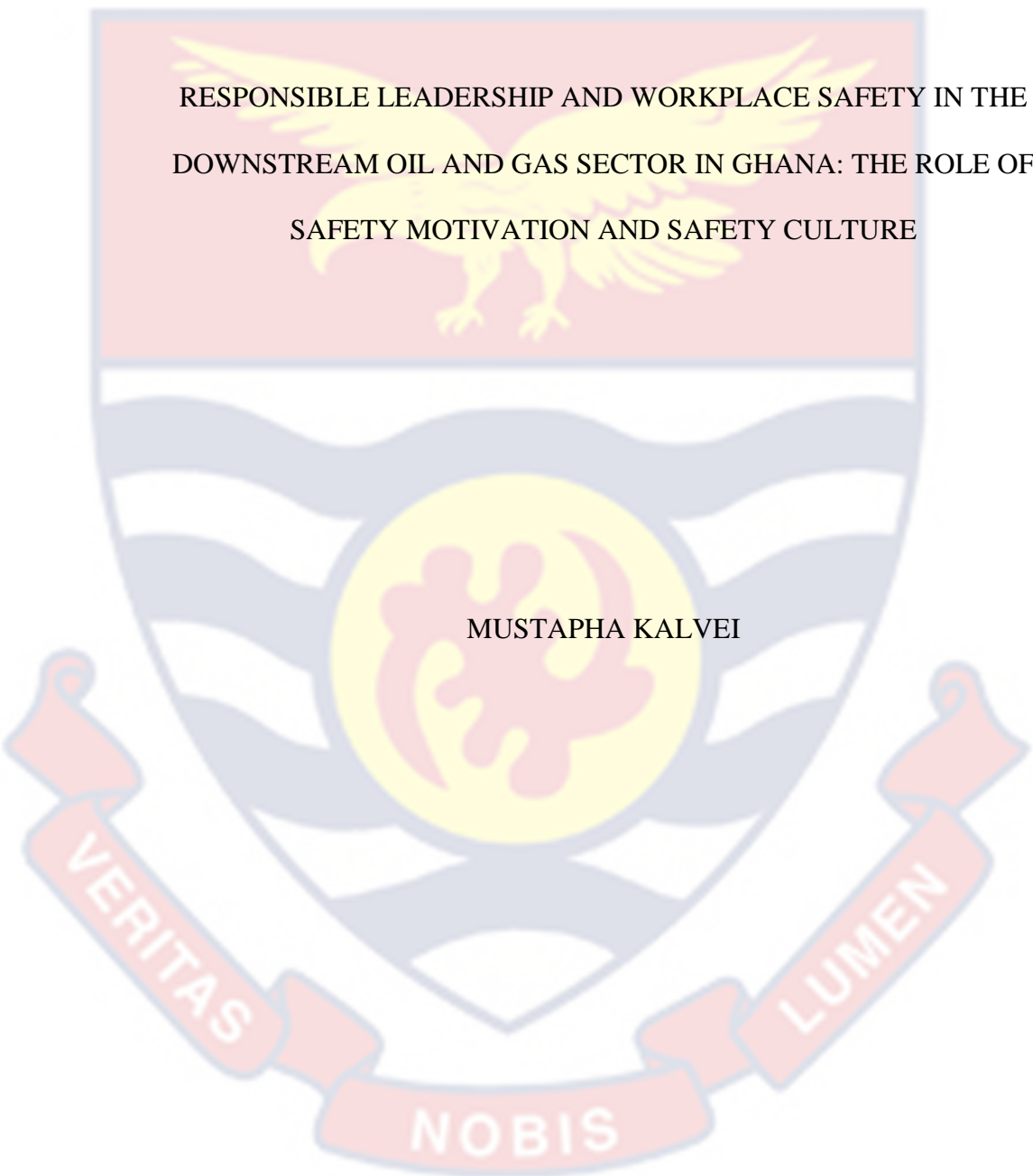


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RESPONSIBLE LEADERSHIP AND WORKPLACE SAFETY IN THE  
DOWNSTREAM OIL AND GAS SECTOR IN GHANA: THE ROLE OF  
SAFETY MOTIVATION AND SAFETY CULTURE

MUSTAPHA KALVEI

2022

UNIVERSITY OF CAPE COAST

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BY

MUSTAPHA KALVEI

Thesis submitted to the institute for Oil and Gas Studies, faculty of Social  
Science, Collage of humanities and Legal Studies, university of Cape Coast, in  
partial fulfilment of the requirement for the award of Master of Philosophy  
Degree in Oil and Gas Resource Management

DECEMBER 2022

## DECLARATION

### Candidates Declaration

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another degree at this university or elsewhere.

Candidate's signature.....Date.....

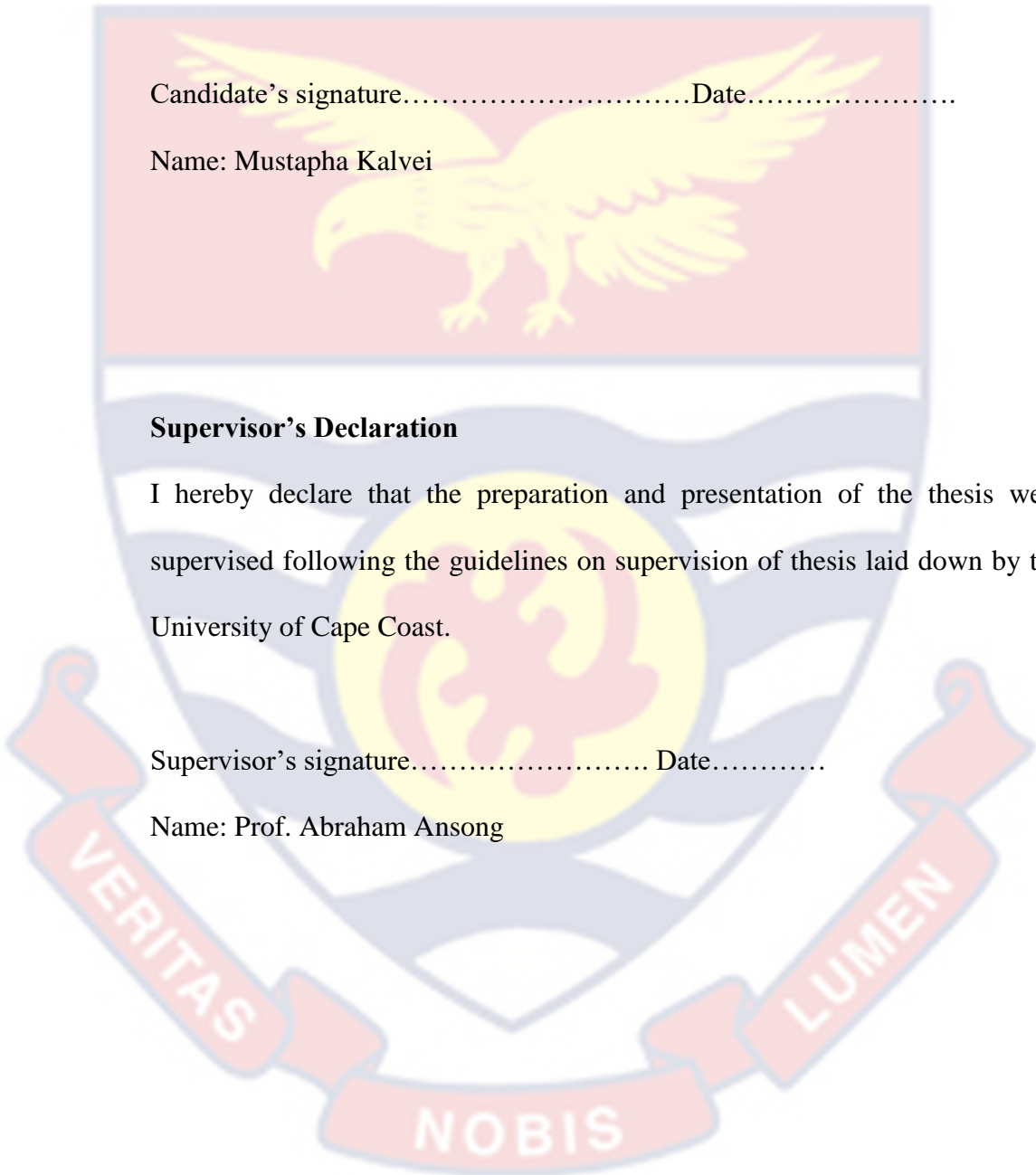
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### Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised following the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's signature..... Date.....

Name: Prof. Abraham Ansong



## ABSTRACT

The influence of Responsible leadership on workplace safety in the downstream oil and gas sector formed the crux of this study, employing safety motivation and safety culture as mediating agents. The study employed quota and convenience sampling techniques to draw 226 fuel service station attendants from the Government and private sectors in the Greater Accra Metropolitan City of Ghana employing a self-administered structured survey for the process of data gathering. The positivism philosophy guided the study; hence, a quantitative approach and an exploratory design shaped the process. A quantitative method was adopted for analysis using the IBM SPSS (version 26) and WarpPLS (version 7.0). Inferential statistics through Partial least Squares Structural Equation Modelling was employed to test the hypothesis of the study. The study's results revealed that Responsible Leadership had a positive statistical significant relationship with Workplace Safety, Safety Culture (SC), and Safety Motivation. Findings were also that, Safety Motivation (SM) did not have any positive statistical relationship with Workplace Safety; however, both Safety Motivation and Safety Culture mediated Responsible Leadership and Workplace Safety. The study advocates the need to hire responsible leaders and the need for leaders to demonstrate responsibility to maximise workplace safety in the downstream sector. The study offered a pioneer model to explain how Responsible Leadership could promote Workplace Safety.

## KEYWORDS

Responsible Leadership

Workplace Safety

Safety Motivation

Safety Culture

Downstream

Ghana

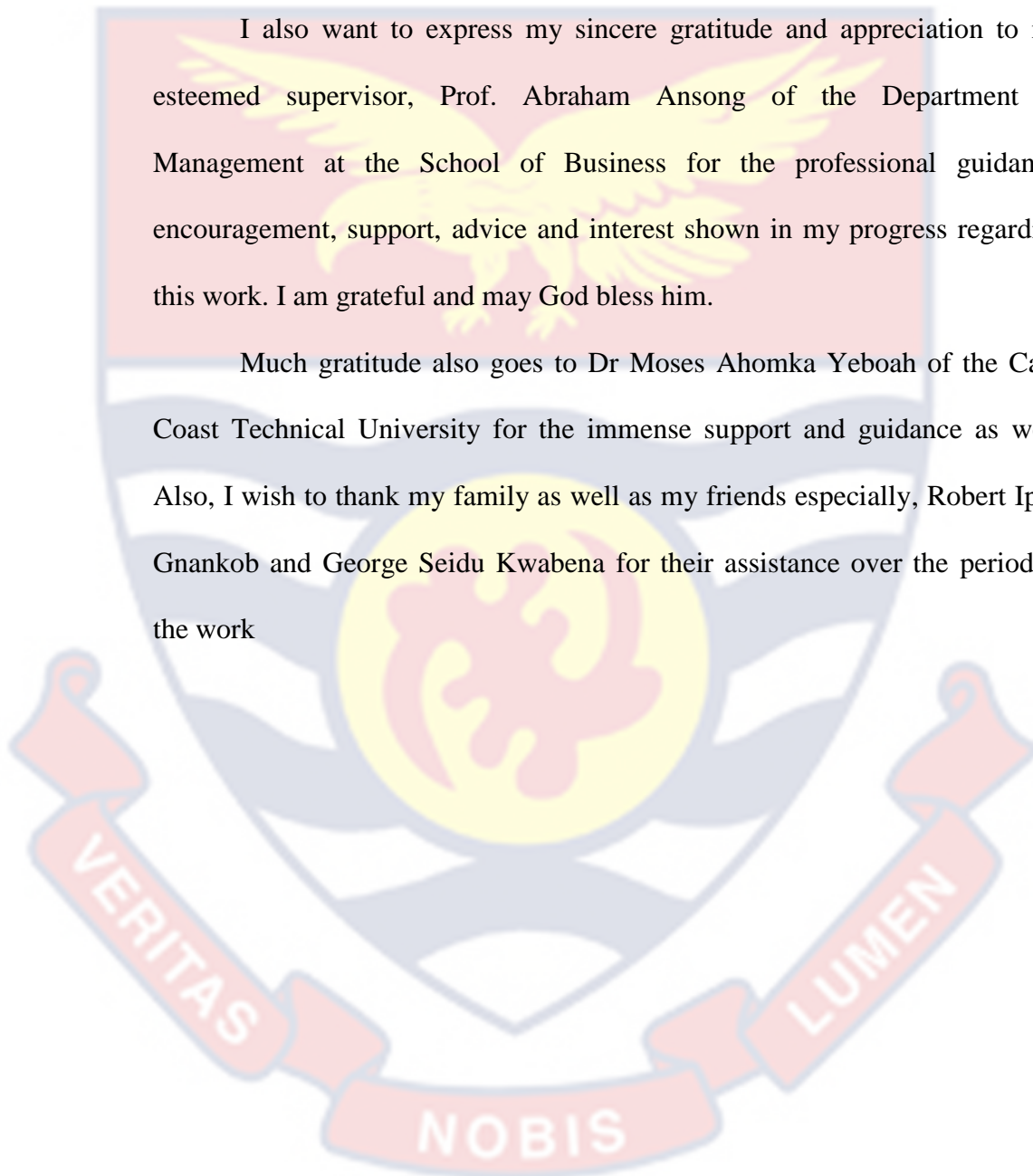


## ACKNOWLEDGEMENT

I give much and my sincerest gratitude to God for the strength and wit that propelled this work from scratch to the end. May he continue to show the way in my future endeavour.

