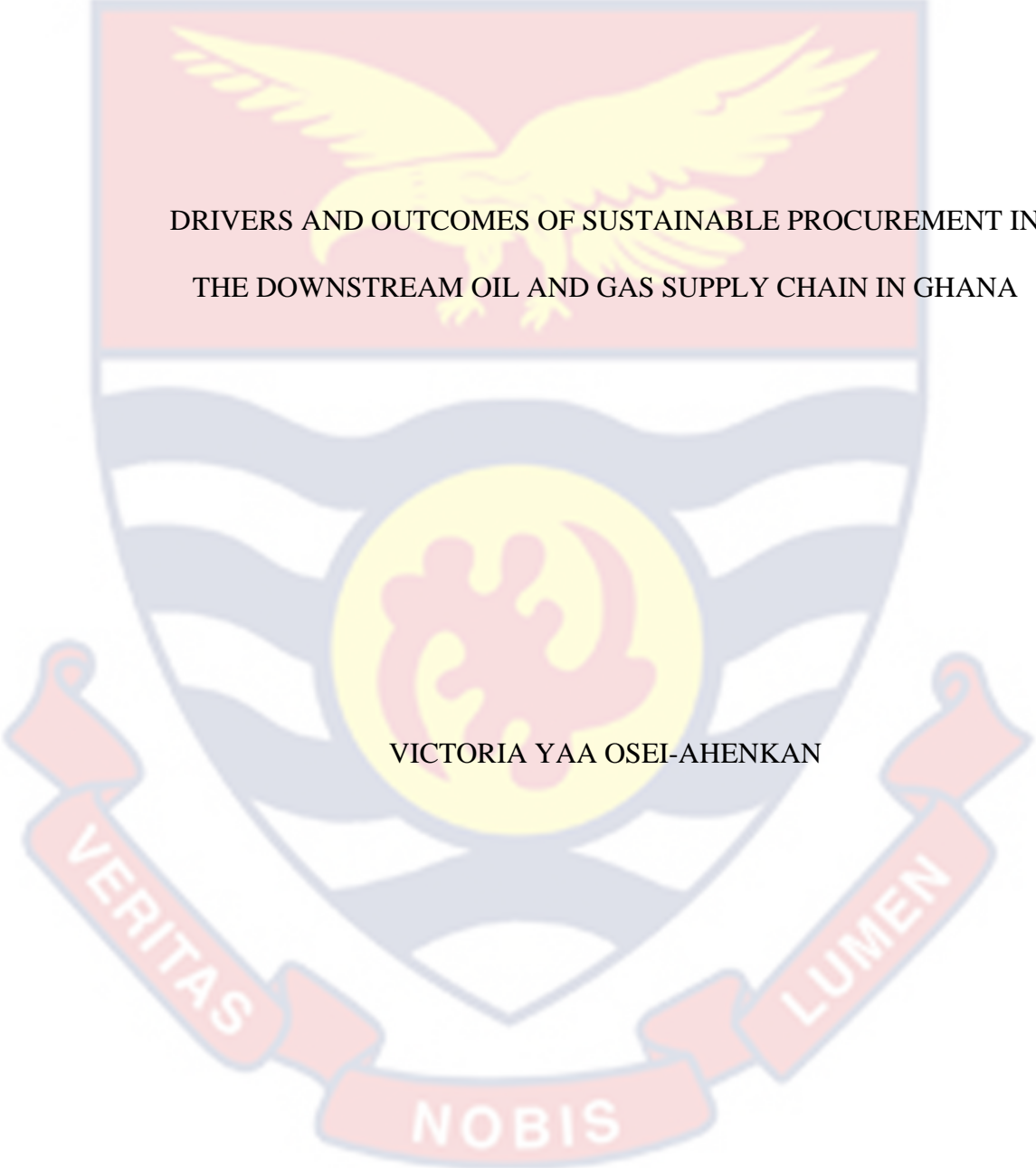UNIVERSITY OF CAPE COAST

DRIVERS AND OUTCOMES OF SUSTAINABLE PROCUREMENT IN

THE DOWNSTREAM OIL AND GAS SUPPLY CHAIN IN GHANA

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UNIVERSITY OF CAPE COAST

DRIVERS AND OUTCOMES OF SUSTAINABLE PROCUREMENT IN

THE DOWNSTREAM OIL AND GAS SUPPLY CHAIN IN GHANA

BY

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Thesis submitted to Department of Marketing and Supply Chain Management
of the School of Business, College of Humanities and Legal Studies,
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of Master of Commerce degree in Procurement and Supply Chain
Management

JULY 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and

that no part of it has been presented for another degree in this university or

elsewhere.

Candidate's Signature …………………….   Date…………………….

Name: Victoria Yaa Osei-Ahenkan

Supervisor's Declaration

We hereby declare that the preparation and presentation of the thesis were

supervised in accordance with the guidelines on supervision of thesis laid

down by the University of Cape Coast.

Principal Supervisor's signature ………………….   Date ………………….

Name: Professor John Gartchie Gatsi

Co- Supervisor's signature ………………………   Date ………………….

Name: Dr. Innocent Senyo Kwasi Acquah

ABSTRACT

The study examined the drivers and outcomes of sustainable procurement in Ghana's downstream oil and gas supply chain. The study adopted a postivisim research paradigm, an explanatory research design and a quantitative approach using the stratified random sampling technique. Structured questionnaires were used for data collection and two hundred and forty- eight (248) valid responses, representing a 100% response rate, from procurement managers operating in the downstream oil and gas supply chain were used for data analysis with SMART PLS for the configuration of the structural models. The study revealed that the internal drivers (top management support and organisational values) do not significantly influence the implementation of sustainable procurement, whereas the external drivers (regulatory environment and support and stakeholders' pressure) significantly and positively influence the implementation of sustainable procurement. The study concludes that the downstream oil and gas firms should focus on the external drivers and the implementation of sustainable procurement since they are essential for improving the sustainable and operational performance of firms that operate in Ghana's downstream oil and gas supply chain.

KEYWORDS

Operational performance

Organisational values

Regulatory environment and support

Stakeholders' pressure

Sustainable performance

Sustainable procurement

Top management support

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DEDICATION

To my mother, Mrs. Christiana Osei-Ahenkan and my siblings, Augustine and

Esther Osei-Ahenkan

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INTRODUCTION

The downstream oil and gas supply chain engages in activities such as sustainable procurement, production and consumption as an essential way of contributing to the United Nation's sustainable development goals (SDG 7 and 12). Sustainable procurement (SP) addresses critical issues of sustainable development hence the need to assess the factors that influence the implementation of sustainable procurement and the benefits associated with its implementation. This study, therefore, seeks to examine the drivers and outcomes of sustainable procurement within Ghana's downstream oil and gas supply chain.

Background of the Study

The African output and purchasing of oil per day in that year amounted to 8.4 million barrels (Okafor et al., 2021). Nigeria was the leading producer of oil in Africa as of the year 2020, with an oil production capacity of 86.9 million metric tons in the country. Angola and Algeria followed Nigeria with 64.5 million metric tons production capacity. This shows the contribution of the oil and gas industry to the development of Africa.Ghana's petroleum industry, though, has not been in existence for long and has proven to have the potential to move the country from a developing country to a developed one (Owulaku & Tetteh, 2022).

Oil production and purchasing in Ghana was about 204 thousand barrels per day in the year 2020. Ghana's income from oil amounted to around 4.1 billion GHS in 2021, roughly 335 million U.S. dollars (Statista, 2023). The

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downstream oil and gas supply chain engages in activities such as procurement, refining, transportation, distribution of petroleum products to retail outlets, natural gas distribution and marketing of petroleum products (Hanga & Kovalchuk, 2019). The downstream oil and gas industry is relatively competitive as compared to the upstream. For this reason, organisations that operate in this sector are mostly affected by consumers' decisions (Amponsah & Opei, 2014). Hence the need to operate in a more sustainable and efficient manner.

Every organisation is as sustainable as the suppliers they source, which puts procurement at a central position in the achievement of sustainability in every supply chain (Johnsen, Miemczyk & Howard, 2017; Krause et al., 2009). The procurement activities of the downstream supply chain play a significant role in the determination of the prices of petroleum products (Manneh, 2020). Since procurement is an essential component of every supply chain, once sustainable procurement is ensured, the performance of the downstream supply chain will be improved (Esfahbodi, Zhang & Watson, 2016).

Sustainable procurement first came out as a concept during the 2002 United Nations World Summit on sustainable development in Johannesburg, however, the idea was conceived in the mid – 1990s as green procurement (Beynaghi et al. 2016). The concept has now evolved to involve the social and economic dimensions (Yu, Yevu & Nani, 2020). Sustainable procurement has been a requirement for organisations that operate within the European Union member states for several years now (Berger, Steurer, Konrad & Martinuzzi,2007).

Sustainable procurement in Africa is being embraced, however, the uptake is at a very slow rate (Ogunsanya, Aigbavboa, Thwala & Edwards, 2022). Sustainable procurement renders organisations responsible for even activities outside their boundaries (Badewi, 2016; Meehan & Bryde, 2011). Sustainable procurement entails the socially and ethically responsible purchasing, environmental impact minimization through the supply chain, and the adoption of economically sound solutions all entrenched in a good business framework(Ogunsanya, Aigbavboa, Thwala & Edwards, 2022).

Sustainable procurement ensures that cost is reduced, the appropriate quantity is purchased, water and energy are saved in the process of procuring goods, increasing transport efficiencies and minimising packaging (Verghese, Lewis, Lockrey & Williams, 2015). This concept is consistent with the goals of sustainable development (SDG 12) by ensuring that there is the healthy development of society, and human and plant life through effective and efficient consumption, purchasing and supply process. Traditional procurement focuses on value for money whereas sustainable procurement considers the value for money on a life – cycle basis bearing in mind the social, economic and environmental dimensions (Ogunsanya, Aigbavboa, Thwala & Edwards, 2019).

The adoption of sustainable procurement in the downstream oil and gas procurement activities brings about enormous economic, environmental, and social benefits to organisations (Kumar & Chandrakar, 2012; Verghese, Lewis, Lockrey & Williams, 2015) and literature has revealed that the initiation, adoption and implementation of sustainable procurement practices is motivated by drivers such as top management support, organisational values, regulatory

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environment and support and stakeholder's pressure (Agbesi, Fugar & Adjei-Kumi, 2018; Sajad, Eweje & Tappin, 2020; Tachizawa & Wong, 2015).

Top management support has been considered one of the essential capabilities of the management of an organisation that enables the development and implementation of organisational sustainability practices (Yusliza, Norazmi, Jabbour, Fernando, Fawehinmi & Seles, 2019). Digalwar, Tagalpallewar and Sunnapwar (2013) stated that top management provides the framework for sustainable practices in every organisation. The absence of top management support may lead to the failure of the implementation of sustainable procurement (Baetz & Bart, 1996; Yusliza at al., 2019).

Also, organisations make use of organisational values as a control system to ensure the dissemination of organisational objectives and purposes among stakeholders (Jollands, Akroyd & Sawabe, 2015). Organisational values are meant to integrate economic, environmental and social sustainability aspects into the organisation's core values to enhance the implementation of sustainable procurement (Epstein & Buhovac, 2014). This means without organisational values meant to enhance the implementation of sustainable procurement and all other sustainable organisational practices, the implementation of sustainable procurement practices may not be effectively done.

Government regulations is one of the main tools deployed by the government to ensure the implementation of sustainable organisational practices, including sustainable procurement (Brammer & Walker, 2011; Morali & Searcy, 2013). Several studies have identified government regulations as a primary driver of the implementation of sustainable procurement (Brammer et al., 2011; Jain & Hazra, 2020). Government regulations are not only the

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external forces that influence the implementation of sustainable procurement but also stakeholders' pressures. These stake holders may include customers, partners, employees and society.

The increased interest of stakeholders in recent times in implementing sustainability practices of organisations has been a major driving force for implementing sustainable procurement in most organisations. For example, stakeholders are concerned about the purchasing practices of businesses that cause harm to the environment. For that reason, organisations engage in sustainable procurement to develop and maintain good relations with their stakeholders by meeting their expectations in the most appropriate way (Cankaya & Sezen, 2018; Longoni & Cagliano, 2018; Rivera-Camino, 2007).

Sustainable procurement, when implemented effectively, improves the efficiency with which organisations operate (Epstein, Elkington & Herman, 2018). Operational performance which is an outcome of sustainable procurement can be defined as the strategic dimensions within which organisations decide to compete by operating efficiently. These dimensions include cost, delivery, flexibility and inventory (Famiyeh, Kwarteng, Asante-Darko & Dadzie, 2018; Santos Bento & Tontini,2018). After the introduction of the concept of sustainable development, the concept of sustainable performance also emerged (Jabbour et al. 2020).

Sustainable performance can simply be defined as the integration of environmental, social and economic performances (Huy & Phuc, 2020; Jiang, Wang & Li, 2018; Pislaru, Herghiligiu & Robu, 2019). Sustainable procurement is one of the essential ways of enhancing organisations' social, economic and environmental performance within the oil and gas supply chain (Kalyar,

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Shoukat & Shafique, 2019; Raut et al., 2019). Assessing the drivers and outcomes of sustainable procurement in Ghana's downstream oil and gas supply chain brings to light the factors that can influence the effective implementation of sustainable procurement and also the performance implications of the implementation of sustainable procurement. This will consequently improve the performance of firms that operate in the oil and gas industry in Ghana.

According to the Resource-based view theory and the theory of dynamic capability, the practice of sustainable procurement improves firms' sustainable and operational performance (Kannan, 2021). The theory of dynamic capability posits that the ability of top management to use their dynamic capabilities to provide support, develop organisational values, succumb to the government's regulations and also meet the expectations of stakeholders can result in the implementation of sustainable procurement (Teece, 2018).

That notwithstanding, the Resource based view theory also posits that the effective and efficient utilization of resources through means such as sustainable procurement benefits organisations in diverse ways, including improved operational and sustainable performance (Hitt, Xu & Carnes, 2016). Yang, Wang, Gu and Xie (2021) therefore posited that to ensure the understanding of sustainable procurement and how it can benefit organisations, the drivers of sustainable procurement must be identified and understood. This study examines the drivers and outcomes of sustainable procurement in Ghana's downstream oil and gas supply chain.

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Statement of the Problem

Sustainable procurement in the oil and gas industry especially in the downstream is one of the essential ways of meeting the expectations of the public after the discovery of oil in Ghana while reducing the cost, possible effects of environmental degradation and other issues associated with the oil and gas industry in a developing economy like Ghana (Niboi, 2018). The role of procurement in enhancing the corporate sustainability agenda cannot be undermined due to its ability to influence even organisations outside the supply chain (Benn & Edwards, 2014). In the oil and gas industry, sustainability is a prime concern, and sustainable procurement has emerged as a solution to traditional procurement practices (Ruparathna & Hewage, 2015). The uptake of sustainable procurement in developing nations is minimal (Ogunsanya, Aigbavboa & Thwala, 2021), even though procurement is recognized as one of the significant factors in attaining sustainable development

From December 28, 2020, to February 14, 2022, the price of gasoline in Ghana has increased by approximately 39.4% (Mensah et al. 2022). In some developed countries, due to the perceived benefits of sustainable procurement known in industry and literature, organisations that operate in the downstream oil and gas industry effectively and efficiently engage in adopting and implementing sustainable procurement initiatives (Agbesi et al., 2018). However, in developing countries like Ghana, it is uncommon to see organisations effectively implementing such initiatives (Ogunsanya et al., 2021). Hence the need to assess the drivers of sustainable procurement in Ghana in order to enhance its implementation and all other associated benefits, such as

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a reduction in the cost of operations which is an essential way of causing the reduction in prices of petroleum products (Agbesi et al., 2018).

That notwithstanding, concerns have been raised in literature about the cost and time-consuming nature of the implementation of sustainable procurement relative to traditional procurement (Khan & Ajmal, 2020; Walker et al., 2012). Considering the increasing focus of some organisations and researchers on the barriers of sustainable procurement (Delmonico et al., 2018; Leal Filho et al., 2019; Ogunsanya, Aigbavboa, Thwala & Edwards, 2019; Vejaratnam, Mohamad & Chenayah, 2020; Zaidi, Mizra, Hou & Ashraf, 2019), it thus necessitates that the issue of sustainable procurement is carefully re-examined, particularly focusing on the drivers that can enhance the implementation of sustainable procurement.

A number of researchers have conducted studies on sustainable procurement, typically focusing on the environmental dimension of sustainability without including the social and economic dimensions (Liu, Liu & Yang, 2020; Fang, Wang & Song, 2020; AlNuaimi & Khan, 2019; Rane & Thakker, 2019; Walker & Brammer, 2009). Also, a plethora of studies have been conducted in manufacturing (Simpson & Power, 2005; Srivastava, 2007; Svensson, 2007); upstream oil and gas (Ekiugbo & Papanagnou, 2016; Luomi, 2015), hospitality (Jenkins & Karanikola, 2014), construction sector (Hall & Purchase, 2006; Al-Aomar & Weriakat, 2012; Balasubramanian,2014; Govidan et al., 2016; Millin, 2014); information technology (Matthews & Axelrod, 2004), food (Rimmington et al., 2006); timber (Sunderland, Ndoye & Harrison-Sanchez, 2011) and a qualitative study being conducted in the downstream oil and gas industry (Niboi, 2018). Given the absence of quantitative studies

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conducted in the downstream oil and gas supply chain and also in a developing economy like Ghana, there is a need to conduct this study.

Sustainable procurement is essential for integrating environmental and social issues into every stage of the procurement process in order to minimise effects on the environment, human health, and human rights. More studies are thence required to evaluate the motivations behind the implementation of sustainable procurement without which the full benefits of sustainable procurement may not be realised. Against this backdrop, this study seeks to examine the drivers and outcomes of sustainable procurement in the downstream oil and gas supply chain in Ghana.

Purpose of the Study

The study examined the drivers and outcomes of sustainable procurement in Ghana's downstream oil and gas supply chain.

Research Objectives

With regards to the study's purpose, the specific research objectives are to:

1. Examine the effect of top management support and organisational values on the practice of sustainable procurement in the downstream oil and gas supply chain

2. Investigate the influence of stakeholder pressure and regulatory environment on the practice of sustainable procurement in the downstream oil and gas supply chain

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3. Assess the effect of sustainable procurement on the operational performance of the downstream oil and gas supply chain

4. Examine the influence of sustainable procurement on the sustainable performance of the downstream oil and gas supply chain

Research Questions

The study sought to answer the following research questions considering the specific research objectives.

