to set procedures	❑	❑	❑	❑	❑
Planning helps in clarity of scope definition	❑	❑	❑	❑	❑
Procurement mistakes and defective supply is as a result of poor procurement planning	❑	❑	❑	❑	❑
Procurement planning helps to estimate the time required to complete the procurement process	❑	❑	❑	❑	❑
RESOURCE ALLOCATION					
Unavailability of resources as planned through the procurement duration	❑	❑	❑	❑	❑
Adequate allocation of resource	❑	❑	❑	❑	❑
Resource availability and confirmation should be the basis of tender award	❑	❑	❑	❑	❑
Resource allocation should be adequate to ensure efficiency	❑	❑	❑	❑	❑
Budget reviews should be able to cater for changes in the economic environment	❑	❑	❑	❑	❑
STAFF COMPETENCY					
Staff training improves procurement performance	❑	❑	❑	❑	❑
loss of key competencies affects procurement performance	❑	❑	❑	❑	❑
Staff creativity improves procurement performance	❑	❑	❑	❑	❑
Conflict among procurement participants	❑	❑	❑	❑	❑
Inadequate supplier experience	❑	❑	❑	❑	❑
Poor leadership skills for procurement manager	❑	❑	❑	❑	❑
Statement	**Response**				

	1	2	3	4	5
Lack of coordination between clients and suppliers	❑	❑	❑	❑	❑
The ability to leverage interpersonal skills	❑	❑	❑	❑	❑
PROCUREMENT PROCEDURE					
Knowledge of Procurement procedure reduces complexity of procurement process and compliance	❑	❑	❑	❑	❑
Procurement procedure eases the organizing and reviewing procurement activities	❑	❑	❑	❑	❑
Effective procurement procedure reduces delay in delivery of materials	❑	❑	❑	❑	❑
Procurement procedure helps in solving legal problem	❑	❑	❑	❑	❑
Procurement procedure enhances transparency	❑	❑	❑	❑	❑
procurement procedure have caused delays in decision making	❑	❑	❑	❑	❑
procurement procedure have caused delays in service delivery	❑	❑	❑	❑	❑