I also want to express my sincere gratitude and appreciation to my esteemed supervisor, Prof. Abraham Ansong of the Department of Management at the School of Business for the professional guidance, encouragement, support, advice and interest shown in my progress regarding this work. I am grateful and may God bless him.

Much gratitude also goes to Dr Moses Ahomka Yeboah of the Cape Coast Technical University for the immense support and guidance as well. Also, I wish to thank my family as well as my friends especially, Robert Ipiin Gnakob and George Seidu Kwabena for their assistance over the period of the work





## DEDICATION

To my parents, Mr. N-Nitinnou Kalvei and Mrs. Amina Kalvei, and my dear

Ashhadu and Inayat



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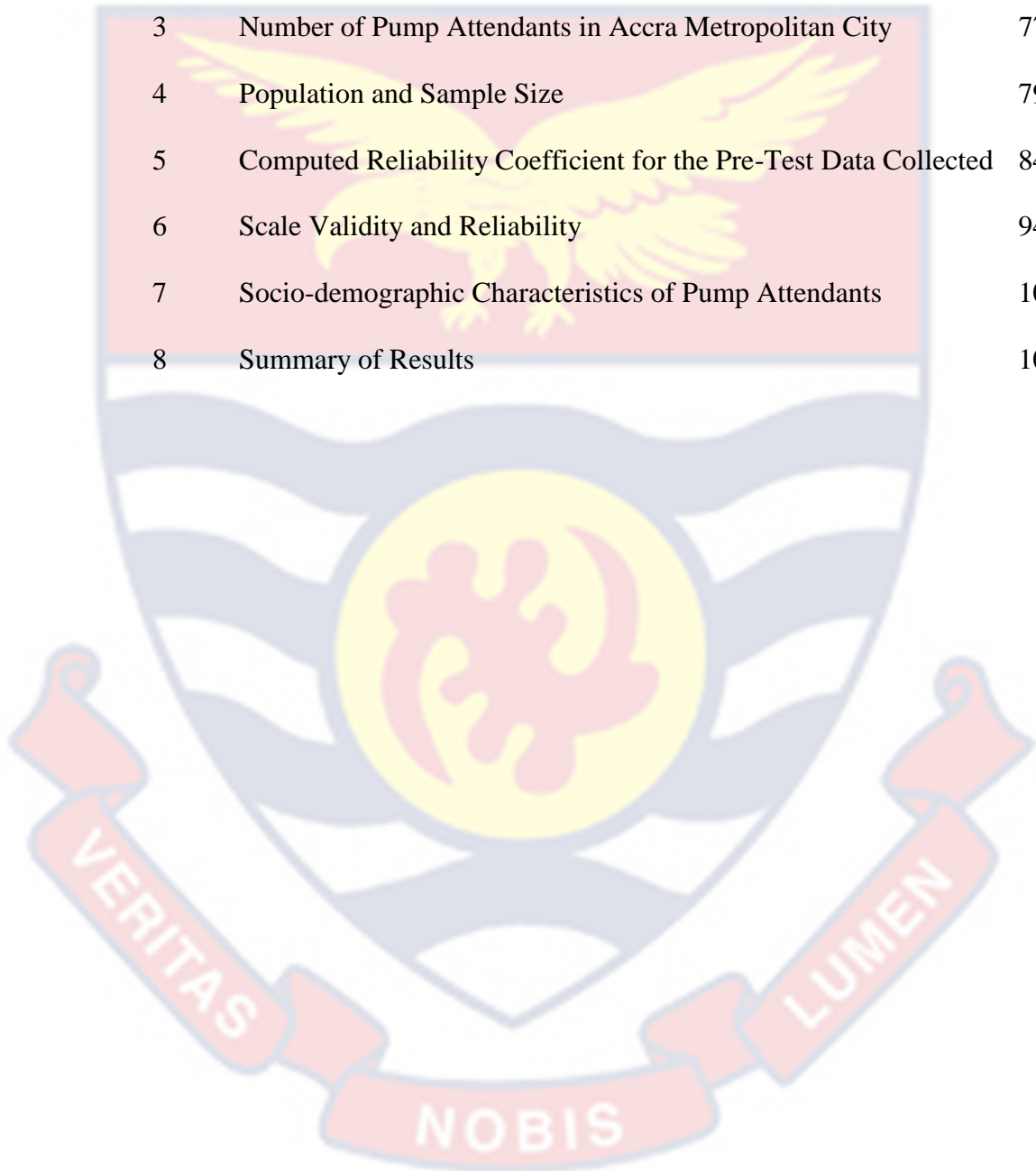
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**LIST OF ACRONYMS**

RL	Responsible Leadership
SM	Safety Motivation
SC	Safety Culture
WpS	Workplace Safety
VAF	Variance Accounted For
AVE	Average Variance Extracted
SCO	Safety Compliance
EL	Ethical Leadership
SLT	Social Learning Theory
SHT	Stakeholder Theory
SDT	Self-Determination Theory



## CHAPTER ONE

### INTRODUCTION

The role of leadership cannot be compromised in the quest of the oil and gas industry to provide a safe workplace for its operations. Leaders either consciously may disregard safety or may lack the skills and commitment to manage workplace safety. Safety however is a human right at workplace. In this light, more focused studies are needed to examine the factors that can influence sustainable workplace safety in the oil and gas downstream sector from the perspective of responsible leadership. This study seeks to examine how responsible leadership can influence workplace safety in the oil and gas downstream sector in Ghana. The chapter constitute the background of the study, the presentation of the problem statement, purpose of the study, research objectives, research hypotheses, significance of the study, delimitation of the study, limitations of the study and organization of the study.

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

The pre-eminence of oil and gas has run along with the enormous economic advances made in the 20<sup>th</sup> century moving into the 21<sup>st</sup> century, (Badeeb, Lean & Clark, 2017). Oil and Gas is undoubtedly the cash-cow of most economies across the globe, (Alshubiri, Tawfik, & Jamil, 2020; Stevens, 2016). This is true for both developed and undeveloped countries, evident on the contribution it made in global economic growth of nations as shown in their petroleum reports. The annual budget funding amount from petroleum revenues in Ghana stood at US\$276,189,264.45, US\$406,112,981.62 and US\$273.38million, for 2018, 2019 and 2020, respectively (Ogbe, Rød, &

Halvorsen, 2021; Kwarteng, 2021). Based on the contribution of the industry to national economies, workplace safety in the sector has taken a renewed national significance (Achaw & Boateng, 2012). This is due to the fact that workplace accidents hurt people and have an impact on business operations by creating absence from work, a loss of productivity, a loss of self-esteem, and increased production costs (Ansah, 2012, 2017; Kirsh, Slack, & King, 2012; Yeoh, Lockhart, & Wu, 2013). The objectives of World Health Organisation's Global Plan of Action (2008-2017) are directly related to providing a safe workplace for workers (Ansah, 2012).

The oil and gas industry in Ghana featured more in the downstream sector up to the time of the offshore discovery of crude oil in commercial quantities in July 2007 (Ansah, 2012). The sector is now developed into three major streams, these include the upstream, midstream and downstream. The upstream is the exploration and production phase (Furman, El-Bakry, & Song, 2017). The downstream is everything from refining to sales (Harraz, 2016; Suda et al, 2015). Specifically, these things include refining crude oil and processing natural gas into their derivatives, as well as marketing and distribution of the refined petroleum products to sales outlets (Furman, El-Bakry, & Song, 2017). The downstream sector comprises petrochemical plants, oil refineries, petroleum product distribution companies, retail outlets and natural gas distribution companies (Harraz, 2016; Suda, et al, 2015). Downstream oil and gas companies are basically those that supply petroleum products to consumers. Downstream production is the terminal phase of oil and gas production and provides consumers with products like: diesel, natural

gas, gasoline, heating oil, pesticides, propane and pharmaceuticals, (Harraz, (2016).

The body in charge of regulating the downstream oil and gas sector in Ghana is The National Petroleum Authority (NPA) established by an Act of Parliament (NPA Act 2005, ACT 691). As a regulator, the authority ensures that the industry remains safe and efficient. The Ghanaian constitution in Article 24(1) provides that “Every person has the right to work under satisfactory, safe and healthy conditions...” and Article 36 (10) states “The State shall safeguard the health, safety and welfare of all persons in employment, and shall establish the basis for the full deployment of the creative potential of all Ghanaians” (Constitution of Ghana, 1992). The Petroleum Exploration and Production (Health, Safety and Environment) Regulations, 2017 (LI 2258) and Environmental Protection Agency (EPA) Act, 1994 (Act 490) are the laws regulating safety issues in the industry.

According to the International Labour Organization (ILO), 2.3 million women and men die each year as a result of work-related accidents or diseases, which equates to almost 6000 deaths every day. Annually, there are around 340 million workplace accidents and 160 million victims of work-related illnesses in the world (ILO, 2021). Global trend of occupational accidents and fatal work-related diseases stood at 345,436 in 1998, but rose 2,403,965 in 2015 and Africa has 373,986,418 as its annual average in the global occupational accidents estimates (Hämäläinen, Takala & Kiat, 2017).

The oil and gas industry in Ghana has been associated with serious issues of accidents and catastrophes which have resulted to numerous safety and workplace challenges (Ansah, 2012; Ansah, & Mintah, 2012; Ambituuni,



Emeseh & Amezega, 2014, Ansah, 2017). The industry undisputedly remains an accident and injury-prone industry (Nkrumah et al, 2021). Attempts to eliminate hazards and ensure workplace safety has become almost impossible in many cases (Burgherr & Hirschberg, 2014). Petroleum service stations are particularly hazardous workplaces for both the workers and their customers (de Glanville, Schilling & Wood, 1992; Health and Safety Executive, 2008). Primary unsafe conditions seen at fuel service stations are related to carelessness, electrical fault, hand brake, high temperature, mechanical problems and maintenance, explosives, and robberies (Ansah, 2017). KPMG (2019) in their downstream sector watch espoused that to prevent value erosion such as loss of revenue from product loss, the extra cost of repairs and reconstructing vandalized pipelines and minimize the cost of personnel health care, leadership must be responsible in ensuring workplace safety.

Goetsch (2010) posited that workplace safety emanated from labour groups formed to facilitate workers welfare during the industrial revolution in the 18<sup>th</sup> century in Europe. The terms has since been defined similarly by several scholars to mean all efforts to minimize the risk of a person within the workplace being killed or injured (Ansah, 2017; Chikono, 2017; Molamohamadi & Ismail, 2014; Tetrick & Pieró, 2016; Zhang, Wang & Dalal, 2013). Bayuk (2008) defines leadership commitment to safety as "a strong focus on safety through communication, dedication, participation, allocating resources, and accepting responsibility for addressing safety issues, in addition to establishing policy, offering direction, and setting targets."

Workplace safety (WpS) may have been improved as a result of leadership techniques (Doh & Quigley, 2014). Responsible leadership (RL)

which is seen as an interactional and ethical concept, which happens in social processes of interaction with all relevant interest parties (Maak, & Pless, 2006, 2008, 2011; Maak, Pless & Waldman, 2012; Shaaban, 2021; Shi, & Ye, 2016; Szczepańska-Woszczyzna, Dacko-Pikiewicz & Lis, 2015;) could have a greater influence on workplace safety. This is because responsible leaders know that it is their moral and legal responsibility to protect workers by providing safe workplace in order to prevent illness, injury and anything consequential to the health of their workers (Ansah & Mintah, 2012). Chikono (2017) and Tetrick & Peiró (2016) posited that it is the responsibility of leaders to devise strategies that will reduce workplace hazards, accidents and injuries. Responsible leaders provide staff safety training and follow safety procedures such as inspection, correction, and, in some situations, protective equipment to ensure a safe workplace (DeCamp, 2015). Concern for the safety of the workers is an important attribute of RL (Doh & Quigley, 2014). Responsible leaders also demonstrate safety supportive behaviors which included safety communication, providing resources, safety role modelling, and safety feedback and coaching. These behaviours focus on the quantity and quality of discussions with employees about the importance of safety at the workplace, emphasizing safety as a priority and honest dialog to encourage safety feedback and concerns (Hammer et al, 2019).