1. What is the effect of top management support and organisational values on the practice of sustainable procurement in the downstream oil and gas supply chain?

2. What is the influence of stakeholder pressure and the regulatory environment on the practice of sustainable procurement in the downstream oil and gas supply chain?

3. What is the effect of sustainable procurement on the operational performance of the downstream oil and gas supply chain?

4. What is the effect of sustainable procurement on the sustainable performance of the downstream oil and gas supply chain?

Significance of the Study

The findings of this study contributes to the literature with regard to the drivers of sustainable procurement and its outcomes since the researcher found that this study is the foremost to examine the drivers of sustainable procurement and its outcomes. The Ghanaian petroleum industry, particularly, the downstream sector, may find this study extremely beneficial as it provides

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information on the various factors that can influence the practice of sustainable procurement that scientifically improve the sustainable and operational performance of the downstream oil and gas supply chain. This study will help the management of downstream oil and gas companies to implement the drivers identified or intensify their implementation in order to enhance their sustainable and operational performance.

Also, based on the findings of this study, policy makers can focus their attention on the drivers identified to ensure an uprising in the operational and sustainable performance of the downstream oil and gas supply chain in Ghana. Students and researchers may also find this study insightful as it will serve as material for empirical literature for them to rely on for further studies in the subject area. The study discussed some key drivers of sustainable procurement to fit the situation of the Ghanaian petroleum industry with a key emphasis on the downstream oil and gas supply chain. Based on the findings of this study, areas for further studies will be identified which can be exploited by students and researchers to enhance the oil and gas supply chain of a developing economy like Ghana.

Delimitations

The study examined the drivers and outcomes of sustainable procurement in the Ghanaian downstream oil and gas supply chain. The drivers include top management support, organisational values, regulatory environment and support, and stakeholder pressure. The outcomes include sustainable and operational performance. The study included the bulk oil distribution companies, oil marketing companies, depots and liquefied petroleum gas

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marketing companies operating in Ghana. The study, however, excluded all other key stakeholders, such as NPA and the Ministry of Energy and Petroleum

Limitation

The study relied on closed – ended questions and that restricted the amount of information obtained from the respondents especially with regards to issues relating to the main constructs of the study.

Definition of Terms

*Sustainable procurement***:** Sustainable procurement entails the socially and ethically responsible purchasing, environmental impact minimization through the supply chain, and the adoption of economically sound solutions all entrenched in a good business framework(Ogunsanya, Aigbavboa, Thwala & Edwards, 2022).

*Operational performance***:** This can be defined as the strategic dimensions within which organisations decide to compete by operating efficiently.

*Sustainable performance***:** Sustainable performance can simply be defined as the integration of environmental, social and economic performances of organizations.

*Drivers of sustainable procurement***:** These are the factors that influence firms to engage in sustainable procurement practices

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Organisation of the Study

      The study was organized into five main chapters. Chapter One focuses on the introduction of the study. Chapter Two focuses on the review of literature relevant to the concepts of this study as guided by the theoretical and empirical themes in relation to the specific research objectives of this study. Chapter Three explains the research methods that were used in conducting the study. Chapter Four presents the results and discussions the results. Chapter Five summarises the key findings of the study, conclusions and recommendations, and suggestions for further studies.

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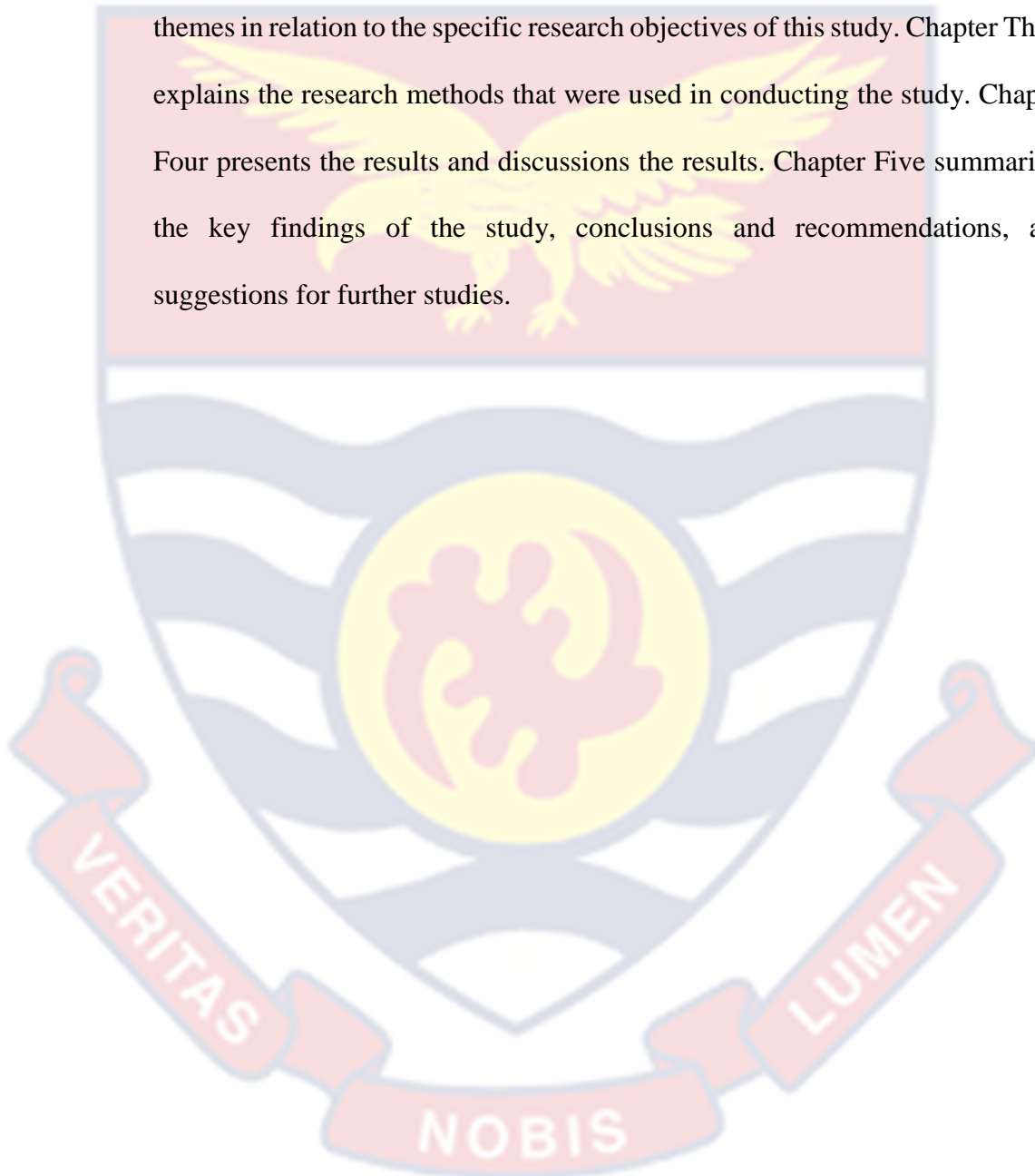
CHAPTER TWO

LITERATURE REVIEW

Introduction

The study examined the drivers and outcomes of sustainable procurement in Ghana's downstream oil and gas supply chain. This chapter includes a review of theories that explain the relationships between the concepts of this study. This chapter also provides information on the concepts of this study, empirical reviews and a conceptual framework.

Theoretical Review

The theoretical review explains the theories that establish the nature of the relationship between the study's key concepts in relation to the study's objectives (Wang & Xiang, 2007). The institutional theory, the theory of planned action, the dynamic capability theory and the resource-based view theory underpin this study.

Institutional Theory

Researchers have acknowledged the institutional theory as an essential tool for explaining both individual and organisational actions (Dacin, Goodstein & Scott, 2002). The institutional theory provides the theoretical perspective that examines the drivers that enhance the survival and legitimacy of organisational practices. These drivers may have social, cultural, legal, history and even economic sources without compromising on the significant role of organisational resources (Murray, 2009; Hirsch, 1975; Zhu et al., 2010; Bruton, Ahlstrom & Li, 2010). Legitimacy in this context can be explained as the

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implementation of sustainable practices regarded by stakeholders as appropriate and proper (DiMaggio & Powell, 1983).

Traditionally, the institutional theory is concerned with how organisations conform to the rules, laws, regulatory structures, governmental agencies, cultural and societal practices, and norms of the organisation's environment (DiMaggio & Powell, 1983; Meyer & Rowan, 1991; Scott, 2008). According to the institutional theory, forces from outside the organisation influence organisations' decision-making and activities in their quest to legitimize their dealings for the approval of their stakeholders (Jennings & Zandbergen, 1995; North, 1990; Ball & Craig, 2010; Rivera, 2004).

For instance, a study conducted by Delmas and Toffel (2004) established the role of institutional theory in examining how different strategies of organisations influence their adoption of environmental management practices. The institutional theory categorizes the drivers that result in organisational isomorphism into three. They are; coercive, normative and mimetic (DiMaggio & Powell, 1983). The coercive influence is exerted by those in powerful positions (Kilbourne et al. 2002). Normative drivers ensure that organisations conform to sustainable practices in order to be regarded as engaging in legitimate actions by their stakeholders (Sarkis et al., 2011).

On the other hand, the mimetic drivers bring about the implementation of sustainable initiatives when organisations imitate the activities of their successful competitors in an attempt to follow their path to success hence legitimacy (Aerts et al., 2006; Sarkis et al., 2011). The institutional theory explains the role of the regulatory environment and stakeholders' pressures in

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determining organisational activities and practices such as sustainable procurement (Westphal et al., 1997).

This theory is appropriate for explaining the drivers (external) of sustainable procurement in the context of this study. The institutional theory posits that organisations may engage in sustainability practices such as sustainable procurement when it is a regulatory requirement (Coercive). Also, organisations may conform to engaging in sustainable procurement to gain their stakeholders' acceptance (Normative). To add, organisations may engage in sustainable procurement as a way of imitating their successful competitors in order to achieve similar results (Mimetic). The institutional theory, therefore, posits that stakeholder pressures and government regulation may influence the implementation of sustainable procurement.

The Theory of Planned Behavior

The theory of planned behaviour goes beyond the theory of reasoned action (Ajzen, & Fishbein, 1975). The theory of planned behaviour proposes that the behaviour of organisations is a conscious endeavour. Thus, organisations make decisions to engage in practices when they take into account the implications of these practices before they engage in them (Ajzen, 2005). Organisations intend to engage in practices that they evaluate positively, practices that they receive pressure from society to engage in and also practices they believe they have the means to implement (Ajzen, 2005).

The theory enables the development of a framework for exploring the factors that influence firms to engage in sustainable practices (Boldero, 1995; Chan, 1998). One prominent assumption of the TPB is that organisations'

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intention to engage or not engage in particular behaviors is the direct predecessor to the behavior. TPB looks at the factors that influence behaviours (Begum, Siwar, Pereira & Jaafar, 2009; Chan, 1998; Ramayah et al., 2012). TPB enables taking into consideration variables that can explain the organisational behaviours significantly (Ajzen, 2005).

In the context of this study, the TPB posit that organisations intentions to engage in practices such as sustainable procurement may result in the organisation's engaging in particular behaviours such as top management support and development of sustainable organisational values. These are behaviours intentionally adopted by organisations as a means to enhance their sustainable procurement practices. Based on the TPB, one can therefore postulate that organisational behaviours such as support from top management can influence the implementation of sustainable procurement. Also, Organisational values can influence the implementation of sustainable procurement.

Dynamic Capability Theory

In recent years, the theory of dynamic capabilities has been recognized as one of the leading theories in strategic management (Mitrega, Forkmann, Zaefarian & Hennerberg, 2017). Dynamic capability refers to the renewing of an organisations business processes or operational capabilities continually to ensure that the company's resources are aligned per the changing business environment in order to gain competitive advantage (Dynamic capability ensures that resources are modified to meet the changing needs of the environment (Gupta & Gupta, 2019). Teece, Pisano and Sheun (1997) stated

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that dynamic capability is a means of developing new applications to organisational resources in order to achieve sustainable competitive advantage.

Teece (2007) defined dynamic capabilities as organisational abilities to adapt to internal and external forces that bring about change in the organisational processes in the quest of achieving competitive advantage in a competitive market. Dynamic capability can be defined as integration and coordination of firm resources in a sustainable manner to achieve competitive advantage in a competitive business environment. Several scholars have given diverse definitions to the components of dynamic capabilities (Yi, Han & Cha, 2018). For example, Pavlou and El Sawy (2011) defined the components of dynamic capabilities as assessing the environment, coordinating and integrating organisational activities with the requirements of the external environment.

In the context of this study, the theory of dynamic capability can be applied as, the ability of oranisations to develop new applications to organisational resources through means such as sustainable procurement in order to sustain competitive advantage. Modifying the use resources to meet the changing needs of the environment in order to sustain competitive advantage can be achieved through means such as top management providing support for sustainable practices, developing sustainable organisational values, meeting stakeholders' sustainability expectations and also conforming to government regulations concerning sustainability. The theory of dynamic capability therefore proposes that the ability of the downstream oil and gas firms to engage in sustainable procurement can influence their sustainable and operational performance as a means to sustain competitive advantage (Yusliza et al. 2020; Tan, Ochoa, Langston & Shen,2015; Shahbazpour & Seidel, 2006).

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Resource-Based View Theory

The resource-based view theory explains the internal sources of the sustained competitive advantage of firms. The main proposition of the theory is that in order for firms to remain competitive, they must control their valuable, inimitable, rare and non-substitutable resources and capabilities. Organisations must put measures in place to manage organisational resources effectively and efficiently (Barney, 2002; Helfat & Peteraf,2003). The theory posits that the combination of unique resources and capabilities allow organisations to get a greater share of the market (Takahashi, Bugacov, Bitencourt & Kaynak, 2017; Itami & Numagami, 1992; Prahalad, 1998).

The RBV theory also posits that competence based strategies enables firms to realize and sustain competitive advantage (Hamel & Heene, 1994; Itami et al. 1992; Prahalad, 1998). The uniqueness of the performance of a firm is dependent on how resources and capabilities in the organisation are utilized (Hamel & Prahalad, 1994). The RBV theory defines firm's resources as the assets, processes, capabilities and knowledge that a firm possess (Amit & Schoemaker, 1993; Grant, 1991). Competence based strategies such as sustainable procurement secures the future of organisations (Coates & McDermott, 2002). Sustainable procurement is a competence based strategy that the management of organisations can utilize to manage organisational resources.

In the context of this study, applying the resource based view theory explains how sustainable procurement can influence the operational and sustainable performance of organisations. In the sense that, the RBV theory posits that, organisations can enhance their competitive advantage through

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effective and efficient use of organisational resources and strategic competences. Sustainable procurement, being a strategic competence of management and also a judicious means of utilizing organisational resources can enhance the competitive advantage of organisations through diverse means such as an improved operational and sustainable performance. The RBV theory therefore establishes the relationship between sustainable procurement and operational performance and also sustainable procurement and sustainable performance.

Conceptual Review

This section explains the main concepts underpinning this study taking into consideration the various dimensions of these concepts. Also, information relating to the study's context was provided to help elucidate a clearer picture about the constructs used in this study.

Concept of Sustainability

Throughout literature, the most widely accepted definition of sustainability is that of the United Nations (UN) world commission on Environment and Development, who define sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own need" (Brudtland,1987). In the oil and gas sector, there has been increasing recognition of the risks associated with issues of sustainability in the supply chain (Liu, Chen, Liu, Liu & Yang, 2016; Harms, Harms, Hansen & Schaltegger, 2013), following series of publicized disasters

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and campaigns advocating worker safety, human rights issues, pay and conditions, community safety etc.

This has resulted in a consistent increase in the request for sustainability in the supply chain of the oil and gas industry (Al Nuaimi, Khan & Ajmal, 2019). One of the essential ways through which orgnisational sustainability goals can be reached is through sustainable procurement (Al Nuaimi, Khan & Ajmal, 2020). The impact of sustainability may be economic, social or environmental (Epstein, Elkington & Herman, 2018; Svensson & Wagner, 2015)

Sustainable Procurement

Sustainable procurement rest under the broad concept of sustainability. "Sustainable procurement is the pursuit of sustainable development objectives through the purchasing and supply process, and involves balancing environmental, social and economic objectives" (Chari & Chiriseri, 2014). Sustainable procurement gives due consideration to the impact of an organisation's procurement activities on the environment, society and economy (Walker & Wendy, 2006). In its simplest form, sustainable procurement (SP) can be defined as the socially and environmentally responsible purchasing (Brammer & Wlaker, 2011). Oruezabala and Rico (2012) also defined sustainable procurement as the measures organisations put in place to improve the performance of their purchasing activities in basically three main ways; environmentally, socially and economically.

The UK sustainable procurement Taskforce define sustainable procurement as "a process whereby organisations meet their needs for goods,

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services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation but also to the society and economy, whilst minimizing damage to the environment (DEFRA, 2006). Krause et al. (2009) asserted that every organisation is as sustainable as the suppliers from whom they source. This shows how significant sustainable procurement is in the achievement of sustainable development (Aktin & Gergin, 2016).

There is no globally accepted definition for the concept of sustainable procurement and therefore researchers have defined sustainable procurement differently across literature (Walker et al., 2012). The sustainable procurement task force (DEFRA, 2006) defined sustainable procurement as "the process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy". This definition was adopted in this study since it is the most popular definition across literature and also properly reflects the context of this study (Islam, Murad, McMurray & Abalala, 2017).

Sustainable procurement describes the adoption of sustainability measures in the procurement function. Thus, how firms can sustainably enhance their sourcing and purchasing decisions while making use of their purchasing power to involve suppliers in the adoption and implementation of sustainability measures with the aim of reducing the social, environmental and economic impacts of firms' activities to the society and environment (Hughes & Laryea, 2013; Erridge & Hennigan, 2012). Sustainable procurement seeks to address the critical issues of sustainable development such as climate change,

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environmental degradation, air pollution, the SDGs, and other ethical and social issues.