According to Miska, Hilbe, & Mayer (2014) and Voegtlin, Patzer, & Scherer (2012), responsible leaders are always accountable to all of their stakeholders on safety. Therefore, responsible leaders will provide opportunity for safety participation (Chmiel, Laurent & Hansez, 2017), safety education leading to safety knowledge (Ansah, 2017), provide place safety material like



personal protective equipment (Ansah, 2017), and abide by safety regulation in the sector (Ramchamder, 2021) and this will instigate individuals volition to adhere to safety regulation and guidelines (Chikono, 2017; Fell-Carlson, 2004; McGonagle et al, 2014). This individual volition is what is known as safety motivation (Conchie, 2013; McGonagle, Walsh, Kath, & Morrow, 2014; Chikono, 2017). Safety motivation (SM) can be influenced by responsible leaders because, they know how to wield attitudinal and behavioural norms of all safety stakeholders to best protect against risk activities (Chmiel, Laurent & Hansez, 2017, 2018). This is done by involving all safety stakeholders at workplace, and none will want to fail on their own rules because they know leaders support safety interventions taken by employees in unsafe situations (Ramchamber, 2017). Didla, Mearns & Flin (2009) espoused that when employees perceive leadership to demonstrate commitment and taking responsibility for safety, they equally will demonstrate safety citizenship at workplace.

The self-determination theory (SDT) opined that individuals are motivated to put up behaviours for myriad of reasons and classified forms of motivation according to these reasons. Categorically self-determination theory differentiates between amotivation (i.e., lack of motivation) and motivation (Scott, Fleming & Kelloway, 2014), and how they influence safety at workplace. SDT introduces a multidimensional view of motivation, which aids current research into the motivational mechanisms that induce employees to engage in safety behaviours (Ryan and Deci 2000). Safety motivation was established by Neal & Griffin (2006) to be a predictor of future engagement in discretionary safety actions and individual's willingness to uphold safety

culture that promotes workplace safety. Safety was a top priority for employees, according to Neal and Griffin's assessment of motivation. It is therefore appropriate to adopt this theory to unravel the mediating effects of safety motivation and safety culture on the causal link between responsible leadership and workplace safety in the downstream oil and gas marketing companies.

Safety culture (SC) which is described by Collins (2002) and Advisory Committee on the Safety of Nuclear Installations (1993) as a construct that describes the shared corporate safety values upheld by an organisation which influences the safety attitudes, beliefs and behaviours of its members has its success reliant on responsible leadership. This is because culture is behavior over time, and fostering ongoing teamwork behaviors is a potent way to enhance safety culture (Leonard & Frankel, 2012). This means that safety behaviours need to be modelled by a safety framework. Behavioural and attitudinal norms which define safety culture and aim at improving workplace safety include psychological safety, institutional fairness, and learning systems (Leonard & Frankel, 2012). All these norms are to be promoted by leadership. This is because, it is the responsibility of leaders to create an environment where no one is reluctant to voice safety concerns and also know they are accountable for safety behaviours through education and learning process (Leonard & Frankel, 2012). The responsibilities of a leader are to define safety regulations and provide orientation on them for effective compliance. A company's SC is something that defines it, not something that it possesses (Cox & Cox, 1991). The result of a robust safety culture therefore, is a safe workplace.

Bandura's Social learning theory of character emulation at workplace has since been updated over the years with much emphasis on leadership practices and factors as the primary influencer of unsafe working behaviours leading to unsafe workplace (Liden et al., 2014). The trust of the theory is that leadership is responsible for the workers' safety and well-being at the workplace and hence must demonstrate desirable safety behaviours that can be emulated

### **Statement of the problem**

Workplace safety is paramount in ensuring minimal risk of injuries, accidents and deaths at working environments (Ansah, 2017). Responsible leaders have a primary duty to ensure safety at workplace (Ansah, 2012), because that is a human right (World Health Organisation, 2010). Ghana's industrial discovery of oil has boosted the development and establishment of petroleum service stations throughout the country, particularly in major cities such as Accra, Tema, Kumasi, and Takoradi, cape coast and Tamale (Ansah, & Mintah, 2012). This led to an increase in work and workers thereby demanding workplace safety. Despite the efforts of safety leaders to enforce safety programmes, hazards and accidents at work in the oil and gas industry continue to be too common, with a high cost in terms of human suffering and economic hardship (Bayire, 2016). In sum, nearly one million workers across the globe will suffer a workplace accident and annually a total of 2.4 million fatalities occur due to risky or unhealthy workplace conditions. Africa has 373986418 as its annual average in global occupation accidents estimates. Internationally, this situation causes an economic loss of 4% of global GDP (International Labour Organisation, 2010, 2014).

Ghana, has long been struggling with workplace disasters, especially, in the field of downstream oil marketing companies. Fuel service station mishaps are common in Ghana (Ansah, 2017). Explosions, fire, and armed robberies are on the rise and have since claimed several lives in some of these companies (Ansah, 2017). Workplace safety in the oil, gas, and allied marketing companies has taken on renewed national significance in light of the oil discoveries in Ghana, and the inherent dangers and rise in disasters linked with the extraction of crude oil in the nature of combustible hydrocarbons and its derivative products (Achaw & Boateng, 2012; Ansah & Mintah, 2012). The June 3<sup>rd</sup> twin disaster at the Kwame Nkrumah Circle claimed 259 lives, the trade fair gas explosion at La in Accra took 12 lives, the Tinga gas explosion claimed six lives and the atomic gas explosion at Medina also took seven lives (The Finder, 2017). In the first quarter 2017 alone, about 15 cases of petroleum related fires were recorded and this is unacceptable. These accidents are becoming too many and show there is something wrong somewhere, probably with leadership (Ghana Web, 2017).

According to the District Commander of the Ghana National Fire Service's Agona Swedru on a survey, several fuel stations and gas stations in the district lacked fire certificates and fire extinguishers (Ansah, 2017). Again, The Western Regional Environmental Officer, revealed in a similar survey that fire outbreaks at liquefied petroleum gas (LPG) and/or fuel filling stations in some parts of the country, particularly in the Western Region, had prompted the prohibition of fuel use in residential areas, particularly near naked fires (GNA, 2011). Workplace accidents hurt people and have an impact on corporate operations by increasing production costs, absence from work, and



productivity loss (Kirsh, Slack, & King, 2012; Yeoh, Lockhart, & Wu, 2013). Regardless of such negative impact on business, Akelsson, Jacobsson, Bötjesson, and Enander (2012) opined that, leaders either consciously disregarded safety or lacked the skills and commitment on their responsibility to manage workplace safety. This is a sign of eroded trust in leadership, which is driving the desire for responsible leadership in the business world today (Maak & Pless, 2011, Stahl & De Luque, 2014). Exploring how responsible leaders can influence on workplace safety therefore becomes relevant from an organization safety development perspective (Andre, 2013; Steyn & Sewchurran, 2021).

Although, there have been few studies on health and safety (Ansah, & Mintah, 2012; Ansah, 2012, 2017; Achaw & Boateng, 2012; Andoh, 2013; Monney et al., 2015; Amponsah-Tawiah, 2013;), the focus was not on the accounts of how leadership could influence workplace safety. Workplaces are holding on to safety enhancements, but they are struggling to reduce their injuries and accidents further due to inappropriate leadership (Olson, 2021). Workplace safety probably will be improved as a result of leadership techniques (Doh & Quigley, 2014). Responsible leadership could have great influence on workplace safety, this is because, responsible leaders know that it is their moral and legal responsibility to protect workers by providing safe workplace in order to prevent illness, injury and anything negative to the health of their workers (Mintah, 2012). Responsible leaders also demonstrate safety supportive behaviors which included safety communication, providing resources, safety role modelling, and safety feedback and coaching. These behaviors focus on the quantity and quality of discussions with employees

about the importance of safety at the workplace, emphasizing safety as a priority and honest dialog to encourage safety feedback and concerns (Hammer et al, 2019).

Based on the aforementioned groundings, this study endeavoured to fill the gap and contribute to literature by examining responsible leadership influence on workplace safety in the downstream oil and gas sector in Ghana courtesy the mediating role of safety motivation and safety culture.

### **Purpose of the study**

The research examined the influence of responsible leadership on workplace safety in the downstream oil and gas sector of Ghana.

### **Objectives of the study**

The research specifically aimed to;

- i. assess the influence of Responsible Leadership on workplace safety in the downstream oil marketing companies in Ghana.
- ii. analyse the influence of Responsible Leadership on safety motivation in the downstream oil marketing companies Ghana.
- iii. analyse the effect of Safety Motivation on workplace safety in the downstream oil marketing companies in Ghana.
- iv. assess the mediating role of Safety Motivation on the nexus between Responsible Leadership and workplace safety in the downstream oil marketing companies in Ghana.
- v. analyse the influence of Responsible Leadership on safety culture in the downstream oil marketing companies in Ghana.
- vi. examine the influence of Safety Culture on workplace safety in the downstream oil marketing companies in Ghana.



- vii. assess the mediating role of Safety Culture on the nexus between Responsible Leadership and workplace safety in the downstream oil marketing companies in Ghana.

### **Research hypotheses**

To tackle the research problem under investigation, the study focused on the following systematic hypotheses.

H<sub>1</sub>: Responsible leadership has a significant positive influence on Workplace Safety in the downstream oil marketing companies in Ghana.

H<sub>2</sub>: Responsible leadership has a significant positive relationship with SM in the downstream oil marketing companies in Ghana.

H<sub>3</sub>: Safety Motivation has a significant positive influence on Workplace Safety in the downstream oil marketing companies in Ghana.

H<sub>4</sub>: Safety Motivation mediates the link between responsible leadership and workplace Safety the downstream oil marketing companies in Ghana.

H<sub>5</sub>: Responsible leadership has a significant positive relationship with Safety Culture in the downstream oil marketing companies in Ghana.

H<sub>6</sub>: Safety Culture has a significant positive influence on Workplace Safety in the downstream 4 oil marketing companies in Ghana.

H<sub>7</sub>: SC mediates the link between responsible leadership and Workplace Safety in the downstream oil marketing companies in Ghana.

### **Significance of the study**

Investigating responsible leadership and workplace safety in the downstream oil and gas sector in Ghana will inform policy decisions about the sector's safety. Government and stakeholders responsible for the downstream oil and gas sector safety will be informed appropriately the need to institute

policies and safety frameworks that will place responsible leaders in a favourable position to improve their capacity to stimulate workplace safety. Findings of the study will also help responsible safety leaders know the value of safety motivation and Safety Culture in promoting and sustaining Workplace Safety in the downstream oil and gas sector. The study will also contribute to practice by giving guidelines to leadership in the downstream sector to enhance their safety practices to provide a safe workplace for employees and other stakeholders.

On the other hand, the projected decrease in occupational accidents that would follow from the adoption of the research findings represents the study's potential worth to business practice. Improving the safety of workplace is a guarantee to employees' safety that will give you an advantage in a competitive business by reducing your workers' compensation costs while increasing productivity.

Additionally, being one of the pioneering studies where responsible leadership and workplace safety nexus is considered in Ghana, findings and recommendations from the study will shift the attention towards discussing safety practices in the responsible leadership perspective in ensuring workplace safety. The current literature will undoubtedly appreciate this study as to how RL behaviours contribute to workplace safety through the intervening role of safety motivation and safety culture under the leader. The study will also contribute to theory; Self-Determination, social learning, stakeholder theories, in that, researchers in leadership, safety culture and safety motivation will get to know responsible leadership and safety culture as well as safety motivation collaborate to impact workplace safety.

### **Delimitation of the study**

The scope of this study will examine the influence of responsible leadership on workplace safety and the mediating role of safety motivation and safety culture in the downstream oil marketing companies. The study will hedge only registered oil marketing companies in Ghana and their filling stations (fuel service stations). Hence, it will not focus on other aspects of the downstream sector like the bulk distribution companies and liquefied petroleum gas marketing companies.

### **Limitations of the study**

In the course of conducting the study, the researcher was faced with some hurdles that are worth sharing to guide subsequent researchers on how to go about similar studies. First and foremost, the research is conducted in a sector where safety issues are highly and consciously guided, in fact, regarded as classified information. It made some of the employees to be reluctant in providing information. It also came with a lot of bureaucratic processes where the researcher has to seek introductory letters from headquarters of the oil and gas marketing companies before data can be collected. All these delayed the data collection process and made it time consuming as well.