To achieve sustainability, the procurement function examines, evaluates and addresses some key scales drawn from the Triple bottom line. These include diversity, human rights, health and safety and environment (Brammer & Walker, 2011; Mansi, 2015; McMurray et al., 2014; Walker & Brammer, 2009). Similarly, Carter and Rogers (2008) posited five dimensions that constitute sustainable procurement practices. They include concern for environment, diversity, human rights, safety and philanthropy. These dimensions are the most widely used in literature and supported by several scholars (Brammer & Walker, 2011; Zalani et al., 2012; Islam et al. 2014). The application of sustainable procurement via these dimensions enhances profitability, increases market share, reduce environmental risks and improves eco-efficiency (Aragao & Jabbour, 2017).

Drivers of Sustainable Procurement

The word drivers can be represented as motivators that "tells and sells" organisations to implement sustainable procurement practices (ElTayeb et al., 2010). Existing literature has categorized the drivers of SP into two main divisions. Namely: external and internal drivers. The internal drivers include but not limited to support from top management and organisational values. The internal drivers are the forces within the organisation that motivates the implementation of sustainable procurement. Successively, the external drivers involve the forces outside the organisation that motivate the effective

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implementation of sustainable procurement. They include government regulations and stakeholder pressure (Walker et al. 2008).

The review of relevant literature revealed that the external drivers have more influence relative to the internal drivers (Walker et al., 2008). Several studies have been conducted within the context of developing economies, of which Ghana is no exception and numerous outcomes were found at the end of their studies. There are many drivers in literature, however, there are four dominating motivators that were found to have appeared across literature (Agbesi, Fugar & Adjei-Kumi, 2018; Ageron et al., 2012; Hsu et al., 2013; Ramakrishnan et al., 2015; Tiwari, Wei & Nor, 2019) and these drivers were adopted for the purpose of this study. Sustainable procurement in the context of this study can be defined as the the involvement of the social, environmental and ethical considerations during the procurement process.

These four common drivers of sustainable procurement that are used in this study are; top management support, organisational values, stakeholder pressure and government regulation and support. Niboi (2018) after conducting a qualitative study on the sustainable procurement of the oil and gas industry in Ghana identified top management support and organisational values as the main internal drivers of sustainable procurement in the Ghanaian oil and gas sector. Also, government regulations and stakeholder pressure were also identified as the main external drivers of sustainable procurement in the Ghanaian oil and gas sector. Considering the context and sector within which the study was undertaken in relation to this current study, it is prudent the researcher considers these drivers for the purpose of this study. Others studies conducted within developing countries like Ghana all identified the above mentioned drivers as

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the main motivators for the implementation of sustainable procurement (Agbesi et al. 2018; Tiwari et al. 2019).In order to enhance analytical clarity, the drivers are discussed separately. However, in practice, they may be related with each other. For example, the top management of an organisation supports initiatives that are in line with their organisational values, government regulations and also that give a good corporate image in the face of stakeholder pressures.

Top Management Support

One of the most significant determinants of the implementation of sustainable procurement is top management support (Lin & Ho, 2011; Agesi, Fugar & Adjei-Kumi, 2018). This is when there is support for sustainable procurement from senior management (Bansal & Roth, 2000). Support from top management is very essential because, they are in charge for all organisation's activities and also play a major role in influencing the culture of an organisation. They are also responsible for making resources available for the implementation of sustainable procurement.

Top management here comprise the senior managers and the chief executive officers in an organisation (Holt & Ghobadian, 2009; Hsu & Hu, 2008). They give direction and serve as leaders with the power to encourage subordinates in the implementation of sustainable procurement and environmental practices (Griffin et al., 2004; Rojsek, 2001). Commitment of top management towards the implementation of sustainable procurement influences the attitude of all employees within the organisation towards the attainment of such goals thereby making the sustainable procurement implementation a success. In the context of this study, top management support can be defined as

the resources the top management of firms invest in ensuring the effective implementation of sustainable procurement. The role of top management in the implementation of organisational policies cannot be undermined hence its inclusion in this study as a significant driver of sustainable procurement.

Organisational Values

This is concerned with the degree to which the culture and the values of an organisation enhances the implementation of sustainable procurement or is supportive of sustainability (Li & O'Brien, 1999; Gonzalez-Padron et al., 2008). The values of an organisation is required to motivate and shape employees to engage in organisational practices such as sustainable procurement. A suggestion by Epstein and Buhovac (2014) stated that organisations should communicate their sustainability vision and mission to all employees and other stakeholders to enhance their dedication. Organisations use values as a means to communicate their objectives and purpose to their stakeholders (Jollands et al. 2015).

Organisations that value innovativeness has a high tendency to adopt and implement sustainable procurement practices (Bamgbade et al., 2017). Organizational values can be defined as the values that guide the activites of the firms that operate in the downstream oil and mgas supply chain. These values are internal and developed by the management of the firms. The role of organisational values in shaping the behaviours of employees and ensuring that they corporate to achieve the goals of their organisations cannot be downplayed hence the researcher's adoption of sustainable organisational values as a driver of sustainable procurement to be examined in this study.

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Stakeholder's Pressure

Pressure from the public, competitors, customers and all relevant stakeholders of firms to engage in sustainable procurement influence the implementation of sustainable procurement (Walker & Phillips, 2009). The reputation risk associated with unsustainable procurement practices etc., all put pressure on firms to engage in sustainable procurement. Stakeholder groups such as non-governmental aid groups, environmental campaign groups as well as local communities within which firms operate are effective in exerting pressure on firms to engage in sustainable procurement (Wolf, 2014). The increasing awareness of the public and their concern about issues of sustainability necessitates organisations to disclose more information on their sustainable practices in order to be regarded as a reputable organisation (Hughey & Sulkowski, 2012).

The implementation of sustainable practices such as sustainable procurement is often driven by institutional pressure from domestic and foreign counterparts, competitors and knowledge infusion (Zhu & Sarkis, 2004). Mahmood, Ali, Iqbal and Fatima (2019) assessed the drivers and barriers of sustainability practices in emerging and developing economies and found that stakeholders pressure significantly influence the implementation of sustainable procurement. In this study, stakeholders' pressure can be defined as the direct or indirect involvement of stakeholders in the pratcies of firms that influence the firms to engage in certain activities that benefit the entire society. The role of stakeholders in ensuring that organisations implement sustainable procurement initiatives is very crucial and hence its inclusion in this study to be examined further particularly, its role within the Ghanaian context.

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Regulatory Environment

Government regulations is another significant driver of sustainable procurement (Holt & Ghobadian, 2003). Organisations put measures in place to go by the rules and regulations of governmental bodies on issues relating to sustainability (ElTayeb et al. 2009). The role of government in ensuring that organisatuions engage in sustainable procurement practices is becoming increasingly important and recognized by academics (Gopalakrishnan et al. 2012). Government regulations and support leads to improved environmental procedure and sustainable practices (Williamson, Dodds, Kratz & Palmer, 2008; Bruen et al., 2020).

Wong et al. (2016) posited that Government regulations and support are the most significant drivers for the effective implementation of sustainable procurement. Zhu and Sarkis (2004) asserted that the implementation of sustainable procurement is often driven by government regulation and support. These findings are consistent with Palmer (2000), where government regulations were found to be the main driving force for firms to adopt sustainable procurement. These findings and assertions necessitated the inclusion of this variable in the context of this study. Regualtory environment in the context of this study can be defined as the rules and regulations that guide the operations of firms and industries in Ghana, specifically the downstream oil and gas industry.

Operational Performance

Operational performance refers to the results of an organisation's activities and processes and is an essential way of assessing the efficiency and effectiveness of an organisation (Yang, Huang & Hsu, 2014). The operational

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performance of an organisation is associated indirectly to the financial performance of an organisation (Zhang & Xia, 2013; Radnor & Barnes, 2007). There are four major dimensions that distinguishes an organisation's operational performance. They are; cost, quality, delivery and flexibility (Nabass & Abdallah, 2018: Radnor & Barnes, 2007). The main purpose of enhancing operational efficiency is to improve day to day operations and reduce cost.

Operational performance can also be said to be how efficiently raw materials are converted into finished goods with minimum wastage and also within the shortest possible time (Prajogo et al., 2012; Green et al., 2011; Zhu et al., 2008). Previous studies have emphasized the essence of green products in achieving operational performance (Prajogo et al., 2014). The reduction of energy consumption and other wasteful practices (Dam & Petkova, 2014; Blome et al. 2014) and increase in the level of productivity affects operational performance in a positive manner (Huq et al., 2014).

Sustainable Performance

One of the fundamental keys to the managerial control process of any business is performance measurement (Olson & Slater, 2002). Subsequent to the introduction of the concept of sustainable development was the emergence of the concept of sustainable performance (Probodhika, Niwunhella & Wijayanayake, 2020). Sustainable performance can be defined as an organisation's performance considering the environmental, social and economic aspects (Zimek & Baumgartner, 2017; Hourneaux, Gabriel & Vazquez, 2018). According to the TBL approach, sustainable performance, in literature, has been

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operationalized to have three dimensions (Henao, Sarche & Gomez, 2019). They are; economic sustainability performance, social sustainability performance and environmental sustainability performance. In this study, sustainable performance can simply be regarded as the the economic, social and environmental efficiency of the activities of firms that operate in the downstream oil and gas supply chain.

Environmental Sustainability Performance

The environmental sustainability performance is related to environmental sustainability and shows the stewardship of the organisation towards the environment. This dimension of sustainability performance demonstrates the organisation's initiatives towards environmental sustainability. This includes initiatives such as the protection of natural resource, waste reduction and pollution prevention. Organisations engage in activities such as decrease in water consumption and output of wasteful substances as well as reduction of greenhouse gas emissions (Abidin et al. 2016). Geng et al. (2017) and Zhu et al. (2004) simply defined environmental performance as the reduction of pollution and saving energy during organisatonal operations. Environmental sustainability performance is hence the outcome of an organisation's ecological goals to better the environment within which they operate (Chien & Shih, 2007; Abidin et al. 2016).

Social Sustainability Performance

Social sustainability performance is related with the organisational ability to ensure that the welfare of stakeholders are maximized without

ignoring the health and safety of the employees of the organisation (Geng et al. 2017). Organisations must treat social issues with equal importance as they treat economic and environmental issues. (Missimer et al., 2010). An organisation can be said to be performing socially when "people are not subject to structural obstacles to health, influence, competence, impartiality and meaning –making" (Zimek & Baumgartner, 2017).

Economic Sustainability Performance

The economic dimension of sustainability performance can simply be defined as the profitability of the organisation's activities (Geng et al., 2017; Golicic & Smith, 2013). Thus, the ability of the organisation to engage in activities that are monetarily beneficial. Organisations that are performing economically experience an increase in their market share, sales, returns on investments etc. (Afum et al., 2020).

Empirical Review

This section provides extensive reviews of related literature on the study's research objectives.

Top Management Support and Sustainable Procurement

Tiwari, Wei and Nor (2019) conducted a study to assess the influence of top management support on the implementation of sustainable procurement in Malaysian manufacturing firms. The study was a quantitative study and questionnaires were distributed to 170 manufacturing firms via email. The procurement managers of these firms were the target respondents for the study. A multiple linear regression with SPSS was used to test the objectives of the

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study. The study revealed that top management support has a positive and insignificant influence on sustainable procurement implementation at the manufacturing firms in Malaysia.

Tiwari et al. (2019) even though were investigating into sustainable procurement focused on the environmental dimension of sustainability ignoring the social and economic aspects of sustainable procurement. This may have influenced the findings. This study however further included social and economic aspects of sustainable procurement. The researchers used the SPSS for the analysis of the data but did not provide any information on the normality assumption that must be met. Thus, making users of the study unaware of the nature of the distribution of the data used in this study. This study however used SMART-PLS since it has the ability to normalise data for further analysis.

Blok, Wesselink, Studynka and Kemp (2014), investigated the drivers that encourage sustainability at the workplace. Listed among the drivers of sustainability was top management support. The respondents of the study ranged from PhD students of Wageningen to full professors, to include general managers and secretaries of the Dutch University (Wageningen). The questionnaires were distributed via emails to the respondents. The respondents for the study were 411. Stata v12.1 was used for the analysis. The study revealed that top management support has a significant and positive impact on organisation's pro-environmental behavior.

Even though the study was conducted on Pro-environmental behavior, it is related to the current study. This is in the sense that sustainable procurement is an essential environmental behavior (Tiwari et al., 2019). The study assessed the drivers of pro-environmental behaviours and identified top management

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support as a significant driver. The authors were clear in their investigation by indicating the various methods used in carrying out the study. The study was carried out in the Netherlands and also in an academic environment and hence its findings cannot be meaningfully extended to a developing economy like Ghana and also a sector like the oil and gas industry. This is because even though leadership support influences pro-environmental behaviours, the understanding of the management of academic institutions with regards to sustainability practices may not be the same as those in the oil and gas sector.

Another study was conducted by Yusliza et al. (2019) on top management support, corporate social responsibility (CSR) and green human resource management. The research was quantitatively conducted using structural equation modelling (SEM) with the partial least square method. A sample size of 400 Malaysian manufacturing and service organisations. Responses were taken via self-administered questionnaires. Each of the respondents was either an HR director, HR manager, and senior HR manager. A five-point likert-scalewas used to measure the items of the constructs.

A stratified random sampling technique was used. The study found that top management support has a significant positive influence on CSR. Also, top management support was found to have a positive influence on all the dimensions of Green human resource management practices. The authors were explicit in their investigation by indicating the methods used in conducting the study but didn't not provide any justification for the study's use of a stratified random sampling technique. On the other hand, the researchers justified with empirical studies their use of a relatively lower response rate (21.75%).

The review of literature has shown that most prior studies were conducted in the manufacturing sector and also outside the African context which makes the applicability of the study within Africa questionable since issues relating to top management support and the implementation of sustainable procurement may be based on context. In the sense that, the resources to be used by top management and also the level of expertise of every management team differs. The study conducted by Tiwari et al. didn't clearly state the theories underpinning their study and also used SPSS for analysis even though in recent times there are more robust data analysis applications that can be used.

The subsequent studies used STATA and Smart PLS. The review has shown that prior studies have not considered the use of the dynamic capability theory as a theoretical basis for establishing the relationship between top management support and the implementation of sustainable procurement. The studies were quantitative studies and made use of questionnaires distributed either via e-mail or face to face justifying the use of questionnaires and the quantitative research approach in this study on the basis of the replicability of the methods employed in prior studies. The findings of all the studies pointed to a significant positive relationship between top management support and the implementation of sustainable procurement even though Tiwari et al found an insignificant positive relationship. Therefore, this study hypothesizes that:

H1: Top management support significantly predicts a positive variance in the implementation of sustainable procurement.

Organisational Values and Sustainable Procurement

Agbesi, Fugar and Adjei – Kumi (2018) conducted a quantitative study to assess the significance of organisational values on the implementation of sustainable procurement. Smart Partial Least Square (PLS) of structural equation modelling (SEM) software was used for the data analysis. The questionnaires were administered through emails and personal delivery to 193 respondents. The respondents of the study were chief directors, project managers, engineers, procurement officers, quantity surveyors and planning officers. The study found that sustainable organisational values did not influence the implementation of sustainable procurement.

The study was conducted in the construction sector and was mainly focused on developing an adoption model for sustainable procurement in a multi-stage process. The multi stage involved initiation, adoption and implementation. Hence, its findings cannot be meaningfully extended to the oil and gas sector. This study on the other hand focused on the implementation of sustainable procurement without taking into consideration the other stages of the adoption of sustainable procurement model. The authors however clearly showed the methods employed and provided enough justifications for each of the methods employed based on empirical studies.

Another study was conducted by Wijethilake and Lama (2018) to examine the influence of organisational values of sustainability on sustainable risk management, assessing the moderating effect of stakeholder pressure and top management commitment. The study was quantitatively conducted and followed a post positivism research paradigm. A 5-point likert scale was used to measure the items for the survey. 700 multinational and local companies

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doing business in Sri Lanka constituted the study's sample. The sample was randomly selected from well-established industry databases in Sri Lanka.

The respondents of the study included a member of the top management of each of the organisations. Chief operating officers, Chief executive officers, general managers, chief financial officers, managing directors, sustainability managers and other senior management staff who are directly involved in the design and implementation of sustainability strategies, policies and practices. The questionnaires were distributed using postal and online methods. 202 questionnaires were returned out of which 175 were usable.

The researchers used SPSS statistical data analysis software to assess outliers, nonnormalities, common method variance and response bias. The study further compared the mean values of the response with regards to early and late responses of the postal and online responses. After which the study employed partial least squares structural equation modelling to assess the structural model. SMART-PLS was used to get PLS-SEM outcomes. The study revealed that organisational values are significantly and positively linked with supply chain risk management.

Also, top management support showed a positive impact on supply chain risk management and moderated positively the relationship between sustainability core values and supply chain risk management. However, the study revealed that stakeholder's pressure from community, competitors, NGO's, shareholders, employees, customers, suppliers, government and regulatory bodies etc, negatively moderates the relationship between sustainability core values and supply chain risk management. The researcher

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clearly defined the methods used with enough justifications. The study however, did not focus on any particular sector such as, for example, the oil and gas sector.

From the above reviews, one can clearly see the findings in literature on organisational values and sustainable procurement have not been consistent. Thus, some studies found a positive influence while other studies also did not find any influence of organisational values on the implementation of sustainable procurement. Therefore, conducting this study to find out the influence of organisational values on sustainable procurement in the Ghanaian oil and gas industry is worth undertaking. The study conducted by Wijethilake and Lama (2018) did not specify the particular industries within which the selected firms were operating thereby making it quite difficult for the researcher to relate the findings to this study's context.

The review of literature has also shown that the researchers focused on the diffusion of innovation theory and the stakeholder theory. This study however focused on the theory of dynamic capability and the theory of planned action to establish the relationship between the organisational values and sustainable procurement. Thus, the ability of management to develop and implement sustainable organisational values will enhance the implementation of sustainability initiatives such as sustainable procurement. This study therefore hypothesis that:

H2: Organisational values significantly predicts a positive variance in the implementation of sustainable procurement

Government Support and Regulation and Sustainable Procurement

Tiwari, Wei and Nor (2019) conducted a study on the factors influencing sustainable procurement practices in the Malaysian manufacturing firm. The study was a quantitative study and questionnaires were developed with google forms. A five-point likert scale was used to measure the items. The questionnaires were distributed to 170 certified manufacturing firms registered under the federation of manufacturing Malaysia via e-mail. The procurement managers of these manufacturing firms were the respondents of the study. The statistical tool that was used for the analysis was SPSS. The study revealed that, government regulations and customer pressure are the main factors that encourage the implementation of sustainable procurement practices. Specifically, the study found that regulatory environment had the highest impact on the implementation of sustainable procurement amongst the manufacturing firms.