The inability to collect data from leadership though most of the information required centred on them was a limitation. Because the tendency that some of the employees may not give a true account of their leaders safety behaviours is high because of personal reasons. It would have been best to include them in the data collections process.

Inadequate resources such as time and money made it impossible to cover other metropolis and other sectors in the downstream sector. Regardless,

a vigorous procedure to acquire accuracy and authenticity of the findings was followed as shown in the study. Another limitation was the inability to involve leaders in the oil and gas downstream sector since the study concerns them. This was as a result of limited time and resources.

The PLS-SEM used in data analysis has its own limitations in that, it does not provide a global measure of model fit and the reverse role of the null hypothesis complicate the process of statistical inferences in the course of interpretation of the model results.

### **Definitions of Key Terms**

This section explains some of the study's key themes.

**Responsible Leadership:** "a relational and ethical phenomena which occurs in social processes of interaction with those who affect or are affected by leadership and have a stake in the purpose and vision leadership relationship" (Maak & Pless, 2006, p. 32).

**Safety motivation:** The readiness and individual volition to engage in safety activities, as well as the value connected to those actions, is referred to as safety motivation (Chikono, 2017; Pordanjani & Ebrahimi, 2015).

**Safety Culture:** The sum of an individual's and a collective's beliefs, attitudes, perceptions, competences, and behavioural tendencies which identify the organization's overall priority to workplace safety (Bowie, 2010).

**Workplace Safety:** "an attribute of work systems reflecting the (low) likelihood of physical harm—whether immediate or delayed—to persons, property, or the environment during the performance of work" (Beus, McCord & Zohar 2016).



**Ethical Leadership:** is characterised as the process of modeling normatively acceptable behaviour by one's own behaviours and interpersonal interactions and motivating subordinates to do the same through reciprocal reinforcement and judgment (Brown et al., 2005).

**Safety Compliance:** refers to "core activities that individuals need to carry out to maintain workplace safety" (Griffin, & Curcuruto, 2016; Neal & Griffin, 2006, p. 947). It implies performing tasks in a safe manner in order to maintain workplace safety, such as by wearing PPE and following safety rules (Vinodkumar & Bhasi, 2010).

### **Organization of the study**

The study is comprised of five main chapters. Chapter one covers introduction which include, background to the study, statement of the problem, the objectives, research hypotheses, purpose of study, delimitation and limitation of the study, significance of the study, definition of terms and organization of the study. The second chapter will reviewed related literature on the topic relevant to the study; it will comprised concepts and dimensions, theories and summary of literature of responsible leadership and the influence of responsible leadership on workplace safety in the downstream oil and gas sector in Ghana. The third chapter is a detailed description of the research methodology and design, target population, sample size, sampling technique, research instrument, validity and reliability, data collection procedure and analysis technique used in this study. Chapter four looked at data analysis, interpretation and discussion of results/findings. The last chapter summarized the issues raised in the study; provided conclusions and recommendation on research findings as well as areas for further studies.

## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

This chapter examines pertinent literature on the variables being examined in this work. The chapter offered an overview of the oil and gas industry in Ghana that builds a perspective for understanding of the sector operations. To advance knowledge in the topic, the chapter started with a review of pertinent theories that serve as the foundation for the research and have been included into existing literature. The chapter further discusses ideas like responsible leadership, safety culture, safety motivation, and related ones. The chapter reviewed empirical studies on the variables and illustrated the study's main idea using a picture-based conceptual framework to make it easier to read and understand.

#### The Oil and Gas Sector in Ghana

Until July 2007 the oil and gas sector in Ghana featured more in the downstream sector (Ansah, 2012). In 2004 the country sold licences for offshore oil exploration and production (so called blocks) to different international companies. In July 2007, Tullow Oil and Kosmos Energy discovered oil in commercial quantities in the western region of Ghana. They named the area “Jubilee Field”. Development of the production site started right away and in December 2010 oil production was officially launched. Since 2007 further discoveries have been made. The Tweneboa field seems to be a second major discovery. In 2007 the former President Kuffour (2000-2008) announced enthusiastically, “With oil as a shot in the arm, we’re going to fly” [BBC News, 2007]. Since then the country has witnessed a huge public



discussion about proceeds and well the revenue will be managed to avoid the so called 'Resource Curse'?

Article 257(6) of the Ghanaian Constitution of 1992 states: "Every mineral in its natural state in, under or upon any land in Ghana, rivers, streams, water courses throughout Ghana, the exclusive economic zone and any area covered by the territorial sea or continental shelf is the property of the Republic of Ghana and shall be vested in the President on behalf of, and in trust for the people of Ghana." However, the right for exploration, development and production of different offshore blocks was sold in 2004.

With these discoveries the sector further decoupled in to three streams in the value chain to include upstream, midstream and the downstream. Ghana's oil and gas prospects are significant. Recent discoveries appear to indicate oil and gas resources stretch across the country's shoreline from Cape Three Points in the west to Keta in the east. The Voltain Basin is also believed to hold oil and gas reserves onshore. At present, Ghana has three major offshore oil and gas fields namely the Jubilee, Tweneboa Enyera Ntomme and Sankofa fields with the Saltpond oil field at decommissioning stage. Ghana's crude oil is light and sweet which indicates high quality and is attractive for worldwide refineries and can compete with the international price reference oils. Currently Ghana has only one refinery: the state owned Tema Oil Refinery (TOR), with a capacity of around 45.000 barrel per day.

After the discovery of oil and gas in commercial quantities in 2007, Ghana took steps to ensure a successful oil and gas regime. The Petroleum Commission was set up in 2011 to regulate the upstream industry after commercial production begun in the Jubilee field in 2010.

Before then, the body in charge of regulating the downstream oil and gas sector in Ghana is The National Petroleum Authority (NPA) established by an Act of Parliament (NPA Act 2005, ACT 691). As a regulator, the authority ensures that the industry remains safe and efficient. Many international companies have so far established their presence in the upstream industry. Among them include, Aker energy, Tullow Oil, Kosmos energy, ENI, and Springfield.

In 2010, the Government of Ghana proposed a 'Petroleum Revenue Management Bill'. The purpose of this legislation is to regulate the use and management of the rents that will be generated through the oil industry. The industry has upon discovery operated for over a decade now, and has significant economic contributions to the country's gross domestic product.

### **Theoretical Review**

Responsible leadership, safety motivation, safety culture and workplace safety drives most of their theoretical inspiration from several traditional theories. Significant among them are the stakeholder theory, the self-determination theory and social learning theory. These theories explain how the downstream stream oil and gas sector particularly the oil and gas marketing companies can leverage the qualities or traits of responsible leaders to exploit the safety volition through safety motivation and safety culture to ensure workplace safety sustainability. Thus, this study draws inferences and views from these theories to help mould a comprehensive argument towards the achievement of the goal of the research. Following is the theories presented.

### **The stakeholder theory (SHT)**

Freeman's (1984) stakeholder theory emphasized the requirement to satisfy the interest of all groups whose activities affect and are affected by an organisation by incorporating them into the decision-making process of the organisation and sustainably managing their interaction to maximize output. Freeman (1984, p.46) defines a stakeholder as "any group or individual who can affect or is affected by the achievement of the organization's objectives". The stakeholder theory emerged as a narrative to comprehend and solve three interdependent business problems: the challenge of understanding how value is made and traded, the challenge of linking ethics and capitalism, and the problem of assisting leaders in thinking about leadership in a way that addresses the first two problems. According to SHT, if we investigate the relationships between a business and the organizations and individuals who may have an influence or who may be impacted by it, we have a better chance of successfully addressing these three challenges.

From the standpoint of stakeholders, organizations may be seen as a network of relationships amongst parties with an interest in the business's operations (Parmar et al, 2010). When stakeholder interests' conflict, leadership must find a method to approach the challenges so that the demands of majority of stakeholders are met, and to the measure that this is done, even more value may be generated for each stakeholder (Harrison, Bosse, & Phillips, 2010). According to the stakeholder theory (Berman et al, 1999; Donaldson & Preston, 1995), how effectively management meets the interests of significant stakeholder groups is connected to firm performance which include safety.

While effective stakeholder relationship leadership aids businesses in succeeding in capitalist systems, it is also a moral endeavour since it takes values, choice, and potential benefits and harms for a variety of organizations and people into account (Parmar, Freeman, Harrison, Wicks, de Colle & Purnell, 2010). A management philosophy that prioritizes the development, upkeep, and reconciliation of stakeholder relationships better equips practitioners to create value and avoid unethical behavior (Parmar, Freeman, Harrison, Wicks, de Colle & Purnell, 2010; Sisodia, Wolfe, & Sheth, 2007). The theory is used to interpret the role of the corporation, as well as to identify ethical or philosophical guidelines for corporate operations and management (Donaldson and Preston, 1995).

#### **Implications of the stakeholder theory to this Study**

Leadership, Organisational owners, employees, customers all as stakeholders have an interest in safety at the workplace and they treat it primarily important because, when safety issues result in greater workers' compensation claims and fines from the Occupational Safety and Health Administration, it's probable that stakeholder returns may suffer. Again, Individual employees are also more worried about safety issues since they pay for them with their health (Kaminski, 2001). Therefore, when analysing the consequence of organizational practices on productivity and safety issues, responsible leaders must take into consideration the interest of both employees and stakeholders (Kaminski, 2001).

Another implication of the stakeholder theory to this study is the fact that if responsible leaders involve employees as stakeholders of the workplace in safety issues, they take ownership of the safety regulations as enshrined in



the safety culture because their interest regarding safety has been catered for and will not want to violate their own rules, and this will eventually lead to workplace safety. The theory seems to suggest that leaders must be concerned about the interest of all stakeholders, especially, their internal stakeholders (i.e., employees) whose contribution greatly influence the financial property and longevity of business organisations. It is therefore appropriate to adopt this theory to unravel how responsible leaders will wield the interest of their employees in the downstream oil and gas sector in Ghana to maximize positive safety outcomes at the workplace.

### **Self-Determination Theory (SDT)**

The self-determination theory (SDT) is among the renowned motivation theories used in existing literature for comprehending individual behaviours in the workplace to facilitate workplace safety (Ross & Barnes, 2018), and more particularly how responsible safety leaders can leverage their character and safety procedures to promote safety at workplace. Theory of self-determination is a psychological process that starts with a need and ends with a good action. Edward Deci and Richard Ryan (1985), developed SDT in their 1985 book “*Self-Determination and Intrinsic Motivation in Human Behavior*”, which revealed their concepts first. They developed a theory of motivation that claimed people are driven by a desire to learn and advance (Cherry, 2021).

The SDT (Deci & Ryan, 1985) grouped the reasons for work behaviors as either intrinsic or extrinsic (Scott, Fleming & Kelloway, 2014; Cherry, 2021). Employee motivation theory and research identify requirements as innate elements of persons that influence workplace behavior. The concept



of inherent motivation, or doing things for the activities' own sake, is crucial to the self-determination hypothesis (Cherry, 2021). The self-determination hypothesis holds that human development and evolution are driven by underlying and universal psychological needs. This notion holds that when people's needs for competence, connection/relatedness, and autonomy are satisfied, they can become self-determined. Competence [i.e., a person's desire to be acknowledged at work for their abilities and output], relatedness [i.e., the urge to associate within a work group and/or a broader organizational unit and to feel psychologically linked to it], and autonomy [i.e., the urge to have complete control over one's work schedule and how one's task is completed] (Breiteneder, 2016; Cherry, 2021; Thoroughgood, 2021). People are more motivated and engaged when they think they can have a positive impact at work. This sense of self-determination may be developed by leaders by allowing team members to actively participate. Employees should be given responsibilities, receive meaningful feedback, and be supported and encouraged (Cherry, 2021).

### **The Implications of the Self-Determination Theory to this Study**

The implication of the SDT to this study is that, instead of leadership becoming irritated with their employees' lack of engagement and motivation, Self Determination Theory (SDT) suggests that the workplace provides numerous possibilities to improve engagement and performance that are not dependent on extrinsic motivators like salary hikes and promotions, rewards, deadlines, sanctions, among others (Thoroughgood, 2021; Breiteneder, 2016). Simple strategies that address the three aforementioned employee demands (i.e., autonomy, competence and relatedness) according to SDT theory can

turn stagnant businesses into thriving workplace where people are passionately motivated intrinsically to fulfil their safety tasks. Simple bi-weekly recognition ceremonies, for example, can go a long way toward satisfying people's demand for competence, while flexible and compacted work schedules can give people the autonomy they crave. Individuals' demand for relatedness at work is further satisfied by organizing informal "happy hours," fostering greater teamwork, and articulating a similar objective to employees. Therefore, responsible leaders who have an attribute of believing in the abilities of every employee will provide them the freedom to make discretionary decisions about safety and take responsibility for them, thus, improving the autonomy employee desire. This will go a long way to enhance the competence of the employees towards safety at the workplace and they will feel happy for their results since they know they will be recognised for their output. And subsequently, the employee will feel recognised and attached to the company and members psychologically, hence, improving his sense of relatedness or connection.