From the review, it can be seen that the study was conducted in the manufacturing industry and generalizing its findings to include the oil and gas industry may be questionable. This is because, even though all sectors may engage in sustainable procurement, the nature of their operations are very different. The researchers were explicit in their study and indicated clearly, the methods adopted for their study.

Another study was conducted by Etse, McMurray and Muenjohn (2021) on the influence of regulatory environment on sustainable procurement, assessing the mediating role of the support of the leadership of the organisation and culture of the organisation. The study was a quantitative study with data collected from Accra and Kumasi metropolis of Ghana. The study adopted a

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random sampling technique. A sample size of 460 out 1,067 organisations on the population frame was obtained using the Cochran's sample size estimation technique. Three hundred and twenty two (322) useable questionnaires were received from the respondents yielding a 76.67% effective response rate. Structural equation modelling (SEM) was used for the measurement of the model and construct validation. The study revealed that there exists a significant effect of regulation on sustainable procurement. Also, organisational leadership support was found to have a mediating effect on the relationship between regulation and sustainable procurement practice. However, the study further revealed that organisational culture does not mediate the relationship between regulations and the implementation of sustainable procurement.

From the above review, regulatory environment has proven to have a significant influence on sustainable procurement even though has not received much attention in literature particularly in the downstream oil and gas sector. Etse et al. conducted their study in Ghana made use of the institutional theory as basis for their study and found a significant positive relationship between regulatory environment and sustainable procurement. Even though the researchers conducted the study in Ghana, their study was not conducted within any particular sector and therefore making generalizations based on their findings in the context of this study problematic. Albeit, the researchers review revealed a significant positive relationship between regulatory environment and sustainable procurement. This study therefore hypothesizes that:

H3: Regulatory environment and support significantly predicts a positive variance in the implementation of sustainable procurement.

Stakeholders' Pressure and Sustainable Procurement

Agbesi, Fugar and Adjei – Kumi (2018) examined the influence of stakeholders' pressure on sustainable procurement implementation. The study was a quantitative study and questionnaires were issued to respondents for data collection. Smart partial least square (PLS) of structural equation modelling (SEM) software was used for the data analysis. The questionnaires were administered through emails and personal delivery to 193 respondents. The respondents of the study were chief directors, project managers, engineers, procurement officers, quantity surveyors and planning officers. The study found that stakeholders' pressure did not influence the implementation of sustainable procurement. This study was conducted in the construction sector and its findings may not reflect the findings to be achieved within the oil and gas sector.

In the quest to assess the influence of sustainability core values on sustainability risk management, Lama and Wijethilake (2018) examined the moderating role of stakeholder's pressure. Data was collected from the senior management in multinational and local organisations in Sri Lanka. The sample size for the study was 700. Analysis for the data collected was done with partial least squares structural equation modelling. The study found that, stakeholder pressure for sustainability has a negative influence on the relationship between sustainability core values and sustainability risk management. This finding is consistent with the findings of Agbesi et al. who also found a negative influence of the predictors on the dependent variable.

A study conducted by Saeed and Kersten (2019) on the drivers of sustainable supply chain management identification and classification revealed

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in a qualitative study that after reviewing 217 journal articles, 1559 drivers were identified and these drivers were clearly designed, interpreted and classified into external and internal drivers' categories. The study further revealed that regulatory and market pressures are the most prevailing drivers of SSCM.

The regulations governing the operations of sectors that operate within economies differs (Niboi, 2018). This means that the regulations of the government in the construction sector may differ from the regulations of the government in the oil and gas sector. Not only do regulations differ based on sectors within the economy but also the countries within which the sectors are operating. Considering the context based nature of the regulatory environment within which businesses are operating, hence the need to assess the influence of regulatory environment on sustainable procurement within the downstream oil and gas supply chain. Prior studies have been conducted based on the stakeholders' theory however this study will be conducted based on the institutional theory on the grounds that the stakeholders' theory is limited to the influence of stakeholders whereas the institutional theory goes beyond to include all other relevant external forces that may influence the operations of an organisation. This study therefore hypothesizes that;

H4: Government regulations and support significantly predicts a positive variance in the implementation of sustainable procurement.

Sustainable Procurement and Operational Performance

Nkrumah, Apam and Boadu (2020) conducted a study on enhancing the operational performance through supply chain management practices with evidence from firms in the downstream petroleum sector. Data for the study was

collected from firms operating within the downstream supply chain. They included, Oil trading companies, Bulk distribution companies, and liquefied petroleum gas marketing companies. The researchers randomly selected 150 firms as respondents for the study.

The questionnaires were self-administered to the randomly selected respondents targeting the head of operations as those needed to provide answers to the questionnaires. Data analysis was done with the SMART-PLS. The findings of the study revealed that supply chain information management have significant impact on operational performance. Even though the study was conducted on supply chain management practices, it relates to this study in the sense that, sustainable procurement is an essential part of sustainable supply chain management practices. The researchers clearly discussed their methods employed and provided adequate justifications. This will aid future researchers to replicate the methods employed. The study being conducted in Ghana and also in the downstream oil and gas sector really applies with the current study.

Islam and Alharthi (2020) examined sustainable procurement and SME performance in Saudi Arabia. The study assessed how sustainable procurement practices enhanced non-financial performance. The study was a quantitative study and questionnaires were distributed to 250 senior executives and managing directors randomly selected from SMEs enterprise General authority and Saudi Arabia business directory. 117 responses were received from the respondents representing 46.8% response rate and were used for the study's analysis. PLS-SEM was used for the analysis. The study found that sustainable procurement practices have a very strong and positive impact on SMEs' non-financial performance. The study looked at SMEs and the findings may not be

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perfectly relatable to this study since this study is focusing on downstream oil and gas firms. The researchers however, explicitly stated the methods and gave adequate justifications for their choice of methods and this will help future researchers

Similarly, Nwanzu and Babalola (2019) assessed the predictive relationship between sustainable organisational practices and organisational effectiveness. The respondents of the study were one-hundred and forty –five (145) participants, who were sampled from thirty-one privately-owned organisations in Delta State, Nigeria. The respondent organisations included hotels, banks, educational institutions, communication providers etc. The respondents were non-managerial and managerial staff members. The convenience sampling technique was adopted for data collection. The study's design was cross-sectional in nature. Analysis was done using SPSS Version 25.

The findings of the study proved that sustainable organisational practices positively and significantly predict organisational effectiveness. The review of literature has shown that the implementation of sustainable practices such as sustainable procurement enhances the operational performance of firms. The study focused on sustainable organisational practices and relates to this study since sustainable procurement is also an essential sustainable organisational practice. The study was also conducted in Africa specifically, Nigeria and findings may relate to this study even though the respondent organisations did not include downstream oil and gas firms.

Nkrumah et al., (2020) conducted their study in their study in the downstream oil and gas sector and therefore relates better to this study in

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comparison to the other studies. The resource based view theory was used in the studies reviewed and all the results indicated a significant positive relationship between sustainable procurement and operational performance. After carefully reviewing literature, it can be seen that, there are limited studies on sustainable procurement and operational performance especially within the African context and most importantly, the downstream oil and gas industry. Throughout literature, sustainable practices within organsations have proven to influence significantly the operational performance of firms. This study therefore hypothesizes that:

H5: Sustainable Procurement significantly predicts positive variance in operational performance.

Sustainable Procurement and Sustainable Performance

A study by Wang, Zhang and Goh (2018) on sustainable performance improvement through sustainable supply chain management was conducted. The study was a quantitative study and questionnaires were distributed for data collection through email and interviews. The original sample of the study was 670 firms located in the Eastern and Northern China selected randomly. 178 firms provided quality responses that will aid the study. SPSS was used for analyzing data to test the hypothesis of the study. The study found that Internal SSCM practices have a positive impact on a firm's environmental and social performance. The study however posited that internal SSCM have no significant direct impact on a firm's economic performance. Also, external SSCM practices have a positive influence on sustainable performance. Included among the supply chain management practices was green purchase which is an essential

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element of sustainable procurement. Hence making this study relevant for our empirical review.

Another study by Cankaya and Sezen (2018) investigated the effects of green supply chain management practices on sustainability performance. The study assessed the impact of the eight dimensions of green supply chain management on the environmental, economic and social performance of manufacturing firms in Turkey. Data for the study were collected from a survey directed at manufacturers in Turkey. The target group of the study were firms operating in the automotive, electronics and chemical sectors in Turkey and had not less than 50 employees. A total of 1,039 companies were listed from the Turkish Ministry of Industry and Trade and Turkish Union of Chambers and Commodity Exchanges.

Data were collected using face -to – face and e-mail surveys. In total, 122 questionnaires were collected via email and 159 were collected via face-to –face interviews. In all, 281 surveys were returned representing 27% response rate. SPSS and AMOS statistical programs were used for data analysis. The study revealed that there was no relationship between green purchasing and corporate sustainability (economic, environmental and social performance). This study is also relevant for the empirical review since green purchasing was examined and it forms part of the basic elements of sustainable procurement. The researchers explicitly explained the concepts used in the study and also the methods employed.

From the review above, it can be seen that studies on sustainable procurement and sustainable performance have not received much attention especially in the oil and gas sector and also in a developing economy like Ghana.

The researchers made use of the natural resource based view theory and the stakeholder theory. The reviews above found a significant positive relationship between sustainable procurement and sustainable performance. This study therefore hypothesizes that;

H6: Sustainable procurement significantly predicts a positive variance in sustainable performance.

Table 1: Author(s), Topic and Year of publication of related literature

Top Management Support and Sustainable Procurement				
Year	Author(s)	Title	Theory	Sector
2019	Tiwari, Wei & Nor	Factors influencing sustainable procurement practices in the Malaysian manufacturing firm	-	Manufacturing
2014	Blok, Wesselink, Studynka & Kemp	Drivers that encourage sustainability at the workplace; a survey on the pro-environmental behavior of university employees	Theory of planned Action	Educational secti
2019	Yusliza, Norazmi, Jabbour, Fernando, Fawehinmi, & Seles.	Top management commitment, corporate social responsibility and green human resource management	-	Manufacturing

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Table 1:Cont'd

Sustainable Organisational Values and Sustainable Procurement				
2018	Agbesi, Fugar & Adjei-Kumi	Modelling the adoption of sustainable procurement in construction organisations	Diffusion of innovation theory	Construction
2019	Wijethilake, & Lama	Sustainability core values and sustainability risk management: Moderating effects of top management commitment and stakeholder pressure	Stakeholder theory	Local and multinational organisations
Regulatory environment and Sustainable Procurement				
2019	Tiwari, Wei & Nor	Factors influencing sustainable procurement practices in the Malaysian manufacturing firm	-	Manufacturing
2021	Etse, McMurray, & Muenjohn,	The Effect of Regulation on Sustainable Procurement: Organisational Leadership and Culture as Mediators	Institutional theory	Public sector and private sector organisations (No specific sector)
Stakeholders pressure and sustainable procurement				
2018	Agbesi, Fugar & Adjei-Kumi	Modelling the adoption of sustainable procurement in construction organisations	Stakeholder theory	Construction
2019	Saeed & Kersten	Drivers of sustainable supply chain management: identification and classification	Institutional theory and stakeholder theory	Review of literature from 217 journal articles

Table 1: Cont'd

Sustainable Procurement and Operational Performance				
2020	Nkrumah, Apam & Boadu	Enhancing Operational Performance through Supply Chain Management Practices: Evidence from Firms in the Petroleum Downstream	Resource based view theory	Downstream Petroleum
2020	Islam & Alharthi	Relationships among Ethical Commitment, Ethical Climate, Sustainable Procurement Practices, and SME Performance: An PLS-SEM Analysis	Resource based View	SME
2019	Nwanzu & Babalola	sustainable organisational practices and organisational effectiveness	Ecological modernization theory Resource-based theory Social exchange theory	Privately owned organisations
Sustainable Procurement and Sustainable Performance				
2019	Cankaya & Sezen	Effects of green supply chain management practices on sustainability performance.	Stakeholder theory and Natural Resource based view theory	Manufacturing
2018	W ang, Zhang, & Goh	Moderating the role of firm size in sustainable performance improvement through sustainable supply chain management	----	SMEs in China (Not specific)

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Conceptual Framework

Based on the review of theories, concepts and previous studies relevant for establishing the relationships between the constructs in this study, this conceptual framework has been developed to give a clearer understanding to the nature of interactions and interrelationships that this study seeks to assess.

This study hypothesizes that the top management support can positively and significantly influence variance in the SP of firms operating in the downstream oil and gas industry, sustainable organisational values can positively and significantly influence variance in the SP of firms operating in the downstream oil and gas industry, also, government regulations and support can positively and significantly influence variance in SP of firms operating in the downstream oil and gas industry, stakeholder pressure can also positively and significantly influence variance in the SP of firms operating in the downstream oil and gas industry. The study also proposes a positive and significant relationship between SP and operational performance. Also, it is proposed that SP influence the sustainable performance of firms operating in the downstream oil and gas industry.
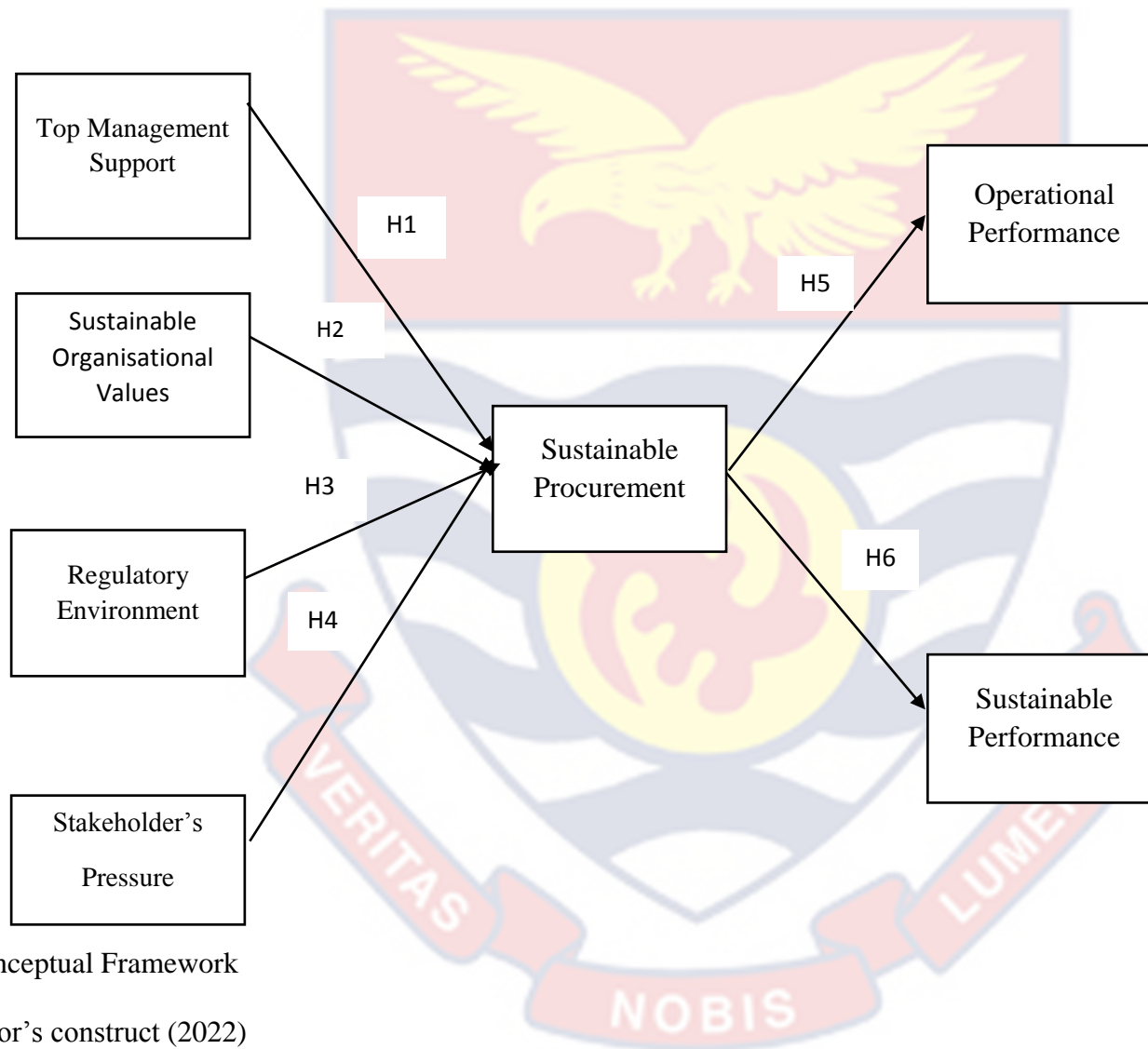
Figure 1: Conceptual Framework

Source: Author's construct (2022)

Chapter Summary

This chapter provided information concerning the theories underpinning the study, the key concepts, and also an empirical review of prior studies relevant to this study. This chapter also depicts the relationships that exist amongst the constructs based on the specific objectives of this study in a clearly drawn conceptual framework.

CHAPTER THREE

RESEARCH METHODS

Introduction

The study sought to investigate the drivers and outcomes of sustainable procurement in the downstream oil and gas supply chain in Ghana. This section elaborates on the methodological approaches to the collection of data and its processing. This section also provides information on the research paradigm, approach and design adopted and justifications for the researcher's choice.

Research Paradigm

The positivist philosophy was adopted in this study. The positivist philosophy posits that, absolute truth can be reflected in a study by scientific means and is quantifiable (Cavangh & Fisher, 2018; Alnaser, Ghani & Rahi, 2019; Antwi & Hamza, 2015). This explains why the researcher adopted the positivist philosophy for this study, since the absolute truth the researcher is seeking for with regards to the research objectives will be arrived at scientifically making use of instruments independent of the researcher's opinions (Antwi & Hamza, 2015). One cannot talk about the positivist paradigm ignoring the assumption of objective universal reality (Kankam, 2019).