Previous studies proved that, responsible leaders encourage their subordinates to work autonomously on their job obligations (Piccolo et al., 2010) and through that boost employees' competence through their behaviors (Walumbwa et al., 2011). Job autonomy is a crucial feature of job schedule and has been found to be positively related to valued outcomes such as job satisfaction and intrinsic motivation (Chughtai, 2015). Safety motivation (SM) was established by Neal and Griffin (2006) to be a predictor of future engagement in discretionary safety actions and individual's willingness to uphold safety culture that promote workplace safety. The measure of

motivation used by Neal and Griffin (2006) and (Mariani et' al., 2015) reflected how important employees regarded safety through sustainable motivation which can only thrive when it is intrinsic. It is therefore appropriate to adopt this theory to unravel the mediating effects of SM and SC on the causal link between responsible leadership and workplace safety in the downstream oil and gas marketing companies.

### **Social Learning theory (SLT)**

Bandura's (1977) Social Learning Theory (SLT) espoused that individuals learn from stepwisely observing and imitating the attitudes, behaviour and values of significant role models in their surrounding such as leaders. SLT explicitly acknowledged that learning is a mental process that takes place in a social context. The theory noted that, SLT sees the individual as an active recipient of information through the observed behaviours and as such has an influence on his environment just as the environment has an influence on him. Though individuals learn by modelling, they do not merely or just respond to external stimuli as though they are "unthinking organisms" but they do choose, align and modify stimuli that influence them. Therefore, since individuals can learn from examples before actual action, they are likely to eschew unwarranted trials and errors (Bandura, 2014). According to Bandura, reinforcements are required to focus the observer's attention on the appropriate role behaviour. This raises the likelihood that the observer will continue to engage in the behaviour in the future. Indeed, studies show that people prefer to mirror their conduct after others with higher social standing such as responsible and credible leaders (Lian, Ferris, & Brown, 2012a, 2012b; Mayer et al., 2009; Tucker, Ogunfowora & Ehr, 2016)

Boekhorst (2015) included that, if followers observe the positive behaviours put up by responsible role models; they learn that those are the required behaviours, attitudes and values within their social context and will imitate same. Followers will model the character of their leaders due to probably the leader's position or the fact that they view the leader as a mentor worthy of emulation (Liden et al., 2014). Hunter et al. (2013) noted that, leaders are important sources of shaping followers' behaviours as result of their position and power over followers, especially when they are viewed as credible and responsible role models. Through communicating the desired behaviour, attitudes and values to followers and matching rewards to motivate such, leaders impactfully influence followers to abide to same behaviours, values and attitudes (Newman et al., 2017). Individual functioning is considered as interplay of cognitive, behavioural, and contextual elements, according to social learning theory. This dynamic relationship between the individual, the job, and the situation is thus described as reciprocal determinism. It recognizes that behaviour is caused by conscious intentions to attain objectives, as well as reinforcing outcomes that lead to inner or extrinsic fulfilment.

#### **Implication of the Social Learning Theory (SLT) to this study**

The SLT suggests that employees see leaders in organizations as appealing and authentic role models of responsible behaviour because of the positions they hold as leaders, which give them the power and authority to reward appropriate behaviour and punish inappropriate behaviour, and also the desire to wild all stakeholders interest into organisational culture in a sustainable manner, thereby motivating followers' safety responsible



behaviours towards achieving a safe workplace (Enwereuzor, Adeyemi, & Onyishi, 2020). Responsible leaders moreover, act as a source of knowledge and information for required safety behaviours. They create the responsible tone of their company by implementing responsible safety policies and procedures, communicating safety expectations, and defining the safety regulations and standards that employees must follow when performing their jobs at the workplace (Brown & Trevio, 2006; Enwereuzor, Adeyemi, & Onyishi, 2020). These responsible safety behaviours of the leaders are expected to be observed and modelled by the employees at the workplace as espoused by the SLT.

Again, employees see leaders to be credible and have positive safety behaviours as well as demonstrate care for the interest of employees as responsible leaders will do, it motivates the employees to equally put-up same behaviours as safety is concern and will equally want to reciprocate care in leader safety interest at the workplace, hence leading to workplace safety. Also, if leaders are responsible in providing a safety culture for their organisation which defines safety standards and show exemplary compliance of same, employees will be motivated to observe and follow suit because they see leaders to be credible role model. The thrust of the theory is that responsible leaders have an obligation to demonstrate desired safety behaviours, provide safety rules and regulations and abide by them, and these will motivate employees to see leaders as credible, thereby observing ways of doing things and modelling same to reduce errors at workplace. It is therefore appropriate for this study to adopt this theory to assess how responsible leaders can influence employees' safety motivation towards following



organisational SC to improve WpS in the downstream oil marketing companies in Ghana.

### **Responsible Leadership**

“The concept of Responsible Leadership (RL) has become one of the growing interests in business research” (Shaaban, 2021, p.30). Maak and Pless (2006) are responsible for some of the first investigations on the notion of RL. They described RL as "a relational and ethical phenomena which occurs in social processes of interaction with those who affect or are affected by leadership and have a stake in the purpose and vision leadership relationship" (Maak & Pless, 2006, p. 32). Looking at the RL idea from a broad perspective, the interaction between leaders and followers should be viewed from the perspective of leaders and stakeholders today. They proposed that these interactions are fundamental to leadership, such as developing and cultivating, in order to focus more on the leaders' responsibilities in relation to numerous stakeholder groupings (Shaaban, 2021). RL answers to both existing gaps in leadership theory and the actual difficulties facing leadership, according to a general view among the world's RL scholars (Pless & Maak, 2011; Voegtlin, Patzer, & Scherer, 2012). Pless and Maak (2011) define “responsibility” as accountability, proper moral decision-making, and “trust” in connection to the word "responsible." They also wonder what and to whom leaders are responsible when it comes to other people's problems (Pless & Maak, 2011).

Freeman et al. (2006, p. 23) acknowledged the diverse viewpoints and definitions of RL as “leadership in the context of contemporary stakeholder theory.” RL was originally characterized by Bass and Steidlmeirer (1999, p.16) as a "social-relational and ethical phenomena that arises in social

processes of interaction" (Shaaban, 2021). The majority of the research on RL models views the notion as multilayered and varied, attempting to fill gaps in existing leadership theories and frameworks on three levels – individual, organizational, and systemic. The RL idea is visible in high-profile scandals, and it increasingly addresses novel and growing social, ethical, and environmental concerns in the corporate sector (Shaaban, 2021). RL, as a developing leadership style, effectively balanced for the shortcomings of conventional leadership models and is critical to strengthening corporate reputation and ensuring the long-term success of businesses and society (Voegtlin, Patzer, & Scherer, 2012).

Pless, Maak & Stahl, (2011), espoused that, there is a growing realization of the need for responsible corporate leadership among policy makers, educators, and the general public and they argued, it is partly due to the highly advertised corporate scandals and instances of management misconduct that have eroded public faith on leadership and hence the need for a new dimension of leadership. According to De Bettignies (2014), unless a completely new leadership style centered on global responsibility becomes the standard in the business community, the odds are against us moving from questioning the status quo to changing it. This is because he shares the belief that there is an ideological impasse and a trust deficit between leaders and the public, which have made the world's problems, appear intractable. The desire for RL is not merely a panacea to contemporary business or industry malpractices and subsequent calls for more ethical leadership, but also an outcome of the changes and new demands in a global business environment, (Pless, Maak & Stahl, 2011, Evans, Pucik, & Bjoörkman, 2016). Around the

world, there is a rising demand for responsible leaders in business and beyond. Managers and trainers are seeking to management academics for help in better grasping the notion of responsible leadership and putting it into practice.

The concept has witnessed several attempts to be defined and explained by several scholars, but, there has not been a consensus on both conceptualization and definition of the concept. Scholars share varied views. Pioneer researchers, Maak and Pless, understand RL as an interactional and ethical concept, which happens in social processes of interaction with all relevant interest parties (Shi, & Ye, 2016), and that, the main variation between other leadership theories and responsible leadership is that it emphasizes sustainable values and positive changes, environmentally and socially, (Pless & Maak, 2006). Maak and Pless propose a role model that shows how RL satisfies corporate social responsibility by playing various roles in order to have a better knowledge of RL. In agreement with Maak and Pless, Chinese scholar Song and colleagues define RL as the active pursuit of mutually beneficial relationships with stakeholders inside and outside the organization through corporate social responsibility in order to achieve mutual benefits and shared goals (Shi & Ye, 2016). Responsible leadership is seen as a process of interaction with interest parties revolving around a shared goal or desire, taking place within or outside the industry and based on principles of ethics and values, (Szczepańska-Woszczyna, Dacko-Pikiewicz & Lis, 2015). RL, according to Voegtlin, is a process of resolving conflicting interests among all stakeholders via equal discussion and democratic consultation in order to produce mutual benefit (Voegtlin, Patzer & Scherer, 2012; Voegtlin, 2011).

Shi, & Ye (2016), in the conclusion of their research after reviewing of existing research on RL concluded that RL can deal with conflicting interests of different stakeholders effectively, so it's of great importance to further study in this field. However, as responsible leadership is still a relatively new area, there are still many unanswered concerns. Shaaban (2021) recommended that, further studies are required to examine the efficacy of personality and the personality trait of leaders who will apply the responsible Leadership (RL) as an approach within their organization or firm.

A responsible leader must examine the following four factors, according to Thomas Maak and Nicola Pless' holistic approach to leadership: the leader as a person, the leader's functions, the connection between leader and follower, and the leader's ethical obligations. Central to their study was the importance of a relationship between leader and follower, which they argue is "one of the most important determinants of current and future organizational viability and business excellence," (Saayman, 2016, p. 39). Shi & Ye (2016) concluded that RL is the merger of leadership ethics and corporate social responsibility with the goal of being accountable to interest parties and the company. Leadership ethics, in particular, are an inherent requirement of RL, requiring leaders to abide to ethical principles in order to act ethically and make ethical decisions. Furthermore, corporate social responsibility is an external demand of RL that encourages leaders to widen their perspective from leader-follower to leader-stakeholder and to fulfil social obligation. To summarize, we believe that leaders can only become responsible leaders by linking the individual level of leadership accountability and the organizational level of corporate responsibility (Shi & Ye, 2016).



The concept of responsible leadership, though a new area in research has been conceptualised in various dimensions. Among them are; the multiple levels model of RL, developed by Miska and Mendenhall (2018), the Miska, Hilbe, and Mayer's (2014) developed a RL research-based model on three broad theoretical viewpoints on real-life issues, Pless, Maak, and Waldman (2012) model, De Bettignies (2014) five-dimensional model and Shaaban's (2021) four dimensional model which was developed to fill some theoretical gap in RL literature.

Four levels in particular are highlighted in Miska and Mendenhall's (2018) "Multiple levels model of RL," which draws on a variety of levels of study. The levels of analysis are as follows: a) Micro Level, which dwells on specific business leaders; b) Meso Level, which focuses on groups and corporate strategy within an organizational level; c) Macro Level, which focuses on culture, organizations, and society; and d) Cross Level, which focuses on various connections between and among the levels of analysis. Miska, Hilbe, and Mayer (2014) established a RL research-based model based on three extensive theoretical viewpoints for interpreting RL ideas from three other researchers and have examined three main dimensions of this view: (a) stakeholder views (Maak and Pless, 2006; Stahl et al, 2014), which premised on the theory of stakeholder view (Freeman et al. 2006; Hill & Jones, 1992) and the conceptual framework of RL pinned on a wide range of varied interest groups and places a spotlight on relational and ethical thoughtfulness; (b) agent views (Friedman & Miles, 2002), which build on the assumption which viewed business leaders' performance as owners of a business, through to the individuals they are mostly responsible for (Jensen & Meckling, 1978; Ross,



2017) and (c) convergent viewpoints (Porter & Kramer, 2006; Waldman & Galvin, 2008; Waldman & Siegel, 2008) that aim to combine stakeholder and agent insights, as well as the logic of 'doing well by doing well,' which is referred to as good management in much of the literature. This explanation referred to RL's efforts to integrate economic, environmental, and social obligations as part of its strategic perspective. The concept that managers have decision-making authority in their job duties is a clear basic similarity that runs across all three levels (Carrol, 2015; Shaaban, 2020).