The major focus of this paradigm is objectivity and this is crucial for testing research hypothesis in the researcher's quest to separate personal views from the outcome of the study thus separating the researcher and the research (Kumar, 2019). Also, the positivist paradigm enables researchers to generalize findings which makes studies conducted based on this paradigm replicable. The following characteristics of the positivist research paradigm informed the

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researchers choice even though other researchers have criticized this paradigm to focus only on observable matters ignoring the unobservable ones (de Chantal, Gagnon-st-Pierre & Markovits, 2019). However, to the researcher, this criticism better describes the objective nature of the paradigm which is needed to get generalizable findings since observations are relative (Antwi & Hamza,2015). Cockcroft and Israel (2004) concluded that "Positivism is concerned with uncovering truth and presenting it by empirical means". This paradigm, in the context of this study is essential for assessing the drivers and outcomes of sustainable procurement objectively.

Research Approach

The quantitative research approach was adopted in this study. The researcher's choice of this approach is based on the quantitative nature of the data collected (Antwi et al., 2015). Also, the scientific method of testing the study's hypothesis by using an empirical data to know if they are supported or not warranted the adoption of the quantitative approach (Johnson & Onwuegbuzie, 2004; Shiau, Sarstedt & Hair, 2019). The quantitative e approach was used because the objective nature of the study, theoretical inferences, the positivist research paradigm, the explanatory research design (Viotti & Kauppi, 2019) and the data collection instrument (Eisend & Kuss, 2019). Quantitative research operates under the assumption of objectivity (Antwi et al., 2015). Shiau et al., (2019) concluded that "Quantitative research makes use of questionnaires, surveys and experiments to gather data that is revised and tabulated in numbers and allows the data to be characterized by the use of statistical analysis".

Research Design

To examine the drivers and outcomes of sustainable procurement in the downstream oil and gas supply chain in Ghana, the explanatory research design was applied. The explanatory research design asserts that changes in some phenomenon is attributed to changes in other phenomenon (Potwarka, Snelgrove, Drewry, Bakhsh & Wood, 2019). In the context of this study, the explanatory research design underlines the assumption that changes in the implementation of sustainable procurement is associated with changes in the drivers of sustainable procurement and also changes in sustainable and operational performance is associated with changes in the implementation of sustainable procurement in the downstream oil and gas supply chain in Ghana. Also, the researcher chose the explanatory research design due to the quantitative nature of the study (Rahi, 2017). The explanatory research design provides explanations to research problems in the form of causal relationships (Rahi, 2017). This study seeks to examine the causal relationship between the constructs of this study and hence the adoption of this research design.

Profile of the Study Area

The study focused on the downstream oil and gas sector of Ghana which is regarded as one of the highest contributors to the Ghanaian economy (NPA, 2022). The downstream sector operates onshore and its activities revolves around importation, refining, distribution and marketing of refined petroleum products. For refinery, the key actors in the downstream sector are Tema Oil Refinery, which is already operational but has however ceased functioning for a while but will continue full scale operation in June 2022

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(www.reportingoilandgas.org). Also, there is a gas processing plant at Bonyere, yet to be constructed, which will be used for oil refineries and gas production.

For distribution, the key players are the bulk oil storage and transport (BOST) company limited which has the responsibility of storage of transport of petroleum products in the country. There are also other bulk distribution companies and depots that play major roles in the storage and distribution of petroleum products in the country. The key players for the marketing of refined petroleum products in Ghana are the oil marketing companies and liquefied petroleum gas marketing companies. Examples of the oil marketing companies include Total Petroleum Limited, Goil Company Limited, Puma Energy, Frimps Oil Company Limited and several others. These key players operate throughout the country, however, they have their head offices located in the Greater Accra Region of Ghana, which happens to be the capital city of Ghana (NPA, 2022). The downstream oil and gas supply chain was chosen for this study due to the sector's essential engagements in sustainable procurement as a means getting oil and gas products to final consumers.

Population

The target population of this study are the procurement managers of companies that operate as key players in the downstream oil and gas sector. A population can simply be defined as total number of people or items the researcher seeks to investigate (Rahi, 2017). There are 261 companies that represent the population of the study (NPA, 2022).

Table 2: Distribution of the Population for the Study

Key players in the downstream	Total number
Bulk Distribution Companies	37
LPGMCs	42
OMCs	170
Depots	12
Total	261

Source: Field survey (2022)

Sampling Procedure

In simple terms, sampling can be said to be the selection of a segment of the population for investigation (Rahi, 2017). Samples have the ability to make an inference about the population (Malhotra & Birks,2007) and for that reason, for better speed of data collection, results accuracy and cost efficiency, the researcher had to determine an appropriate sample size from the sampling frame. Cohen (1992) posited that the minimum sample size is determined by the number of independent variables in the model, the significant level and the minimum R-square expected.

Barclays, Higgins and Thompson (1995) also posited that in selecting sample size in PLS-SEM, the sample size should be equal to ten times the largest number of structural paths directed at a particular construct in the structural model. Based on Barclays et al (1995), the minimum sample size for this study was forty (40), because the four (4) independent constructs point at a single dependent construct. However, using the Krejcie and Morgan (1970) sample size determination table, the appropriate sample size that corresponded with the population was 156.

Since the population of this study comprise different strata with regards to the role they play in the downstream petroleum sector, the stratified sampling

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technique was employed to select the respondents from each of the strata to make up the sample size. The proportionate stratified random sampling technique allows the constituents of each strata to have equal chance of being selected randomly, hence the researcher's choice of this sampling technique (Rahi, 2017).

Table 3: Respondents to be Selected from each Strata

Key players in the downstream	Sample to be selected
Bulk Distribution Companies	37/261*157= 22
LPGMCs	42/261*157= 25
OMCs	170/261*157= 102
Depots	12/261*157= 7
Total	156

Source: Field Survey (2022)

After determining the number of respondents to be selected from each subgroup, the constituents of each of the strata were assigned numbers after which the respondents were randomly selected from the sampling frame of each strata using computer generated simple random sample application (Malechwanzi & Hongde, 2018). This enabled the respondents of each subgroup to be fairly represented, as the entire sampling process seeks to ensure a proper representation of the population (Zhao, Liang & Dang, 2019).

Data Collection Instrument

The study made use of structured questionnaire for its primary data collection. The constructs were measured numerically with validated instruments obtained after the researcher extensively reviewed literature on related topics. A 7-point likert scale was used to measure the drivers of

sustainable procurement (top management support, organisation's sustainability values, government regulations and support and stakeholder's pressure) which rated the views of the respondents from strongly (1) disagree to strongly agree (7). A 7-point likert scale was also used to measure sustainable procurement, operational performance and sustainable performance.

For operational and sustainable performance, the respondents were required to rate the extent of improvement ranging from 1= very poor improvement to 7= exceptional improvement. The 7-point likert scale was a continuous interval scale since the items that measured each construct was used for analysis by calculating a composite score (Boone & Boone, 2012). The first section (A) of the questionnaire measured the demographic characteristics of the respondents. There were 4 items that made up this section.

The second section (B) measured the drivers (top management support, sustainable organisational values, Stakeholders' pressure and regulatory environment) of sustainable procurement in the downstream oil and gas supply chain adapted from Agbesi et al. (2018). The third section also measured the implementation of sustainable procurement practices with 14 items also adapted from Islam, Murad, McMurray and TAbalala (2016). Section C measured sustainable performance with 14 items adapted from Sezen and Cankaya (2013); Hami et al., (2015); Abdul Rashid et al., (2017) and finally section D measured Operational performance with 8 items also adapted from Aggrey et al. (2021). The use of structured questionnaires enhanced the simplicity and ease of the entire data collection process and also made the analysis more understandable (Nyarku et al., 2018).

Data Collection Procedure

The researcher used two months for the collection of the primary data (March-April, 2022) through the administration of structured questionnaires. The drop and pick method of questionnaire administration was adopted for this study. This was appropriate due to the busy schedules of the respondents. In order to make room for respondents who were not available at the time the questionnaires were issued to be able to answer at their own convenient time to allow them provide the most appropriate answers. However, after issuing the questionnaires to the respondents, phone calls were made frequently to remind them to complete the questionnaires on time.

The researcher distributed two-hundred and fifty-five (255) questionnaires and retrieved two hundred and forty - eight questionnaires properly answered by the respondents. This however represents 100% response rate since the researcher distributed questionnaires more than the minimum sample in order to ensure proper representativeness of the population (Taherdoost, 2016). Even though the sample size was one hundred and fifty-six (156), two hundred and fifty-five questionnaires were distributed due to the need to enhance the quality of the data collected, as suggested by McEwan (2020) that increasing the sample size of a study addresses validity issues.

Common Method Bias

Empirical research within the business field over the years now has paid attention to the concept of common method bias. This affects the results of research analysis that made use of respondents as the source of their data (Jakobsen & Jensen, 2015). Common method bias may occur when the scale

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properties are similar throughout the questionnaire even for different constructs (Podsakoff et al. 2003). Common method bias may also come as a result of the complexity, ambiguous, and abstract nature of the items that are measuring the construct (Podsakoff, MacKenzie & Podsakoff, 2012).

In order to address the issue of common method bias, the researcher put in place the following preventive techniques discussed by Chang et al. (2010), Podsakoff et al. (2000) and Lindell and Whitney (2001). Firstly, the researcher ensured that the questionnaire items were written in simple terms with maximum clarity, the indicators of the independent and the dependent variables were arranged separately, also, the scales for measuring the dependent and independent variables were adopted from different sources.

To add to, the researcher categorized the items that measured the constructs into sections and finally lengthy questions were converted into short questions. The respondents were also assured of confidentiality. To measure the common method bias of each of the structural model configured, collinearity statistics (VIF) was employed (Afum, Sun & Kusi, 2019; Kock, 2015). As a rule of thumb, the VIF score must be less than or equal to 5 in order to prove the absence of a threat of common method bias (Kock & Lynn, 2012).

Data Processing and Data Analysis

Coding, data entry and cleansing were done with Statistical Package for Social Science (SPSS version 25.0) after which the data was analysed using SMART PLS 4.0. To enable the researcher to import the prepared data file from SPSS into SMART PLS, it was converted into "comma delimited" format for model configuration (Kock et al. 2012). The SMART PLS application enables

the estimation of hypothesized model (Hult, Ringle & Sarstedt, 2018; Schberth, Henseler & Dijkstra, 2018; Sharma et al., 2019). PLS-SEM was chosen because of its ability to test reflective models that are complex and also pays no attention to distributional assumptions.

Also, the PLS-SEM helps to effectively and efficiently test causal relationships among constructs (Ringle et al., 2015). The major drawback of the use of PLS for data analysis is the inability of the Fornell – Larker criterion to effectively detect issues of discriminant validity (Ronkko & Evermann, 2013). However, this problem has been dealt with by the use of heterotrait-monotrait ratio (HTMT) as a better measure of discriminant validity (Henseler et al., 2016). A one-tailed test of hypotheses was configured because of the directional nature of the formulated research hypotheses (Ringle et al., 2015). In order to improve the measurement model, all indicators with outer loadings less than 0.7 and are not statistically significant and were thence removed from the model (Jung & Park, 2018).

The model configuration treated top management support as exogenous latent variable and sustainable procurement as endogenous latent variable (Objective 1). Organisation's sustainability value was also treated as an exogenous latent variable and sustainable procurement as endogenous latent variable (Objective 2). To add to, government regulations and support as well as stakeholder pressure were both treated as exogenous latent variables whilst sustainable procurement was treated as an endogenous latent variable (Objective 3 and 4 respectively). On the other side, sustainable procurement was treated as an endogenous latent variable whilst sustainable performance and

operational performance were also treated as endogenous latent variables (Objective 5 and 6 respectively).

Prior to testing the hypothesized relationships, the researcher sought to find out if the model had issues relating to reliability and validity. To assess the reliability of the measurement scale, the rho A was used even though the Cronbach Alpha and composite reliability were all computed. The threshold for assessing the reliability of the scale is a minimum of 0.7 (Dijkstra & Henseler, 2015). According to Dijkstra and Henseler (2015), the rho_A is the most significant measure of reliability in SMART PLS. Content validity can be ensured by asking for the opinions of experts in the field and also by ensuring that, the questions asked fully represented the "universe of content" of the concept being measured (Patrick et al., 2011). For this reason, the researcher extensively reviewed literature on the concepts of the study and obtained the validated scales from these prior studies. Besides, expert opinion of the supervisor was solicited for before its acceptance and usage for data collection.

Average Variance Extracted (AVE) was used to measure the convergent validity. The threshold for assessing convergent validity is that, the AVE scores should be greater than 0.5 (Dijkstra & Henseler, 2015). Benitez, Henseler, Castillo and Schuberth (2020) described convergent validity as the ability of the indicators of construct to measure that same construct. Thus, how well the indicators of a construct correlate with each other. Also, to measure the discriminant validity, Heterotrait-Monotrait Ratio was employed.

The threshold for assessing the presence of discriminant validity is that, the scores should be less than 0.9 or 1 (Afum, Sun & Kusi, 2019). Discriminant validity measures the extent to which the indicators that measure different

constructs do not correlate (Campbell & Fiske, 1959). Thus the extent to which a construct distinguishes itself from other constructs (Kassem, Khoiry & Hamzah, 2020; Benitez, et al., 2020). The use of the HTMT better measures discriminant validity in reflective model in comparison to the fornell-Larcker Criterion and Factor Loadings (Ringle, Wende & Becker, 2015).

After examining issues relating to reliability and validity the researcher proceeded to assess the outer model by examining the R square and F square. The R-square concerns itself with the predictive accuracy of a model, thus, the variance in the endogenous variable explained by the exogenous variable(s). Also, the estimation of the F-square is an indication of the substantial contribution of the exogenous variables in predicting the endogenous variable (Afum et al. 2020). To assess the structural model, the factor loadings of the indicators were examined (Jung & Park, 2018). The factor loadings for a well-fitting reflective model, should be above 0.70 (Henseler et al. 2016; Hair et al. 2014). To assess the significance level of the path coefficient of the model, a bootstrapping procedure was executed giving cognizance to the p-values and t-statistics (Benitez et al. 2020).

The path co-efficients were used to determine the extent of the contribution of the predictor(s) on the dependent variables (Schberth, Henseler & Dijstra, 2018). Kassem, Khoiry and Hamzah (2020) posited that "the beta coefficient value represents the power of latent structures between exogenous and endogenous constructs".The effect size (f^2) shows the contributions of the exogenous variables to the changes in the endogenous variables (Ahrholdt, Gudergan & Ringle, 2019). Lauriola, Panno, Levin and Lejuez (2014) posited that effect size values above 0.35 signifies a strong contribution of the predictor

on the dependent variable. An effect size of 0.15 signifies a moderate contribution and an effect size of 0.02 signifies a weak contribution of the predictor to changes on the dependent variable.

The categorization to assess the predictive relevance of the direct effects using the q-square is as follows: q^2 greater than or equal to 0.02 but less than 0.15 is regarded as a weak effect: q^2 greater than or equal to 0.15 but less than 0.35 is regarded as a moderate effect and q^2 greater than or equal to 0.35 is regarded as a strong effect (Becker, Rai & Rigdon, 2013; Ringle et al., 2015). However, the Q-square was not used in this study since some scholars consider this metric not a strong predictor of direct effects (Hair, Howard & Nitzl, 2020). Co-efficient of determination (R^2) was used to assess the predictive capacities of the models. According to Kassem, Khoiry and Hamza (2020), the prescribed tentative cut –off points for describing the R-squares values are stated as: R-square values above 0.67 are substantial, 0.33 are moderate and 0.19 are weak. The researcher presented the findings in Figures and Tables for a clearer reporting and an easier understanding.

Ethical Consideration

Formal permission was sought from the authorities of the University of Cape Coast by requesting for ethical clearance from the institutional review board of the University of Cape Coast. Also an introductory letter was collected from the Department of Marketing and Supply Chain Management and submitted to the respondent companies before the questionnaires were distributed. The researcher explained the purpose of the study to the respondents and sought for their permission to participate in the study. Also, the respondents

were assured of confidentiality and anonymity of their responses. The researcher also stated clearly on the questionnaire that, information provided are solely for academic purposes.

Chapter Summary

The chapter contains details on the methodological techniques the researcher used to collect the primary data, as well as the procedures followed to guarantee that the data were processed and analyzed, especially in light of the specific study objectives. The quality of the data was assessed and the analytical tools appropriate for conducting the study were also discussed. The chapter ended with discussion on the ethical considerations observed in this study.

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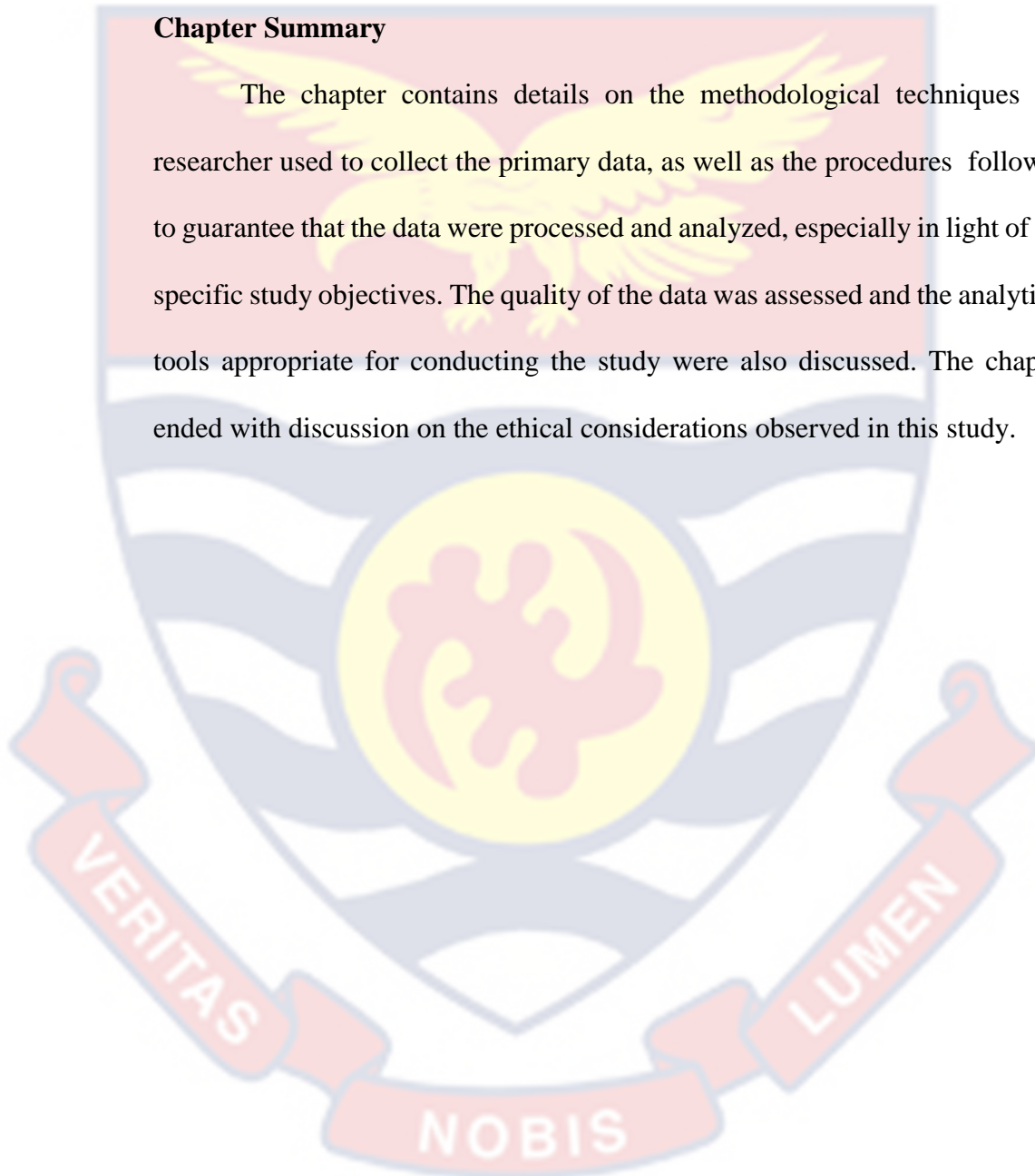
CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

The study sought to examine the drivers and outcomes of sustainable procurement in the downstream oil and gas supply chain in Ghana. This chapter details information on the findings obtained and also provides discussions on the managerial, practical and theoretical implications of the findings of the study.

Demographic Information

Descriptive statistics (frequency and percentages) were used for analyzing the demographic features of the respondents of the study. The results are presented in Table 4.

Table 4: Demographic Information

Variable	Variable categories	Frequency	Percentage (%)
Sex	Male	233	94
	Female	15	6
Firm type	Oil Marketing Company	169	68.1
	Liquefied Petroleum Gas Company	41	16.5
	Bulk Oil Distribution Company	32	12.9
	Depots	6	2.4
Years of service	1-5 years	62	25
	6-10 years	84	33.9
	11-15 years	63	25.4
	More than 15 years	39	15.7

Source: Field survey, Osei-Ahenkan (2022)

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Most of the respondents were male (94%) whilst the remaining 27% were females. This implies that men dominate in the downstream oil and gas industry. That notwithstanding input from both sexes were considered and included in the study. The study also revealed that most of the firms operating in the downstream oil and gas industry are oil marketing companies (68.1%). This was followed by liquefied petroleum gas companies (16.5%) and bulk oil distribution companies (12.9%). There are very few depots operating in the downstream oil and gas industry (2.4%).

Regarding the years of service of the respondents in their respective organisations, most of the respondents have worked for 6-10 years (33.9%). Followed by those who have worked for 11-15 years (25.4%) and 1-5 years (25%) with very few respondents working for more than 15 years in their individual organisations (15.7%). This also implies that most of the respondents have several years of working experience with their organisations and therefore their views can be depended upon in this study

Lessons from the demographic characteristics show that the procurement managers in most of the downstream oil and gas firms in Ghana are male. This situation can be attributed to the relatively intensive nature of the activities of procurement managers operating in this industry. Also, the oil marketing firms dominating the downstream oil and gas supply chain indicates that most of the activities performed in the downstream is undertaken by the oil marketing companies. The respondents have enough working experience with their organisation and their views can be very beneficial to this study.

Drivers and Outcomes of Sustainable Procurement in the Downstream Oil and Gas Supply Chain in Ghana.

The evaluation of the specified model was done based on the assumption that, the measurement model must be evaluated for the assessment of the quality of the data before the structural model (Benitez et al., 2020). The findings are presented as follows:

Measurement Model Specification

Model specification discusses the items that are used to measure constructs that make up the study (Bontis, 1998). The model used fifty-seven indicators to measure seven constructs (figure 3).

Drivers of sustainable procurement: From figure 3, it can be seen that seven indicators were used to measure top management support T1, T2, T3, T4, T5, T6 and T7. Organisational sustainability values was measured with O1, O2, O3, O4, O5 and O6. Regulatory environment and support was measured with R1, R2, R3, R4 and R5. Stakeholders' pressure was also measured with StP1, StP2, StP3.

Sustainable procurement: Figure 3 also shows that fourteen indicators were used to measure sustaianble procurement. SP1, SP2, SP3, SP4, SP5, SP6, SP7, SP8, SP9, SP10, SP11, SP12, SP13, SP14.

Outcomes of sustainable procurement: Sustainable performance was measured with fourteen indicators; SusP1, SusP2, SusP3, SusP4, SusP5 ,SusP6, SusP7, SusP8, SusP9, SusP10, SusP11, SusP 12, SusP 13, SusP 14. Operational Performance was also measured with OP1, OP2, OP3, OP4, OP5, OP6, OP7, OP8.

Measurement and Structural Model Specification

In this study, the structural model is made up of four exogenous constructs and three endogenous constructs. The exogenous constructs in this study comprsie the top management support, organisational values, regulatory environment and support, and stakeholder pressure. The endogenuos constructs used in this study also comprise sustaianble procurement, sustaianble performance and operational performance.
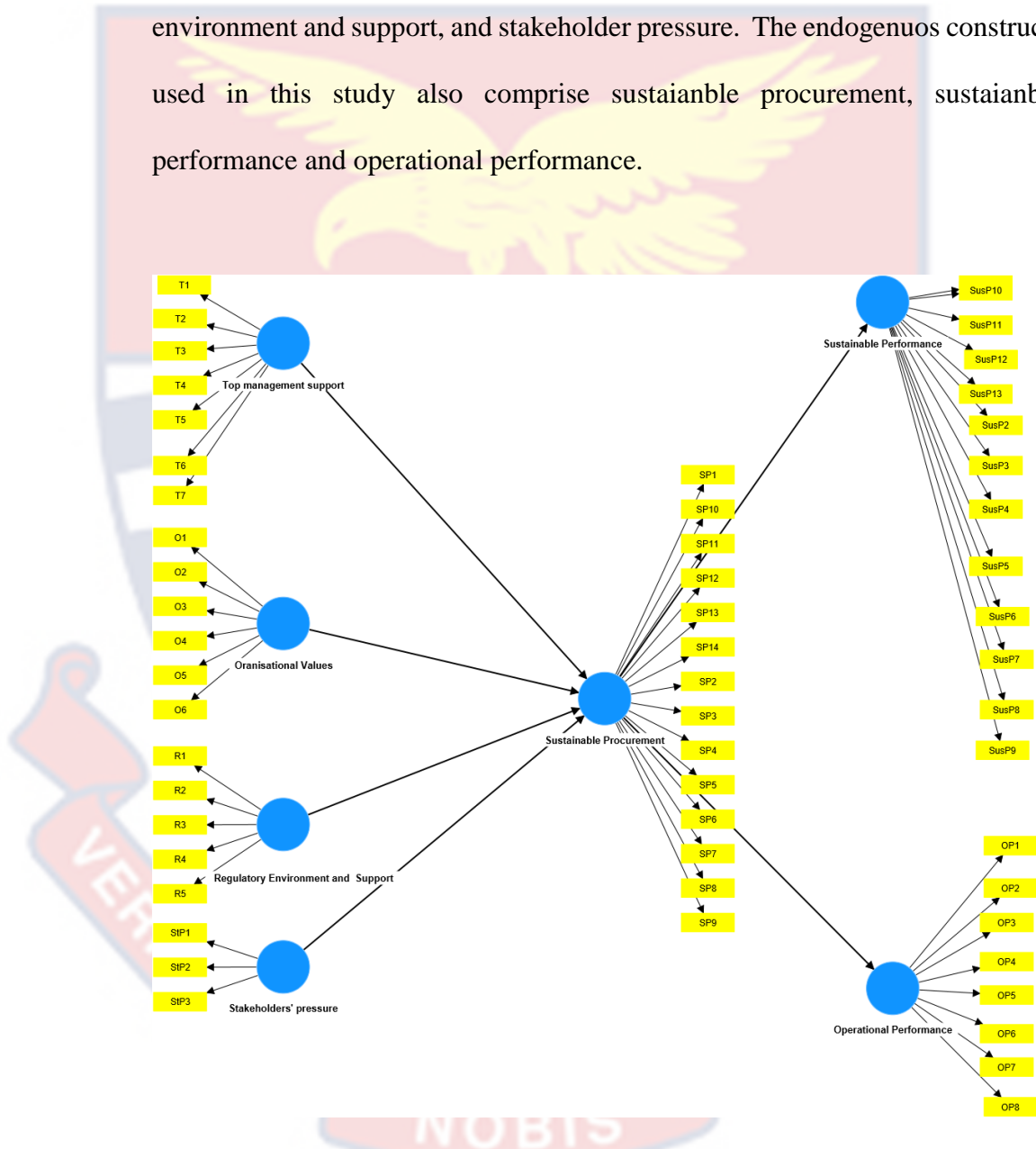
Figure 2: Specified structural and measurement model

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Measurement Model Assessment

Measurement model assesssment shows the model's ability to meet the quality assessment criterias; internal consistency reliability , converget validity and discriminant validity (Hair et al. 2017). With the use of Cronbach alpha and composite reliability, internal consistency reliability is determnined. The average variance extracted is also used to determine the convergent validity and with the use of the formell –larcker criteion, cross loadings and Heterotrait-Monotrait (HTMT), the discriminant validity is also determined (Henseler, Ringle & Sarstdt, 2016). Table 14 below shows the results of the measurement model assessment.

Table 5: Construct Reliability and Validity

	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
Operational Performance	0.847	0.853	0.892	0.623
Organisational values	0.891	0.899	0.925	0.755
Regulatory environment and support	0.897	0.899	0.936	0.830
Stakeholders' Pressure	0.698	0.774	0.827	0.616
Sustainable Performance	0.829	0.837	0.899	0.748
Sustainable Procurement	0.960	0.962	0.965	0.698
Top Management Support	0.801	0.851	0.882	0.714

Source: Field survey (2022)

Indicators are considered reliable when the cronbach alpha and the composite reliability values are 0.7 and above. The cronbach Alpha is considered as the lower bound and the composite reliability is considered as the upper bound (Hair et al., 2016). The internal consistencies of the constructs were

accurately measured and proved the constructs are higly reliable[Cronbach alpha > 0.7; Composite reliability> 0.7] (Ringle, Wende & Becker, 2015; Garson, 2016; Hair, et al., 2017). In the context of this study, focussing on the rho_A, there exists internal consistency reliability since all the figures exceed the threshold of 0.7 (Hair, et al., 2017). For a construct to have convergent validity, the AVE should be >0.5 (Hair et al. 2014). The convergent validities were accurately measured and the AVE values were all > 0.5 and this signifies their convergent validity status.

Discriminant Validity

Gefen and Straub (2005) stated that "discriminant validity is shown when each measurement item correlates weakly with another construct with the exception of the ones that are theoretically associated". The disciminant validity helps to prove that the constructs used in the study are distinct. To determine discriminant validity, the three different criteria were used in this stiudy. They are; the cross loadings, the fornell –larcker criterion and the HTMT ratio (Hair et al. 2017; Henseler et al., 2016). Cross loadings are regarded as the lower bound of determination of discriminant validity and HTMT represents the upper bound of discriminat validity (Fernando, Halili, Tseng, Tseng & Lim, 2020).

Cross loadings criterion: The cross loading criteria seeks to ensure that indicatiors should have higher cross loadings on the constructs they are measuring than other constructs. The results in Appendix B shows that the indicators contributed to higher crossloadings on the constructs they were measuring relative to their cross loadings on other constructs.

Fornell – Larcker criterion: This criterion comes next to the cross loadings criterion of discriminant validity measurement. The fornel Larcker criterion entails that " the square root of the AVE of each construct in the model should be higher than the construct's correlation with any other construct in the model" (Hair et al., 2017). The fornell larcker is used to assess the degree of shared variance between the latent variables of the model. The results as shown in the Appendix C shows that the square root of the AVE for each of the construct is highr than the correlation that exists between the constructs used in the model.

Heterotrait-Monotrait (HTMT) ratio: This is final and most significant criterion for the assessment of discriminant validity.(Henseler et al., 2016; Hair et al., 2017). The HTMT criterion entails that, the HTMT value of the constructs in the model should be less 0.9. The findings in table 15 shows that with the exception of sustainable procurement and regulatory environment and support which was a little over 0.9, all the remaining constructs accurately measured discriminant validity. According to Benitez et al. 2020; Gaskin, Godfrey & Vance, 2018; Henseler, 2016). The HTMT value for sustainable procurement and regulatory environment still meets the threshhold for validity since figures below 1 is accepted as valid (Henseler, 2016).

Table 6: Discriminant validity assessment-HTMT criterion

	Operational Performance	Organisational values	Regulatory environment and support	Stakeholders' Pressure	Sustainable Performance	Sustainable Procurement	Top Management Support
Operational Performance							
Organisational values	0.571						
Regulatory environment and support	0.721	0.854					
Stakeholders' Pressure	0.651	0.601	0.668				
Sustainable Performance	0.704	0.660	0.761	0.727			
Sustainable Procurement	0.836	0.765	0.921	0.818	0.894		
Top Management Support	0.603	0.688	0.734	0.573	0.509	0.651	

Source: Field survey (2022)

The above quality assessments have shown that there exists discriminant validity in the model since all the three assessment criteria, cross loadings (Appendix B), fornell-larcker (Appendix C) and the HTMT ratio (Table 15) meet the required threshold. Also there exists internal consistencies and validities since all the constructs were highly reliable and valid.

Collinearity Statistics (VIF)

VIF values above 5 in exogeneous constructs is an indication that multicollinearirty exists (Hair et al. 2014). Table 16 shows that none of the exogeneuos constructs in this model have values above 5. This is an indication of the absence of multicollinearity among the independent constructs.

Table 7 : Inner VIF Values

	Sustainable Procurement	Operational Performance	Sustaianble Performance
Organisational values	2.588		
Regulatory environment and support	2.950		
Stakeholders' Pressure	1.542		
Top Management Support	1.793		
Sustainable Procurement		1.000	1.000

Source: Field survey (2022)

The VIF scores for the inner model did not surpass 5, this shows that there is no common method bias for all the constructs (Kock & Lyn, 2012). The measurement model
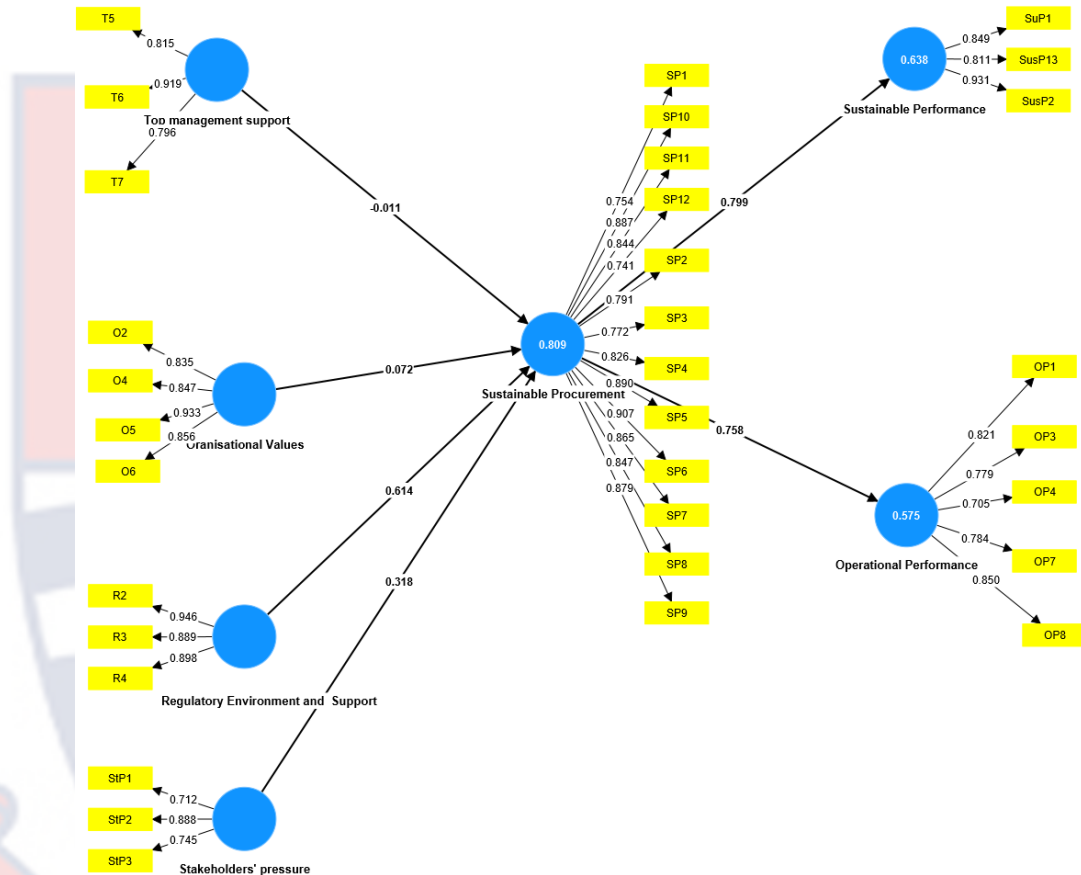
Figure 3: Measurement model results

Structural Model

After the reliability and validity of the measurement model has been assessed, the structural model is then assessed to establish the fitness of the model in predicting the relationships between the dependent and independent constructs hypothesized. This section provides the findings on the output of the predictive model assessed. The aspects of the structural model that are recommended to be reported in explanatory studies for reflective models

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include loadings, path, co- efficient, effect size, predictive relevance (for direct paths) and co-efficient of determination (Benitez et al., 2020).