Pless, Maak, and Waldman (2012) conceptualised the concept of RL in to four dimensions based on the breadth of component groups that examined what leaders must dwell on in their firms, as well as leaders' responsibilities to other shareholders and company owners. They developed four different orientation approaches based on their research, which are: (a) traditional economists who dwell on short-term economic value emphases and shareholder orientations; (b) opportunity seekers who focus on engaging in corporate responsibility activities for essential reasons; and (c) integrators who focus on profit as a result of socially responsible business, and (d) Idealists who have a larger view of their business obligations, which is generally accompanied by convincing ethical, spiritual, and religious considerations (Shaaban, 2021). De Bettignies (2014) proposed five dimensions of RL, based on a practical level of dealing with various corporate executives over many years. These are Awareness, Vision, Imagination, Responsibility, and Action, with three degrees of concentration on individual, organizational, and social levels in each dimension (Shaaban, 2021).

From the above four models that have been produced in the literature, they focus on the wide field of CSR, namely, followership and stakeholder assessment of leadership. The psychological qualities and features of the leadership and leaders that adopt this leadership method however have been overlooked by these models. In addition, there is a substantial contradiction between corporate culture and national or worldwide culture, as well as business trends and ethics. Based on this argument Shaaban (2021) developed a four dimensional model of the RL concept to cover the shortfalls in the previous models, the following model, which include; “(1) Personal Dimension, one which focuses on the personality traits and behavior level of individual leaders; (2) Individual Dimension, one focuses on individual or followers who interact and react to responsible leaders; (3) Organizational Dimension, one with a focus on organizational context, groups, and corporate strategy; and (4) Community Dimension, one with a focus on corporate social responsibility (CSR), institutions, culture, and society.” (Shaaban, 2021, p. 36).

Thus, a theory that has emanated from studies of several researchers postulated that the amalgamation of ethics and strategy is RL. Nevertheless, RL has regularly been measured on a single-dimensional scale that puts the spotlight on stakeholders concerns by leadership (Agarwal & Bhal, 2020), regardless of the argument that RL comprises various characteristics that tools to measure are absent. As a result empirical results from two studies conducted by Agarwal and Bhal (2020) came out with a validated tool to measure the various dimensions of RL, i.e., Moral person, Moral manager, Multistakeholder consideration and Sustainable growth focus. This study will

adopt this scale (Agarwal & Bhal, 2020) to investigate responsible leadership in the downstream oil and gas sector in Ghana.

### **Responsible Leadership from other Leadership Forms**

RL has been contrasted from other approaches by several studies and academics (Pless & Maak, 2011). Pless and Maak (2011) have discussed and differentiated RL from other values-centered leadership theories such as Greenleaf's (2002) servant leadership, Brown and Trevin'o's (2006) ethical leadership, Luthans and Avolio's (2003) and Gardner, Avolio, and Walumbwa's (2005) authentic leadership, as well as transformational leadership presented by Bass and Avolio's (1995) and Shaaban (2018). The principal variance between these leadership theories and RL, according to Pless and Maak (2006), is that RL concentrates on long-term values and positive social and environmental changes. Furthermore, RL distinguishes itself from other leadership theories by focusing on interest groups on two levels: within and outside organizations. These contrasts and overlaps with various leadership methods are summarized by Miska and Mendenhall (2018). The concentration on ranks inside the company and non-positional leadership across teams is one of the fundamental elements of these leadership methods (Miska & Mendenhall, 2018; Pearce & Sims, 2011).

The fundamental focus of these early leadership theories is on the interrelations and processes within team members, with special attention to the viewpoints of hierarchies. There do not appear to be a clear aim for these leadership viewpoints on social and environmental issues that are linked to a long-term value within the firm (Pearce & Conger, 2003). RL is described as a "umbrella idea for rethinking leadership in the context of stakeholder theory"

(Gond et al., 2011, p. 27). The focus of RL research is on social and environmental challenges because it is a requirement for normative underpinnings (Shaaban, 2021).

The debates in the area are long-running debates and conflicts about corporations' key duties. The CSR idea has evolved since its inception in the 1950s (Carroll, 1999) till the present trend of Corporate Responsibility with sustainable assimilation (Carroll, 2015; Carroll & Buchholtz, 2014; Van Marrewijk, 2003). RL research and study are intertwined with CSR and sustainability advances in this notion. The RL idea varies from other leadership theories in that it is said to place a greater emphasis on the many traits of leaders and followers. In addition, it takes into account culture, the environment, followership, leadership, regulation, and community, providing a wider rather than a restricted view (Shaaban, 2021). Based on the multifaceted nature of the responsible leadership role and qualities which strive on sustainable positive values it is appropriate to be considered in the contemporary safety discussions towards workplace safety in the oil and gas sector over other leadership styles which research have identified some fallouts in them as they have limitations.

### **Safety Motivation**

“No person will make a great business who wants to do it all himself or get all the credit.” - Andrew Carnegie. Motivation has a role in every aspect of life. We are continually reminded of how crucial it is to use motivation at work. We can observe that motivation has a significant influence on leadership success at work. “A person unable to grasp motivation and apply it will not become or stay a leader,” (Chandrasekar, 2011, p. 7). Motivation is a force that



drives or inspires someone to do or act in a specific manner (Krause & Sellers, 2001). Motivation is defined as a set of psychological processes that lead to changes in the strength, direction, beginning, and persistence of actions or behaviours (Fey, 2005). In general, motivation is the desire to do something, and it can be intrinsic or extrinsic (Locke & Latham, 2004; Panuwatwanich, Al-Haadir & Stewart, 2017). Individuals that are intrinsically driven participate in activities that they are interested in and enjoy. Individuals that are extrinsically driven engage in activities for a variety of reasons, including earning a reward (Panuwatwanich, Al-Haadir & Stewart, 2016). Thousands of people in a variety of workplaces, performing multiple tasks, and at various levels of responsibility have been studied, and what motivates, and equally important, what "de-motivates" workers in terms of long-term commitment and involvement has been discovered with remarkable consistency (Gajdos et al, 2019). Motivation is defined as a set of psychological processes that lead to changes in the intensity, direction, beginning, and persistence of acts or behaviors. In general, motivation is the desire to perform something, and it can be internal or extrinsic (Panuwatwanich, Al-Haadir & Stewart, 2017). Since learning and participation are the only ways to motivate someone to work towards a certain goal, managers must actively include their staff in designing processes and educating them on safety in order for this motivation to occur (Hedlund et al., 2010).

For the purpose of safety motivation, the question then is, how can leaders provide a force that will influence or cause workplace stakeholders to be successful in their safety efforts? The readiness to engage in safety activities, as well as the value connected to those actions, is referred to as



safety motivation (Chikono, 2017; Pordanjani & Ebrahimi, 2015). SM is defined by Neal & Griffin (2006) as “an individual’s willingness to exert effort to enact safety behaviors and the valence associated with those behaviors”. According to this concept, there is a correlation between safety motivation and safe conduct: employees are more likely to engage in safe activity when their safety motivation is higher. So, in order to have a safe workplace, safety motivation is essential.

Motivation may come from a variety of sources, according to Peterson. First, he emphasizes the need of employee selection to ensure that they possess the necessary skill sets or intrinsic abilities to execute the work, as well as that they have received adequate training to reach their full potential (Litzky, Eddleston, & Kidder, 2006; Breiteneder, 2016). Second, organizational standards (corporate culture) and company pressure may be used to encourage workers to accomplish tasks in the safest possible manner. Third, peer group norms and pressures might help motivate people (Breiteneder, 2016). Fourth, Peterson analyzes employment motivation variables such as an employee's potential to advance inside the business, the existence of internal promotions, and the employee's sense of responsibility within the organization (Wiegmann & Shappell, 2003).

Fifth, the satisfaction of performing good job and functioning safely may be an incentive. Another aspect of the job atmosphere that Peterson explores is how motivation may present itself via employees, leadership, and the general boss (Wiegmann & Shappell, 2003). Finally, Peterson discusses the role of self in personality and performance as a motivator, claiming that "even one's sense of accomplishment and pride in job well-done can serve as a

reward and thereby effect satisfaction" (Wiegmann & Shappell, 2003, p. 30).

Extrinsic motivators have a place in every company. It's tough to believe that most jobs can be performed only on the basis of intrinsic desire. Furthermore, it was argued that if a worker values safety, they may volunteer for a safety committee or start safety initiatives without necessarily considering these endeavours to be part of their employment requirement. They could believe they have critical safety knowledge to impart to others, for instance, or they might wish to draw attention to safety issues they are concerned about. Volunteering for safety committees, engaging in safety campaigns, and advocating safe working habits among coworkers are all examples of safety participating behaviors (Nahrgang et al., 2011; Oz et al., 2014).

SM has spanned the safety literature and as a result several measures have been developed to assess the construct. Some of which are independent scales (Fleming, 2012; Mariani, Solda, & Curcuruto, 2015,) and others incorporated in to other general scales such as safety culture scales, safety perception scale (Vinodkumar & Bhasi,2010), safety participation (Griffin and Neal, 2000) safety behavior scales (Barrick, Mount and Li's, 2013; Beus et al., 2015), safety performance scales (Christian et al. 2009; Campbell et al., 1993), Griffin and Neal, 2000), among others. However, Mariani, Solda and Curcuruto (2015) measure appeared concise since it was an improvement of Fleming (2012) measurement tool which was subjected to further validity and reliability test. Hence, this study will adopt Mariani et' al (2015) measurement to assess safety motivation in the downstream oil and gas sector in Ghana.

## Safety Culture

The phrase "safety culture" first surfaced in a study on the 1986 Chernobyl tragedy by the Organization of Economic Co-operation and Development Nuclear Agency (Kouts, 1988; Flin, 2007; Shuen & Wahab, 2014; Tomei & Russo, 2019). Cooper (2018) says the concept of SC was first introduced in 1984 after the Bhopal disaster. Lee (1998) says it was first introduced by International Atomic Energy Agency (IAEA) in their investigation on the nuclear reactor incident in Chernobyl in 1986, which concluded that safety protocols have broken down (Collins, 2002). Whatever be the case, safety culture received special prominence after these devastating events (piper Alpha disaster, Chernobyl disaster, Bhopal disaster, etc.) which recorded casualties and cost in varied degrees. Over the last ten or more years, it has gained global recognition as a generic term to define the business attitude or culture where safety is established and accepted as the top priority (Cullen, 1990; Fleming et'al., 2018; Van Nunen et'al., 2017). It got more elaboration in 1991 when the International Atomic energy Agency defined it as;

*“That assembly of characteristics and attitudes in organisations and individuals which establishes that, as an overriding priority, [nuclear power] safety issues receive attention warranted by their significance.”* (Cooper 2018, p. 48).

Scholars has since not reached a consensus in defining the concept of safety culture (SC) and it has remained a confusing and ambiguous concept in both the literature and in industry (Burns, 2003; Cooper, 2018; Hopskin, 2018). Based on its first definition and still broadly quoted as an institutional

culture where “safety is an over-riding priority” (Reason, 1997), Hopskin (2018) says, one would have to say only few organisations have a SC. He further describes the concept as an aspirational goal which require responsible leadership to achieve and not a concept that characterizes all organisations (Hopskin, 2018).

The concept has nonetheless been defined in the mist of varied opinions by several scholars, all aiming at the need of prioritizing safety at workplace. Leonard & Frankel (2012) described SC as the set of attitudes and behaviors that effectively manage the risks that inevitably arise when people, who are naturally imperfect, work in extremely complicated environments. Bowie (2010) and Maricar, & Kiyasudeen, (2021) define safety culture as the sum of an individual's and a collective's beliefs, attitudes, perceptions, competences, and behavioral tendencies which identify the organization's overall priority to workplace safety.

Glendon and McKenna (1995) described the concept of SC as the embodiment of a set of principles which loosely define what an organization is like in terms of health and safety. Tomei & Russo (2019) says it is a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems.

Goncalves and Waterson (2018) viewed SC as the attitudes, beliefs and perceptions shared by natural groups as defining norms and values, which determine how they act and react in relation to risks and risk control systems. This means individuals at workplace are not passive participants but are



responsive to organisational ideologies that shape the safety aspirations therein. Guldenmund (2000) espoused that “those aspects of the organisational culture which will impact on attitudes and behaviour related to increasing or decreasing risk” is what is known as safety culture. Irrespective of all these definitions the most widely used definition is the one proposed by the Advisory Committee on the Safety of Nuclear Installations (ACSNI) (HSC, 1993) cited in Hecker, & Goldenhar, (2014)

*“The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management”*

*“Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures.”* (Hecker, & Goldenhar, 2014).

Although these definitions differ slightly, everyone agrees that SC is a practical approach to safety (Bahr, 2014), and Most definitions of safety culture refer to how individuals think or act in connection to shared safety principles, attitudes, perceptions, and beliefs, and represent a conviction that SC is something that defines an organization rather than something that it has (Cox & Cox, 1991; Fang et al; 2006; Hale, 2000; Tomei & Russo, 2019).