Coefficients of Determination (R square)

Structural models in PLS-SEM predict the relationship between latent constructs. The R-square value is used to assess the predictive power of a structural model. The r-square shows the joint influence of the of the independent constructs on the dependent constructs. The values fall between 0 and 1. The values that are closer to 1, signifies a stronger predictive power of the independent construct(s) on the dependent construct. The minimum acceptable r-square value is 10% (Hair et al. 2014, Yuliansyah & Razimi, 2015). The endogenous constructs in this model include sustainable procurement, sustainable performance and operational performance. Results shown in Table 17 represents r-square value of these endogenous constructs.

Table 8: Coefficient of Determination

	R-square	R-square adjusted
Operational Performance	0.575	0.574
Sustainable Performance	0.638	0.636
Sustainable Procurement	0.809	0.806

Source: Field survey (2022)

The predictive capacity model has been presented in table 17. The results prove that the drivers of sustainable procurement: Top management support, organisational values, stakeholders' pressure and government regulation and support accounted for a substantial positive variance in sustainable procurement (R-square = 0.809) when all other factors not captured in this study but are affecting sustainable procurement are statistically

controlled for. This implies that 80.9% of the changes in sustainable procurement can be attributed to the drivers of sustainable procurement.

The results also show that sustainable procurement accounts for a substantial positive variance in sustainable performance (R-square = 0.638) when all other factors not captured in this study but are affecting sustainable performance are statistically controlled for. This implies that 63.8% of the changes in sustainable performance is caused by sustainable procurement. The results also depict that sustainable procurement causes a moderate positive variance in operational performance (R-square = 0.575) when all the other factors not captured in this study but are affecting operational performance are statistically controlled for. This implies that 57.5% of the variance in operational performance is caused by sustainable procurement.

Effect Size (f^2)

To determine the contribution of each exogenous construct to the endogenous construct's R^2 value, the f^2 effect size is used.

Table 9: Effect Size

Structural Path	F^2
Top Management Support Sustainable Procurement	0.000
Sustainable organisational values Sustainable Procurement	0.010
Stakeholder Pressure Sustainable procurement	0.344
Regulatory environment and support Sustainable procurement	0.669
Sustainable procurement Sustainable performance	1.760
Sustainable procurement Operational performance	1.355

Source: Field Survey (2022)

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This shows that the 80.9% change is sustainable procurement can be attributed to sustainable organisational values (10%), stakeholder pressure (34.4%), regulatory environment and support (66.9%) whilst top management support does not account for any change in sustainable procurement in the downstream oil and gas supply chain in Ghana. The 63.8% change in sustainable performance can also be attributed to the 17.6% change in sustainable procurement. The 57.5 % change in operational performance can be attributed to 13.55% change in sustainable procurement.

Significance of Path Coefficients

The hypothesis specifically focused on examining the effect of top management support, organisational values, regulatory environment and support and stakeholder pressure on sustainable procurement in the downstream oil and gas supply chain in Ghana. The hypothesis also looked at the effect of sustainable procurement on the sustainable and operational performance of the downstream oil and gas supply chain in Ghana. The hypotheses were tested by examining the strength and the direction using the path coefficient (β) and the level of significance with t-statistics obtained through 5000 bootstraps as suggested by Hair et al. (2014). The results of the hypotheses tested using PLS-SEM are presented in Table 10.

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Table 10: Result of Structural Equation Model and Hypothesis Testing

	(β)	T statistics (|O/STDEV|)	P values		Decision Rule
Organisational values -> Sustainable Procurement	0.072	0.801	0.423	P> 0.05	H2 (Not supported)
Regulatory environment and support -> Sustainable Procurement	0.614	7.755	0.000	P<0.05	H3 (Supported)
Stakeholders' Pressure -> Sustainable Procurement	0.318	6.099	0.000	P<0.05	H4 (Supported)
Sustainable Procurement -> Operational Performance	0.758	24.629	0.000	P<0.05	H5 (Supported)
Sustainable Procurement -> Sustainable Performance	0.799	26.347	0.000	P<0.05	H6 (Supported)
Top Management Support -> Sustainable Procurement	-0.011	0.279	0.780	P>0.05	H1 (Not supported)

Note*= p<0.05

Source: Field survey (2022)
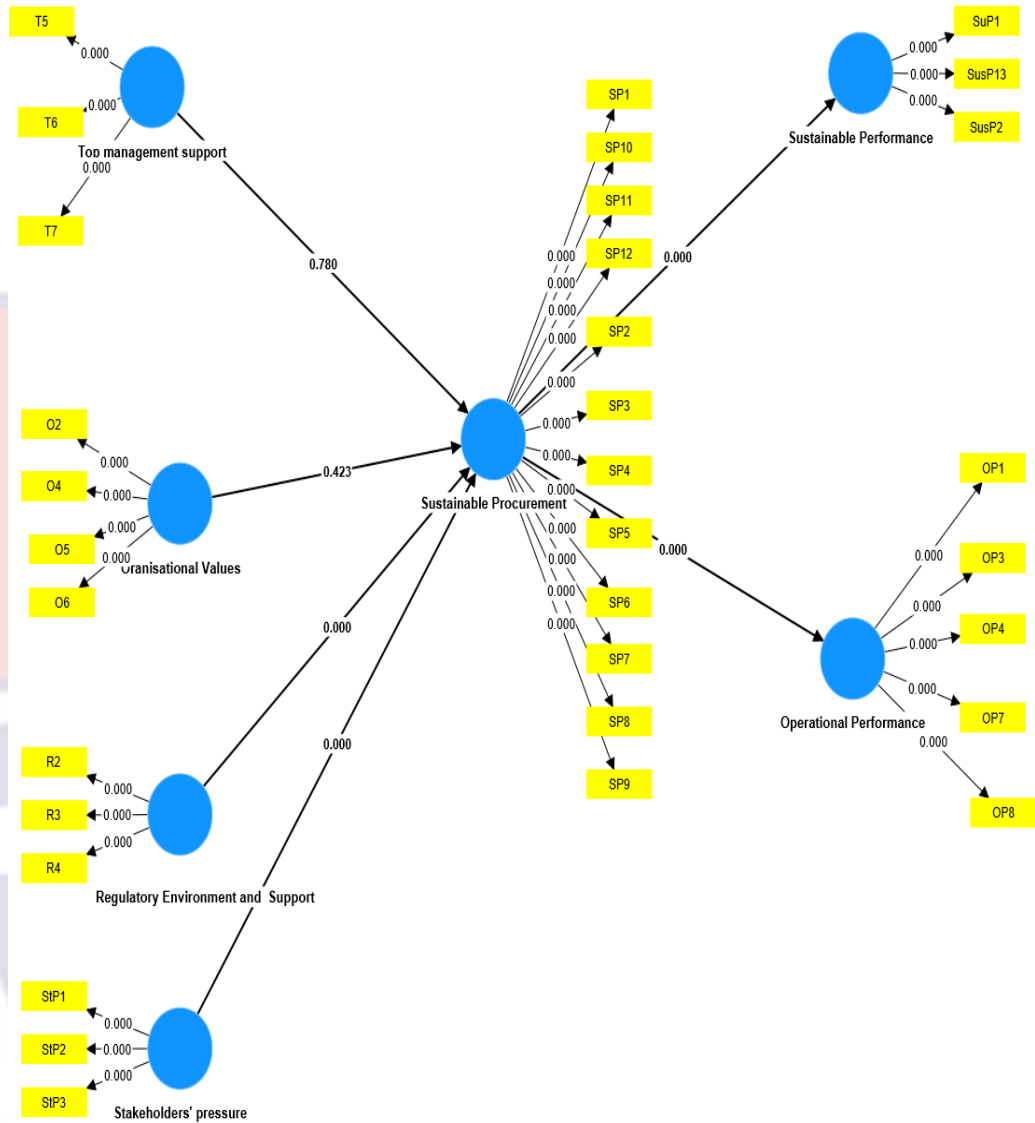
Figure 4: Structural model results

The hypotheses of the study were tested based on the t-stats values as posited by Hair et al., (2014). Their position was that t-stat values that are above 1.96 correspond to p-values < 0.05 and vice versa. The decision rule, therefore is that, the null hypothesis (H_o) is rejected (supported) when the t-stat is < 1.96 and fails to be rejected (does not support) the H_o when the t-stat is > 1.96.

Effect of Top Management Support on Sustainable Procurement

The study hypothesized (H_o) that: top management support does not significantly influence the sustainable procurement among the downstream oil

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and gas firms in Ghana. From Table 19 the results have shown that top management support has an insignificant negative effect on sustainable procurement (β = -0.011; t = 0.279; p=0.780: P > 0.05). This is because, the t-stat of the model is 0.279 which is less than 1.96. As such, the direction of the result was in line with the null hypothesis. Thus the alternate hypothesis was rejected. Hence the hypothesis that top management support significantly influences sustainable procurement" was rejected. From the β, the study found a negative but insignificant impact of the exogenous variable on the endogenous variable. This means that a unit increase in top management support by 1.1% will lead to a unit decrease in sustainable procurement.

The study's results are contrary to the theory of dynamic capability that posits that the ability of top management to support practices such as sustainable procurement is very important for the implementation of sustainable procurement. The findings of this study is also not supported by the theory of planned action. This theory also stipulates that, the management of these downstream oil and gas firms will provide support for activities such as sustainable procurement with intention of influencing the sustainability practices of their firms. This study has shown that even though the top management support of the firms studied negatively influence the practice of sustainable procurement, the effect of their support on sustainable procurement is not significant.

The findings of this study is in line with Tiwari et al., (2019) who also found an insignificant influence of top management support on sustainable procurement implementation but however, their finding showed a positive relationship rather than this study's negative effect. The findings of this study

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however contradicts with the findings of Blok et al., (2014) who found that top management support has a significant and positive impact on environmental behavior. Yuliza et al. (2019) also found a significant positive influence of top management support on sustainable procurement. Lin and Ho (2011), Agbesi et al., (2018) also recognized top management support as a significant driver of the implementation of sustainable procurement. Based on the findings of this study, it can therefore be argued that top management support negatively and insignificantly influences the implementation of sustainable procurement in the downstream oil and gas supply chain in Ghana.

Influence of Organisational values on Sustainable Procurement

The study also sought to find out the influence of organisational values on sustainable procurement. The null hypothesis (H$_o$) was that organisational values do not significantly influence the implementation of sustainable procurement in the downstream oil and gas supply chain in Ghana. From Table 19, the findings of the study have revealed that organisational values have an insignificant positive influence on the implementation of sustainable procurement ($\beta = 0.072$; t = 0.80; p= 0.423 p > 0.05). This is because the t-stats of 0.80 was < 1.96. As such the direction of the result was in line with the null hypothesis and the alternate hypothesis was rejected. Thus, the alternate hypothesis that organisational values significantly influences the implementation of sustainable procurement was rejected by this study.

The study's results indicate that a unit increase organisational values by 7.2% will lead to a unit increase in sustainable procurement of firms in the downstream oil and gas supply chain. This means that organisational values

positively influence the implementation of sustainable procurement though insignificantly. The findings of this study is in line with the theory of planned action which posits that oil and gas firms that operate in the downstream can develop some organisational values that are sustainability oriented and that can influence their implementation of sustainable procurement. The findings of this study is supported by Agbesi et al., (2018) who found that organisational values do not significantly influence the implementation of sustainable procurement. On the contrary, Wijethilake et al. found that organisational values of sustainability significantly and positively influence the implementation of sustainability practices.

Effect of Regulatory Environment and Support on Sustainable Procurement

With regards to the specific objective of the study that sought to examine the effect of regulatory environment and support on sustainable procurement in the downstream oil and gas supply chain in Ghana. The study hypothesized that 'regulatory environment and support has a significant positive relationship with sustainable procurement'. From Table 19, the path coefficient between regulatory environment and support and sustainable procurement ($\beta = 0.614$) was significant at 5% significant level with a t-stat of $7.755 > 1.96$ (p= $0.000 < 0.05$). The H_o was, therefore, rejected indicating that a unit increase in regulatory environment and support by 61.4% will cause a unit increase in sustainable procurement by 61.4%. This implies that, regulatory environment and support significantly influence the implementation of sustainable procurement. Thus the regulations that are put in place in the downstream oil

and gas sector and also by the government significantly influence the implementation of sustainable procurement.

The findings of this study is in line with the institutional theory that posits that organisations conform to regulatory structures and governmental agencies in their quest to legitimize their dealings in the society and therefore result in engaging in practices such as sustainable procurement. The findings of this study are in line with Wong et al. (2016) who found that government regulations and support are significant drivers for the effective implementation of sustainable procurement. Tiwari et al., (2019) also found that regulatory environment had the highest impact on the implementation of sustainable procurement amongst manufacturing firms. Based on the findings of this study and past studies, one can therefore posit that regulatory environment and support plays a very important role in the implementation of sustainable procurement.

Effect of Stakeholders' Pressure on the Implementation of Sustainable Procurement

The fourth research hypothesis was formulated to identify whether stakeholders' pressure significantly influence the sustainable procurement practices of the downstream oil and gas supply chain in Ghana. The formulated hypothesis read "stakeholders' pressure positively influences sustainable procurement in the downstream oil and gas supply chain in Ghana. From Table 19, it can be seen that stakeholders' pressure significantly and positively influences sustainable procurement ($\beta = 0.318$; t = 6.099; p= 0.000: $p < 0.05$).

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This is because the t-stat of 6.099 is greater than 1.96. The direction of the result is in line with the alternate hypothesis thus the null hypothesis is rejected.

Hence the hypothesis that stakeholders' pressure positively and significantly influences the implementation of sustainable procurement was supported. A unit increase in stakeholders' pressure by 31.8% would result in an increase in sustainable procurement by 31.8%. The findings of this study is line with the institutional theory that posits that the presence of rules and regulations and all other stakeholders' pressures can enhance the implementation of sustainable procurement. The findings of this study is also in line with previous studies by Saed et al., (2019) and Niboi (2018). Agbesi et al. (2018) and Lama et al., (2018) on the otherhand found a negative influence of stakeholders' pressure on sustainable procurement. Based on the findings of this study and the institutional theory, one can therefore conclude that stakeholders' pressure can significantly influence the implementation of sustainable procurement.

Effect of Sustainable Procurement on Operational Performance

The fifth research hypothesis was formulated to identify whether sustainable procurement significantly influences the operational performance of the downstream oil and gas firms. From Table 19, the path coefficient between sustainable procurement and operational performance ($\beta = 0.758$) was significant at 5% significant level with a t-stat of $24.629 > 1.96$ ($p = 0.000 < 0.05$). The H_0 was, therefore, rejected indicating that a unit increase in sustainable procurement will cause a unit increase in operational performance

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by 75.8%. This implies that engaging in sustainable procurement is an essential way of achieving an improved operational performance.

As posited by the RBV theory, firms' ability to utilize their resources effectively will enhance their operational performance, the findings of this study supports this assertion. The findings of this study is also in line with Nkrumah et al. (2020) who concluded that sustainable supply chain practices significantly influence the operational performance of firms in the downstream petroleum sector. Islam et al also asserted that sustainable procurement influences SME performance in Saudi Arabia. Similarly, Nwanzu et al.(2019) also after assessing the relationship between sustainable organisational practices and organisational effectiveness concluded that organisatioanl sustainability practices such as sustainable procurement positively and significantly predicts organisational effectiveness. Based on the findings of this study and prior studies, one can conclude that sustainable procurement significantly and positively influence the operational performance of firms operating in the downstream oil and gas firms in Ghana.

Effect of Sustainable Procurement on Sustainable Performance

The sixth hypothesis of this study was formulated to assess whether sustainable procurement significantly influences the sustainable performance of firms that operate within the downstream oil and gas supply chain in Ghana. The formulated hypothesis was stated as "sustainable procurement positively influences the sustainable performance of the downstream oil and gas supply chain'. From table 19, it can be seen that sustainable procurement significantly and positively influences sustainable performance ($\beta = 0.799$; $t = 26.347$; $p=$

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0.000: p < 0.05). This is because, the t-stat of 26.347 was larger than 1.96. As such, the direction of the result was in line with the hypothesis thus the null hypothesis was rejected.

Hence, the hypothesis that "sustainable procurement influences sustainable performance" was supported. This implies that for the oil and gas firms operating in the downstream supply chain to increase their sustainable performance, sustainable procurement should be given much attention. This is because, a unit increase in sustainable procurement by 79.9% would result in an increase in sustainable performance by 79.9%. According to the resource based view theory, the ability of firms to effectively utilize their resources through means such as sustainable procurement will enhance their sustainable performance.

The findings of this study is in line with Wang et al., (2018) who found that sustainable supply chain practices such as sustainable procurement significantly influence the environmental and social performance of firms. The findings of this study however contradicts with the findings of Cankaya et al. (2018) who found that there is no relationship between green purchasing and sustainable performance in the manufacturing firms in Turkey. That notwithstanding, based on the findings of this study, one can therefore claim that sustainable procurement significantly influences the sustainable performance of oil and gas firms operating in the downstream supply chain.

Chapter Summary

This chapter provided the results and the discussion of the research hypothesis using PLS-SEM. The study found that top management support

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negatively and insignificantly influences the implementation of sustainable procurement. Organisational values also have no significant influence on the implementation of sustainable procurement. The study further revealed that, stake holders' pressure and government regulations and support are significant contributors to the implementation of sustainable procurement. Also, sustainable procurement significantly and positively influences operational and sustainable performance of firms operating in the downstream oil and gas supply chain in Ghana. The next chapter discusses the summary, conclusion and recommendations.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The study sought to examine the drivers and outcomes of sustainable procurement of firms operating in the downstream oil and gas supply chain in Ghana. The previous chapter provided information on the results and also made some discussions. This chapter provides information on the summary of the key findings, conclusions drawn based on the findings relating to the specific objectives as well as the recommendations based on the findings of this study.

Summary

The purpose of the study was to assess the influence of the drivers of sustainable procurement on the implementation of sustainable procurement and also to further examine the effect of the implementation of sustainable procurement on the sustainable and operational performance of firms operating in the downstream oil and gas industry. Specifically, the study sought to examine:

1. The effect of top management support and organisational values on sustainable procurement

2. The influence of regulatory environment and support and stakeholders' pressure on sustainable procurement

3. The effect of sustainable procurement on operational performance

4. The influence of sustainable procurement on sustainable performance.

The study developed and tested six hypotheses to help achieve the research objectives. The study adopted the positivism philosophy and relied on

the quantitative approach making use of the explanatory research design. A structured questionnaire was developed from extensive reviews of previous studies to gather data from firms operating in the downstream oil and gas industry. Using the stratified random sampling technique, two hundred and forty- eight (248) valid responses with a response rate of 100% was used for data analysis. The data was then processed using IBM SPSS (version 24) and SmartPLS (version 4) software. Frequencies and percentages were used to analyse data on organisational and personal characteristics of the respondents.