Most organisations across the globe are becoming more interested in the concept of SC as a way to reduce the risk of large-scale disasters and accidents that happen during normal work. The goal of developing uniform global safety cultures in the oil and gas industry has been publicly



acknowledged (Antonsen, Skarholt, & Ringstad, 2012) and has since gained conscious acknowledgement in the downstream oil and gas sector in recent times. Safety culture is sometimes connected with unsafe behaviours or habits for the purpose of convenience (Guldenmund, 2018). Safety culture serves as an abstract conscious safety manual that provides a safety framework for all stakeholders at a workplace. Aside the physical properties of an organisation, the values that regulate attitudes and actions and help clarify why individuals of an organization operate, the manner they perform are found at the second level of organisational Culture. Unconscious and unseen, taken-for-granted assumptions impact how employees act, feel, think, and perceive the firm at the third level (Tomei & Russo, 2019).

Guldenmund (2010) and Nielsen (2010) are two writers from this decade who made significant contributions to harmonizing the three-level OC model (Schein, 1992) with safety culture (2014). Safety communiques, slogans, and messages, papers, audit and accident reports, work processes, and dress requirements for safety equipment are all part of the artifact level (Guldenmund, 2010). Jilcha and Kitaw (2016) and O'Neill & Wolfe (2017) agree that when an organization has an informed culture, a reporting culture, a flexible culture, a just culture, and a learning culture, trust is developed and catastrophes are readily remedied.

Leonard & Frankel (2012) says a robust safety culture relies on responsible leaders, which he describes as great leaders, and they can ensure such a safety culture by wielding attitudinal and behavioural norms that best ensure workplace safety. An effective safety culture dwells on three tenets, these include; psychological safety, organisational fairness and safety

education and learning (Leonard & Frankel, 2012). Bowie (2010) however, identify five elements of safety culture, these he noted as; open culture, just culture, reporting culture, learning culture and informed culture. From the literature one could deduce Bowie's elements of safety culture are just expanded version of Leonard and Frankel's tenets of SC.

The debate on the evolution of SC's dimension has continued in recent years. In their exploratory case study, According to Dos Santos Grecco et al. (2014), safety culture has six components: emergency preparation, awareness, just culture, organizational learning, and top-level commitment to safety. Ten factors that make up a safety culture should be considered, according to Morrow et al. (2014): "management, commitment to safety, willingness to voice safety concerns, decision-making, supervisor responsibility for safety, questioning attitude, safety communication, and personal responsibility for safety".

However, Jilcha and Kitaw (2016; 2017) in conceptualisation of safety culture noted it to have the characteristics of; commitment, behaviour, awareness, adaptability, information and justness. What it implies is that, unlike others, their model included the level of seriousness that is attached to safety procedures and the desire to promote practising such procedures that is informative, educative and shapes safety perception to ensure a safe workplace.

Since the 1980s, several important tools for measuring Safety Culture [Zohar (1980), Cox & Cox (1991), Glendonet al. (1994) DuPont Sustainable Solutions (1995), Diaz & Cabrera (1997), Reason (1997), Cooper (2000), Mearns et.al. (2001), Singer et. al (2003), Clark (2010), Chen & Li (2010),

Fleming & Scott (2013) Morrow et al. (2014) and El-nagaret al. (2015) have been developed focusing on the composite dimensions of safety culture as a subset of organisational culture. The problems in constructing a single model of measurement are explained by the absence of unanimity in the definition of SC and the varying objectives imposed by the organizations (Fleming et al, 2018). However, Tomei and Russo (2019) proposed scale appear more understanding and reflective of all the general dimensions of SC at the workplace.

This study will therefore adopt the proposed workplace safety culture model measuring safety culture in a recent study by Tomei and Russo (2019), which theoretical premises are that, “Safety Culture affects safety behaviour; employee commitment and support from the leadership regarding safety issues affect safety outcomes; individual attitudes to safety influence safety behaviour; perceptions of safety management systems influence safety behaviours; the climate at work defines the directives for individual behaviour; improvements in behaviour and workplace safety are ambitious goals and mere training is probably not sufficient to induce significant effects; the organizational communication style and its frequency are important factors in the cognitive perception of employees; the introduction of improvements to internal safety indicators of companies changes their accident rates, improving performance in terms of safety; and the safety climate affects safety performance, with the knowledge and motivation of employees as mediators in this process” (Tomei & Russo, 2019).

## Workplace Safety

There are several definitions of safety in the literature. The Oxford Dictionaries defined safety as “the condition of being protected from or unlikely to cause danger, risk, or injury”. Additionally, British Standards Institution (2007, p. 3) defines occupational health and safety as “conditions and factors that affect, or could affect, the health and safety of employees or other workers ..., visitors, or any other person in the workplace” (Althaqafi & Abunar, 2017). Safety is a condition of operation in which the risk of loss, damage, accidents, injuries or harm is removed or reduced (Ansa, 2012, 2017, Ansa & Mintah, 2012; Chikono, 2017; Young, 2012). Despite the fact that workplace safety (WpS) has improved significantly in the last 100 years (Hofmann et al., 2017), the International Labour Organization (2014) estimated that occupational accidents and work-related diseases resulted in over 2.3 million deaths, of which over 350,000 were caused by workplace accidents, and that over 313 million non-fatal occupational accidents resulted in more than three days off work (El-Menyar, Mekkodathi, & Al-Thani, 2016; Yan et al, 2014).

"Workplace safety is a serious responsibility, more often than not, it is a collective effort where employers, human resources, safety teams, and employees have to play their part in ensuring a safe and hazard-free work environment" (Reddy, 2022). According to Abraham Maslow Safety is recognised as a basic human need that can be jeopardized by a variety of reasons, including disease-related concerns, accidents, injuries, deaths and attacks (Grobosch, Wolf, Juchems & Kuske, 2020). The notion of accident or incident prevention is critical to workplace safety. As a result, any elements



that may be discovered before to an actual catastrophe are extremely valuable. Attaining safety necessitates risk management, which is concerned with the impact of variability on consequences (Chikono, 2017; Chun, Xianghui, Wei, & Yuan, 2014). Safety is a shared responsibility for all stakeholders of a workplace spearheaded by leadership (Graco, 1995). Efforts to increase safety were either prompted by an occurrence or planned ahead of time (Blair, 2014). Corrective measures and safety controls, according to Blair (2014), are what really made safety interventions effective. A corrective action is a step done to eliminate or mitigate the source of a system flaw, danger, or risk (Blair, 2014). The methods for risk identification, evaluation, and elimination, on the other hand, were safety safeguards (Blair, 2014). Staff support for social workers is described as "a need, not a luxury" by Dane and Chachkes (2001, p46), who claim that a healthy workplace with helpful coworkers and leadership reduces workplace stress (Huggard et al, 2011).

The subject of WpS may be traced back to the 18th century European labour movement in the era of the industrial revolution. Workers' unions were established during the revolution to strive for the welfare of employees. Better working conditions became a demand among employees (Richter & Koch, 2004). According Chandrasekar (2011) in most industries, the workplace is hazardous and harmful. This strengthens the desire for workplace safety across the globe, making it industry requirement to operate in the business world today.

The concept refers to the methodologies and strategies that are enacted to ensure a safe working environment that will stop or eliminate injuries, accidents and sickness, robberies and loss of asset (Richter & Koch, 2004).



Beus, McCord & Zohar (2016) defined workplace safety as “an attribute of work systems reflecting the (low) likelihood of physical harm—whether immediate or delayed—to persons, property, or the environment during the performance of work.” Workplace safety includes knowing basic safety, workplace risks, risks related to hazards, implementing hazard prevention, and putting into practice crucial safer approaches, techniques, procedures, and fostering a safety culture (Richter & Koch, 2004).

Creating a safe workplace for your organization, company, or small business is critical to increasing earnings. Individual motivation and the design of the work environment are two important considerations for management philosophy that guide how to increase employee productivity (Chandrasekar, 2011). Three key requirements must be met in order for a workplace to be considered safe. In a safe working environment; the organization and its workers have recognized all key dangers in the workplace, each serious danger has a preventive measure in place, and the firm and its workers know what to do in the event of an accident or near-miss (Graco, 1995). Reduced workplace accident statistics are connected to enhanced safety settings, according to Arezes & Miguel (2008). The principal responsibility for a safe workplace lies on the arms of the leaders themselves (Mat et al, 2021). For an effective workplace safety, Mat, Alias, Abdullah, Mohamed & Zin (2021) noted that responsible safety leaders should depend on health and safety management practices such as leadership commitment, safety training, employee participation in safety, safety communication, safety rules and procedures, and safety promotion policies to improve safety performance at the workplace.

The basic rights of a human being or an employee are evident; thus, when they are respected, workplace safety is not just a bonus, but most importantly a worth (Hilgert, 2012). It implies that any leaders who is responsible and wants to see the organisation progress will ensure these basic human rights of safety are facilitated at the workplace. While no one can fully value a life saved or a catastrophic injury avoided, studies have shown that businesses that invest in workplace safety receive financial benefits. In a survey of CFOs, more than 60% said that every dollar spent on accident prevention yielded a return of \$2 or more. The greatest benefit of an efficient workplace safety program, according to almost 40% of respondents, is increased productivity (Granter et'al, 2019). Organizations attempt to prevent workplace injuries because of the related expenses, which include missed income, productivity loss, property and equipment damage, and litigation expenditures (Postlethwaite et al., 2009). Regardless, the work's context, procedures, conditions, processes, and activities expose the workers to hazards and accidents, injuries and attacks (Tetrick & Peiró, 2016). Leadership should therefore plan how to accomplish workplace safety, according to Akelsson et al (2012) and Chikono (2017).

Responsible leaders may foster a work atmosphere that encourages collaboration. Tetrick & Peiró (2016) stated that leaders enable mutual trust, incentives, motivation, training, and development. Leaders also design work processes, offer safe equipment, tools, and machinery, and guarantee that the workforce is trained to utilize the tools and machinery, according to Tetrick and Peiró (2016). The rules of engagement, hours of work, duration of break

periods, shift work, and the design and physical plan of the workspace are all defined by responsible leadership (Tetrick & Peiró, 2016).

There has been shortcoming in the safety literature about the definition and conceptualisation of workplace safety (Clarke & Robertson, 2005). As a result, there are discrepancies across investigations, and empirical findings don't always match theoretical expectations (Christian, Bradley, Wallace & Burke, 2009). Hogle (2021) and Leonard & Frankel (2012) noted that workplace safety can be categorized in to three dimensions, these are, physical safety, psychological safety and emotional safety. Feeling safe at work in all three dimensions is a critical component of belonging, which more and more organizations and leaders are realizing is critical to creating an engaged and safe workplace (Leonard & Frankel, 2012; Hogle, 2021). Responsible leaders can help shine a light on some aspects of workplace safety that aren't immediately apparent but are crucial in determining whether the organization successfully negotiates workplace safety for all stakeholders.

Workplace safety has been paramount since the industrial revolution in the 1980's, as a result; research has placed a spotlight on it and several measurement tools (Guastello & Guastello, 1988; Hayes et al., 1998; NOSACQ-50, 2012; OHSVM; 2017; OHS, Sandman, 1992; Smith et al., 1992; Winwood et'al, 2013; Zohar, 1980) were developed to assess the construct. The Hayes et al (1998) Workplace Safety Scale will be used in this study because of its efficacy to analyse workplace safety in the organization because of its detailed nature. Workplace safety is measured on the dimensions of, job safety, co-worker safety, supervisor safety, leadership commitment to safety, and satisfaction with the safety program. These dimensions defined by

Hayes et' al (1998) encompasses the three general workplace safety determinants, that is, psychological safety, physical safety and emotional safety.

### **Empirical Review and Hypotheses Development**

The precise aims of the study guided the development of this empirical review section. The review strengthens the claims and conclusions made by earlier academics while also outlining areas of agreement and disagreement. This helps prevent earlier scholars from making the same mistakes again. The review served as a guide for improving the issue description and creating hypotheses.

### **Responsible Leadership and Workplace Safety**

Responsible leadership behaviours have been found in previous research to have a major impact in improving workplace safety (Chughtai, 2015). Leadership can assist in the establishment of organizational safety standards and principles, as well as the development of a safety mentality and an engrained culture that prioritizes safety (Reddy, 2022). There is nothing that can be done to improve safety at the workplace unless leadership wants it, originates it and keeps supporting it (Williams, Purdy & Storey, 2005; Williams & Pundy, 2005). “Effective safety can only be achieved when there is a proper management of the interaction between technological systems and people” (Ali, Abdullah & Subramaniam, 2009, p. 471). Therefore, responsible leadership could have a greater influence on workplace safety. Responsible leaders know that it is their moral and legal responsibility to protect workers by providing safe workplace in order to prevent illness, injury and anything



consequential to the health of their workers (Burton & WHO, 2010; Ansah & Mintah, 2012; Save-Life, 2021).