With regards to the first research objective that sought to find out whether top management support and sustainable organisational values (internal drivers) have a significant effect on sustainable procurement in the downstream oil and gas supply chain in Ghana, it was found that top management support rather negatively influences the implementation of sustainable procurement though insignificantly. This means that top management support does not play significant roles in improving the sustainable procurement of the downstream oil and gas firms. The negative influence implies that, the more the management of these firms provide support for the implementation of sustainable procurement, there is no significant improvement in the implementation of the sustainable procurement.

Also, the study revealed that organisational values as a driver of sustainable procurement has an insignificant positive influence on the implementation of sustainable procurement. This implies that, a unit increase in the organisational values does not lead to any significant increase in the practice of sustainable procurement. Thus, organisational values do not play any

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significant role when firms intend to improve their practice of sustainable procurement.

In relation to the second research objective, that sought to examine the effect of regulatory environment and support on sustainable procurement and also the effect of stakeholders' pressure on sustainable procurement, the study revealed that regulatory environment and support have a significant positive effect on the practice of sustainable procurement among the oil and gas firms operating in the downstream oil and gas supply chain. This implies that the government regulations and support is an essential way of improving the sustainable procurement practices of these firms. Also, the study revealed that stakeholders' pressure is also another significant predictor of the practice of sustainable procurement. The study found that stakeholders' pressure has a significant positive effect on the implementation of sustainable procurement. This implies that the more the firms studied are pressurized by stakeholders to engage in sustainable procurement, the more they improve on their practicing of sustainable procurement.

Considering the third research objective that focused on examining the effect of sustainable procurement on operational performance of firms operating in the downstream oil and gas firms, the study found that sustainable procurement has a significant positive influence on the operational performance of firms operating in the downstream oil and gas firms. As such, sustainable procurement is an essential way of improving the operational performance of these firms. This implies that a unit increase in sustainable procurement leads to a significant increase in the operational performance of these firms.

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Finally, the fourth research objective on the effect of sustainable procurement on the sustainable performance of firms operating in the downstream oil and gas industry was examined. The study found that sustainable procurement has a positive significant effect on the sustainable performance of downstream oil and gas firms in Ghana. This means that sustainable procurement plays significant roles in improving the sustainable performance of the firms studied. Thus, the more the firms studied adopt the practice of sustainable procurement, the higher their sustainable performance.

Conclusions

The study aimed at assessing the drivers and outcomes of sustainable procurement in the downstream oil and gas firms in Ghana. The following conclusions were arrived at based on the findings of the study.

For the first research objective, the study's result implies that, top management support within the firms operating in the downstream oil and gas supply chain do not contribute to their practice of sustainable procurement. Thus, its contribution is negative and insignificant. This implies that the support provided by the top management of these firms is not effective and efficient even though the support provided by top management is essential for the implementation of sustainable procurement. The findings of this study has shown that the nature of the support provided by these firms should be improved to ensure an improvement in their contribution to the implementation of sustainable procurement. Management should develop deeper understanding and knowledge of sustainable procurement so that they can provide the most appropriate support for its implementation.

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The study also revealed that organisational values have no significant effect on the implementation of sustainable procurement. The implication of this findings is that organisations may have values that guide them to ensure the implementation of sustainable procurement however, this is not a significant predictor of the implementation of sustainable procurement. With top management support and organisational values being internal drivers of sustainable procurement and both having insignificant effect on the implementation of sustainable procurement, one can say that, in the downstream oil and gas supply chain, internal drivers do not significantly influence the implementation of sustainable procurement. This narrative can be changed when the management and the employees of these firms are made to understand the significance of sustainable procurement and they will therefore not need to depend on external drivers to implement effective sustainable procurement practices.

The findings of the second research objective showed that, regulatory environment and support and also stakeholder pressure both have significant positive effect on the practice of sustainable procurement in the downstream oil and gas supply chain in Ghana. This implies that to ensure that sustainable procurement is enhanced in the downstream., the government and all other relevant stakeholders should be actively involved. Thus, the government, suppliers and customers should all make sure that they are actively involved in ensuring that these organisations conform to all the required sustainable procurement practices. Regulatory environment and support and also stakeholder pressure are both external drivers of sustainable procurement. This means that the external drivers are more significant contributors to the

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improvement in the implementation of sustainable procurement relative to the internal drivers. Based on these findings, this study therefore concludes that to ensure an improvement in the implementation of sustainable procurement among the downstream oil and gas firms, the external drivers must be critically assessed and enforced.

The third objective of the study also revealed that sustainable procurement has a positive significant effect on the operational performance of the oil and gas firms operating in the downstream. The practical implication of this finding is that, the management of the downstream oil and gas firms should emphasise on strengthening the sustainable procurement practices as a means of improving their operational performance. Economically, sustainable procurement reduces excess costs, socially, sustainable procurement builds a good corporate image and environmentally, sustainable procurement is essential for protecting the environment and this also helps the organisation build a good corporate image. All these significantly improve the operational performance of these firms. Based on the findings of this study and also past studies, one can therefore conclude that, sustainable procurement is an essential way of improving the operational performance of the downstream oil and gas firms.

Finally, the study's finding on research objective four revealed a positive significant effect of sustainable procurement on the sustainable performance of the oil and gas firms operating in the downstream supply chain. The practical implication is that, sustainable procurement should be viewed by the management of the firms that operate in the downstream oil and gas supply chain as an effective means of improving their sustainable performance. Especially in a developing country like Ghana. Based on the findings of this

study, one can therefore conclude that sustainable procurement is very essential for improving the sustainable performance of firms operating in downstream oil and gas industry.

In summary, the study concluded that the external drivers are significant contributors to effective implementation of sustainable procurement. This study further concluded that, sustainable procurement also has a significant positive effect on operational and sustainable performance of the downstream oil and gas firms in Ghana.

Recommendations

Based on the findings, and the conclusions made, the following recommendations are made. The study recommends that, firstly, the top management of these downstream oil and gas firms should gain adequate knowledge about sustainable procurement and its benefits socially, economically and environmentally. This will help them support sustainable procurement in an effective and efficient manner. Top management of these firms should invest resources (support) in ensuring that all workers are also abreast with issues relating to sustainable procurement. All financial support that will be needed to enhance the implementation of sustainable procurement should be provided since this is an essential means of improving the sustainable procurement practices of these firms. The study also recommends that the organisational values should be implemented properly geared towards the improvement of sustainable procurement practices.

The study has proven that the internal drivers (top management support and sustainable organisational values) do not significantly contribute to

sustainable procurement. This study therefore recommends that measures should be put in place to ensure that top management support and organizational values can also enhance the implementation of sustainable procurement since their role in improving the implementation of sustainable procurement cannot be comprised on.

The study also recommends that the management of the downstream oil and gas firms should continue to adhere to all government regulations directed towards the attainment of sustainable procurement. Also these organisations should continue to work towards meeting the stakeholders' expectations that are geared towards sustainable procurement practices. The study has revealed that the external drivers of sustainable procurement significantly influence the implementation of sustainable procurement. However, the management of these firms should establish clear procurement guidelines highlighting the specific nature of stakeholders' pressures they are going to succumb to. This will help management invest resources properly and this will enhance the implementation of sustainable procurement.

The study also recommends that management should continue to actively engage in sustainable procurement practices such as diversity, safety, acknowledging human rights, philanthropy and environmentally conscious procuring. Since these are essential ways of improving their sustainable and operational performance. This is because, sustainable procurement will reduce operating or production costs without consequently reducing product quality, speed, flexibility and dependability of the firms' operational system. Also, engagement in sustainable procurement is an essential way of improving the social, environmental and economic performance of firms. For this reasons

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organisations that operate in the downstream oil and gas supply chains should invest more in sustainable procurement as a means of improving their sustainable performance. Policy makers should also strengthen the rules and regulations governing the implementation of sustainable procurement since this has shown to be an effective means of enhancing the operational and sustainable performance of firms.

Suggestions for Further Research

The study focused on the drivers and outcomes of sustainable procurement in the downstream oil and gas supply chain in Ghana. Further research can extend the study to cover other sectors of the Ghanaian economy other than the downstream oil and gas industry. This will help expand the existing knowledge on sustainable procurement in Ghana and how it can help improve the operational and sustainable performance of firms in the diverse sectors of the Ghanaian economy. Also other drivers of the implementation of sustaianable procurement other than those discussed in this study can also be assessed inorder to improve the knowledge of the factors that can influence the implementation of this worthy cause, sustainable procurement.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

COLLEGE OF HUMANITIES AND LEGAL STUDIES

SCHOOL OF BUSINESS

DEPARTMENT OF MARKETING AND SUPPLY CHAIN

MANAGEMENT

QUESTIONNAIRE

Dear Respondent,

This study is being conducted by Victoria Yaa Osei-Ahenkan, a postgraduate student of University of Cape Coast, to assess the drivers and outcomes of sustainable procurement in the downstream oil and gas supply chain in Ghana. With your rich experience and knowledge in procurement in the oil and gas industry, I humbly ask for your time and effort to complete this questionnaire as accurately as possible. This exercise is for academic purpose only. Thank you.

Instructions: Kindly write or tick [√] where appropriate.

Section A: Demographic Characteristics

1. Sex a. Male [ ] b. Female

2. Firm type

 a. Oil Marketing Company [ ]

 b. Liquefied Petroleum Gas Company [ ]

 c. Bulk Oil Distribution Company [ ]

 d. Depots [ ]

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3. Length of Service with your organisation

 a. 1-5 years [ ]

 b. 6-10 years [ ]

 c. 11-15 years [ ]

 d. More than 15 years [ ]

Section B: Perception About the drivers of Sustainable Procurement

4. To what extent do you agree to these statements about the drivers of sustainable procurement in your organisation?

 Where: 1-Strongly Disagree; 2-Disagree; 3-Somewhat Disagree; 4-Neither Agree nor Disagree; 5-Somewhat Agree; 6-Agree; 7-Strongly Agree

No	Top Management Support	1	2	3	4	5	6	7
1	Top management articulate a vision for organisational adoption of sustainable procurement							
2	Top management is likely to consider the adoption of sustainable procurement as strategically important							
3	Top management formulated a strategy for the organisational adoption of sustainable procurement							
4	Top management has effectively communicated its support for sustainable procurement adoption to employees							

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5	Top management is committed to the use of sustainable procurement							
6	Top management is likely to invest funds in sustainable procurement							
7	Top management is willing to take risks involved in the adoption of sustainable procurement							
No	**Organisational Values**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1	Our organisation is highly committed to sustainability (social, environmental and economic)							
2	The history, value, culture, norms support adoption of innovative ideas such as sustainable procurement adoptions in the organisations							
3	Our organisation has provided experienced and capable people to manage sustainability(social, environmental and economic) issues in our procurement activities							
4	Our organisation adopts sustainability criteria (social, environmental and economic) in selecting contractors and suppliers							
5	There is willingness of the organisation to tolerate risk and failure							
6	Our organisation values emphasised collaboration and support for sustainable procurement							

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No	Regulatory Environment and Support	1	2	3	4	5	6	7
1	The government procurement laws and regulations support adoption of sustainable procurement initiatives and implementation							
2	The adoption of sustainable procurement is/was driven by incentives provided by government							
3	The adoption of the sustainable procurement is/was required by government							
4	The positive attitudes of government towards adoption of sustainable procurement							
5	Adequate trainings programs offered by government in the area of sustainable procurement							
No	Stakeholder Pressure	1	2	3	4	5	6	7
1	Competition in our industry/environment is very intense							
2	Our major stakeholders/stockholders (e.g. contractors, suppliers, consultants, professional bodies, etc.) pressurise us to adopt sustainable procurement							
3	Our customers pressurize us to adopt sustainable procurement							

Section C: Sustainable Procurement

5. How do you rate the effect of these drivers on sustainable procurement?

Where: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree nor Disagree 5-Somewhat Agree 6-Agree 7-Strongly Agree

No	**Environment**	1	2	3	4	5	6	7
1	Evaluate the environmental friendliness of products							
2	Asks suppliers to commit to waste reduction goals.							
	Diversity	1	2	3	4	5	6	7
3	Has a formal minority and women-owned business enterprise (MWBE) supplier purchase programme.							
4	Purchase from MWBE defined suppliers.							
	Safety	1	2	3	4	5	6	7
5	Ensures the safe incoming movement of product to our facilities.							
6	Ensures that suppliers' location is operated in a safe manner.							
	Human rights	1	2	3	4	5	6	7
7	Visits suppliers' plants to ensure that they are not using sweatshop (low wages/ poor working conditions) labour							
8	Ensures that suppliers comply with child labour laws.							

9	Asks suppliers to pay a 'living wage' greater than the country's or region's minimum wage to workers							
	Philanthropy	1	2	3	4	5	6	7
10	Volunteers at/for local charities.							
11	Donates to philanthropic organisations.							
12	Purchase from local and small firms							
13	Purchases from local suppliers.							
14	Purchases from small suppliers.							

Section D: Sustainable Performance

6. How do you rate the effect of sustainable procurement on the sustainable performance of your organisation?

Where: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree nor Disagree 5- Somewhat Agree 6- Agree 7- Strongly Agree

No	**Economic performance**	1	2	3	4	5	6	7
1	Considering the economic situation, our profit has increased							
2	Considering the economic situation, our market share has increased							
3	Considering the economic situation, our sales growth are higher							

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No		1	2	3	4	5	6	7
4	The return on investment has increased							
5	The return on assets have been higher, relative to competitors							
No	**Environmental performance**	1	2	3	4	5	6	7
1	hazardous materials have decreased							
2	Conduct regular environmental audits							
3	Minimises the environmental impact of its activities							
4	The firm relevantly decreases the frequency of environmental accidents							
5	smell/odour emissions and solid waste have reduced							
No	**Social performance**	1	2	3	4	5	6	7
1	Improved work safety							
2	Improved living quality of surrounding community							
3	Improved work environment							
4	Improved relationship with the community and stakeholders							

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Operational Performance

7. How do you rate the effect of sustainable procurement on sustainable performance?

Where: 1-Strongly Disagree 2-Disagree 3- Somewhat Disagree 4-Neither Agree nor Disagree 5-Somewhat Agree 6-Agree 7- Strongly Agree

No	Operational Performance	1	2	3	4	5	6	7
1	Quick response to changes in demands							
2	Business process innovation							
3	Reduction in procurement costs							
4	Product quality delivery reliability							
5	Labour productivity							
6	Order fulfilment rate							
7	Price competitiveness							
8	Outstanding on –time delivery to customers							

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APPENDIX B

CROSS LOADINGS

	Operational Performance	Organisational values	Regulatory environment and support	Stakeholders' Pressure	Sustainable Performance	Sustainable Procurement	Top Management Support
O2	0.418	0.835	0.710	0.491	0.483	0.597	-0.611
O4	0.381	0.847	0.553	0.370	0.451	0.559	-0.303
O5	0.505	0.933	0.696	0.479	0.563	0.697	-0.562
O6	0.432	0.856	0.696	0.448	0.487	0.611	-0.590
OP1	0.821	0.244	0.392	0.476	0.475	0.567	-0.257
OP3	0.779	0.435	0.505	0.411	0.565	0.613	-0.424
OP4	0.705	0.359	0.398	0.311	0.260	0.530	-0.338
OP7	0.784	0.466	0.664	0.368	0.446	0.605	-0.508
OP8	0.850	0.461	0.516	0.519	0.574	0.666	-0.486
R2	0.589	0.789	0.946	0.571	0.636	0.815	-0.682
R3	0.563	0.563	0.889	0.496	0.616	0.770	-0.423
R4	0.574	0.738	0.898	0.495	0.549	0.758	-0.626
SP1	0.538	0.529	0.598	0.597	0.587	0.754	-0.406
SP10	0.664	0.656	0.794	0.591	0.678	0.887	-0.513

SP11	0.607	0.641	0.767	0.564	0.628	0.844	-0.551
SP12	0.492	0.443	0.596	0.530	0.702	0.741	-0.308
SP2	0.581	0.564	0.594	0.712	0.637	0.791	-0.563
SP3	0.637	0.473	0.613	0.593	0.691	0.772	-0.450
SP4	0.663	0.576	0.734	0.554	0.614	0.826	-0.531
SP5	0.657	0.627	0.811	0.616	0.637	0.890	-0.529
SP6	0.667	0.679	0.807	0.641	0.616	0.907	-0.513
SP7	0.739	0.619	0.695	0.665	0.790	0.865	-0.432
SP8	0.700	0.656	0.750	0.547	0.727	0.847	-0.569
SP9	0.622	0.643	0.798	0.522	0.687	0.879	-0.520
StP1	0.276	0.169	0.208	0.712	0.247	0.347	-0.323
StP2	0.525	0.504	0.567	0.888	0.630	0.719	-0.430
StP3	0.393	0.455	0.478	0.745	0.432	0.514	-0.310
SuP1	0.454	0.434	0.476	0.551	0.849	0.640	-0.248
SusP13	0.599	0.439	0.594	0.435	0.811	0.679	-0.488
SusP2	0.495	0.602	0.632	0.569	0.931	0.747	-0.356
T5	-0.297	-0.462	-0.474	-0.270	-0.334	-0.380	0.815
T6	-0.510	-0.638	-0.633	-0.524	-0.424	-0.609	0.919
T7	-0.466	-0.385	-0.476	-0.313	-0.297	-0.461	0.796

APPENDIX C

FORNELL-LARCKER CRITERION

	Operational Performance	Organisational values	Regulatory environment and support	Stakeholders' Pressure	Sustainable Performance	Sustainable Procurement	Top Management Support
Operational Performance	0.789						
Organisational values	0.502	0.869					
Regulatory environment and support	0.632	0.766	0.911				
Stakeholders' Pressure	0.533	0.516	0.572	0.785			
Sustainable Performance	0.597	0.573	0.660	0.600	0.865		
Sustainable Procurement	0.758	0.712	0.857	0.711	0.799	0.835	
Top Management Support	-0.516	-0.600	-0.635	-0.458	-0.423	-0.589	0.845

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