Leaders, according to Chikono (2017) and Tetrick & Peiró (2016), are responsible for devising strategies to minimise workplace hazards, accidents, and injuries. To create a safe workplace, responsible leaders provide personnel with safety training and follow safety processes such as inspection, correction, and, in certain cases, provide protection equipment (DeCamp, 2015). Concern for workers' safety is a key characteristic of responsible leadership (Doh & Quigley, 2014). Safety supportive behaviours expected of responsible leaders include safety communication, providing resources, safety role modelling, and safety feedback and coaching (Hammer et al, 2019).

According to Abiodun (2021), leadership commitment to safety needs not only the establishment of policy, direction, and objectives, but also a strong focus on safety via communication, commitment, involvement, resource provision, and accepting responsibility for addressing safety concerns. Basahel (2017) noted that individual safety satisfaction in the workplace is a result of high safety attitudes of leadership. Increasing safety attitudes have a substantial impact on employee safety and accident rates at workplace because they are a result of increased attitudes toward safety and leaders' dedication to safety concerns, training, and safeguards.

Inadequate safety rules, poor safety supervision, inefficient training, and bad safety attitudes are the primary causes of most workplace mishaps, such as contact and exposure with machinery at the workplace (Zohar & Polachek, 2014), but, through conversations of safety concerns with employees and by offering essential counsel and direction for a safe



workplace, responsible leadership behavior may significantly improve safety performance (Basahel, 2021; Fruhen et al, 2013; Lu & Yang, 2010). Responsible leaders' proactive and visible safety conduct correlates to increased staff safety at the workplace in terms of rule and regulation compliance, as well as attendance at safety trainings and meetings (Basahel, 2021; Shen et al, 2017). It will therefore be fair to infer that responsible leadership has the potential of promoting workplace safety in the downstream oil and gas sector in Ghana. Thus, it is hypothesized that;

*H1: Responsible leadership has a significant positive influence on WpS in the downstream oil marketing companies in Ghana.*

### **Responsible leadership and Safety Motivation**

Leaders are frequently acknowledged as a component of organizational influence that may foster positive employee attitudes (Walumbwa, Hartnell, & Oke, 2010). Individuals have a propensity to absorb the thoughts and attitudes of persons they associate with, such as their immediate superiors (Sawhney & Cigularov, 2018) as envisaged by the SLT. “A strong leadership and the safety standard conducted by the leader is shown by studies to have a large impact on safety motivation” (Andersson, & Paqarizi, 2016, p.37). Displaying responsible behaviors including expressing a vision, role modeling, and offering support, involving employees in decision making, leaders may influence employee attitudes in a variety of ways (Sawhney & Cigularov, 2018).

Responsible leaders, according to Miska, Hilbe and Mayer (2014) and Voegtlin, Patzer and Scherer (2012), are always accountable to all of their stakeholders on safety. Therefore, responsible leaders provide opportunity for

safety participation (Chmiel, Laurent & Hansez, 2017), safety education leading to safety knowledge (Ansah, 2017), provide place safety materials (Ansah, 2017), and abide by safety regulation in the sector (Ramchamder, 2021) and this will instigate individuals' volition to adhere to safety regulation and guidelines (Chikono, 2017; Fell-Carlson, 2004; McGonagle, et al, 2014). This individual volition is what is known as safety motivation (Conchie, 2013; McGonagle, Walsh, Kath, & Morrow, 2014; Chikono, 2017). Responsible leaders can induce positive safety practices from employees when performance in the area of safety is rewarded and linked to remuneration and/or operational budgets (Peterson, 2005).

Empowered employees can "participate in devising and implementing constructive responses to safety problems and opportunities...while contributing to organizational effectiveness..."(Graham, 1988, p.78). Additionally, responsible leadership increases employee consciousness by persuading them of their ability to attain better levels of safety (Barling et al., 2002). As a result, innovative actions are likely to enhance employees' confidence in their capacity to do their duties safely. A leader's positive attitude has additional good consequences, such as employees becoming much more convinced that working safely does truly assist to minimize the frequency of accidents (Hofmann, Burke, & Zohar, 2017; Cornelissen, van Hoof, & van Vuuren, 2014; Panuwatwanich, Al-Haadir & Stewart, 2017). One can probably infer that a supervisor who is enthusiastic about safety would provide more safety information and guidance to his employees, allowing them to experience firsthand how working properly benefits them, causing them to work more safely at the workplace. It is critical for employees to

understand that working properly helps to minimize the frequency of accidents, and the safety-promoting supervisor, in particular, may contribute to this conviction (Hofmann, Burke, & Zohar, 2017).

Leadership and the leader's safety standards have a significant impact on SM (Jebb, 2015). "Management and colleagues can thus have a great deal of influence on someone's motivation to work safely" (Andriessen, 1978. p. 3683.). Leadership and the leader's safety standards have a big influence on safety motivation (Hofmann, Burke, & Zohar, 2017). Employees will work more safely if they perceive their leader as someone who values them and their contributions (Cornelissen, van Hoof, & van Vuuren, 2014; Panuwatwanich, Al-Haadir & Stewart, 2017). With regards to employee safety motivation, 270 construction workers in the Netherlands were examined by Andriessen (1978) which set some of the earliest foundations for the comprehension of the link between safety motivation and safety behavior. It was discovered that these safety motivational factors influence the degree of safety behavior through the safety motivational indicators, such as the leadership reaction, colleagues' reactions, the likelihood of minimizing the accident, and tempo of workplace (Panuwatwanich, Al-Haadir, & Stewart, 2017).

Responsible leadership behaviours promote employee-friendly safety ideals and seek their input on safety-related issues. The strong and trustworthy connection that these leaders have with their employees allows them to share information and clarify perspectives, allowing subordinates to assess particular actions that the leader values (Zohar, 2011). Employees imitate safety practices that are highly appreciated by their leader to guarantee that their

performance matches the leader's safety requirements, giving birth to safety standard at the work place (Sawhney & Cigularov, 2018). Didla, Mearns, and Flin (2009) espoused that when employees perceive leadership to demonstrate commitment and taking responsibility for safety, they equally will demonstrate safety citizenship at workplace. Leadership has been highlighted as a source of attitude development, as previously mentioned (Walumbwa et al., 2010). As a result, it is fair to assert that responsible leadership can influence safety motivation by molding staff safety attitudes. Employees are more likely to cooperate to enhance safety performance, according to Jitwasinkul, Hadikusumo, and Memon (2016), when they perceive leadership cares about their personal safety.

Safety initiatives need leadership to act as role models. They should solicit employee proposals for ways to improve WpS and put those suggestions into action as soon as possible. It is the leaders' obligation to carry out the work in accordance with the safety programs. Employees will be curious as to "what's in it for me." While the Company will undoubtedly gain from greater safety due to such programs, workers may not consider the new safety plan as a personal benefit. As a result, incorporating employee incentives can typically reverse this trend and boost compliance to safety rules that will lead to a safe workplace (Jonathan & Mbogo, 2016). By fostering a sense of success and belonging to the business, a leader may encourage and acknowledge improvements among employees, which can lead to intrinsic motivation (Hedlund et al, 2016). Thus, this study hypothesised that;

*H2: Responsible leadership has a significant positive relationship with SM in the downstream oil marketing companies in Ghana.*



## Safety Motivation and Workplace Safety

Pordanjani and Ebrahimi (2015) espoused that SM and work pressure are important predictors of workplace injuries and accidents rates. Therefore, improving SM and reducing work pressure are effective ways in which organisations can improve workplace safety. Ensuring employee safety motivation by responsible leaders, according to Zohar (1980) might impact risky work behavior and as a result, reduction in occupational accidents (Pordanjani & Ebrahimi, 2015). Employees' safety behaviors are reinforced through safety motivation, which encourages participation in safety meetings and goal-setting, as well as submitting safety proposals that improve safety performance (Pordanjani & Ebrahimi, 2015). Safety incentive encourages employees to follow safety procedures, which has been shown to protect not only individuals, but also the organization as a whole and society (Ying, Zhijia & Lianbao, 2012).

Empirical grounding on the effects of employee SM on workplace injuries and incidents indicates that organizations can influence safety behavior by influencing employee safety motivation (Pordanjani & Ebrahimi, 2015; Vinodkumar & Bhasi, 2011, 2010). Safety motivation as well as safety indicators such as the frequency of accidents are crucial human elements that can influence safety behaviors of employees that will ensure a safe workplace (Basahel, 2021; Vinodkumar and Bhasi, 2010). Neal, Griffin and Hart studied 525 staff at a big Australian hospital espoused that intrinsic motivation predicts both safety compliance and engagement (Panuwatwanich, Al-Haadir & Stewart, 2017). Probst and Brubaker's research of 237 food processing plant employees in the United States confirmed this conclusion, revealing that



extrinsic safety incentive had a favorable impact on safety compliance leading to workplace safety (Panuwatwanich, Al-Haadir & Stewart, 2017).

Also, De Carlo et al (2016) studies espoused that safety motivation could influence workplace safety because it changes employee safety behaviours positively and sustainably if it is well employed by leadership. A contemporary study that used a meta-analytic route model discovered that safety performance behaviors were most significantly associated to motivation for safety (Panuwatwanich, Al-Haadir & Stewart, 2017). Motivation is a crucial predictor of safety outcomes, since conduct is influenced by the motivational qualities of the circumstance and influences the direction, amplitude, and length of volitional activity. Given the causal link between motivation and behaviours, Chen and Chen (2014) hypothesized that the stronger an employee's safety motivation, the more willing they are to engage in safety behaviours that would improve workplace safety. Thus, this study hypothesized that;

*H3: SM has a significant positive influence on WpS in the downstream oil marketing companies in Ghana.*

### **Mediating role of Safety Motivation on Responsible Leadership and Workplace Safety nexus**

In the light of the stakeholder theory (Freeman, 1984), responsible leaders who rope all the interests of employees towards a safety goal will have them motivated to demonstrate safety behaviours. Also, according to the self-determination theory of motivation, employees put up behaviour base on several reasons (Scott, Fleming & Kelloway, 2014) and these reasons determine whether the behaviour will be positive or negative. So, employees

can be motivated by responsible leaders to put up favourable safety behaviours (Vinodkumar & Bhasi, 2010). Leadership can motivate employees to alter their conduct if they believe that doing so would result in a good safety outcome (Pordanjani & Ebrahimi, 2015; Lu & Yang, 2011). Chen, and Chen (2014) espoused that, given the causal relationship between motivation and behaviors, it is assumed that the higher the employee's SM, the more ready they are to engage in safety behaviours that would increase workplace safety.

Leadership, according to Lue and Yang (2010) was substantially connected to SM and affected safety involvement and compliance. Basahel (2017) espoused that individual workplace safety satisfaction is a result of good leadership safety attitudes. Employees' contentment with some parts of safety, such as safety laws and procedures, as well as leaders' dedication to safety concerns, training, and safeguards, leads to higher safety attitudes, which has a substantial impact on employee safety and accident rates. Thus, this study anticipates that;

*H4: SM mediates the link between responsible leadership and WpS the downstream oil marketing companies in Ghana.*

### **Responsible Leadership and Safety Culture**

Previous research suggests that, leaders at all levels have a critical role in improving the organization's SC and performance (Khan, Ahmad, & Ilyas, 2018; Zohar, 2010). The portions of the organizational culture that affect attitudes and actions, which have an impact on the degree of safety in the company, are referred to as safety culture (Fang & Wu, 2013; McKinnon, 2013; Nielsen, 2014). Building a positive SC in a business begins with leadership. Leadership must cultivate a culture that results in safe behaviors on

a regular basis. Safety policies must be backed up by actions and decisions that reflect the commitment of leadership to enhance the culture of safety at the workplace (Skeepers & Mbohwa, 2015). Stolzer and Goglia (2016) concur that a strong positive safety culture requires senior leadership commitment. Using empowering attitudes, leaders may promote employee safety involvement and performance, as well as develop a safety culture (Jebb, 2015).

Safety controlling, according to Lun and Wahab (2015) and Martnez-Córcoles et al (2011), is the use of authority by leadership to outline the safety norms and regulations that serve as the organisation's safety culture that informs what personnel must follow in order to accomplish safe performance at the workplace. Groups that are well-coordinated by leadership in their work tend to operate more safely. This is because such a group culture fosters the establishment of a positive safety norm, allowing members to work securely with the support of their mate and other co-workers (Lun & Wahab, 2011; Martnez-Córcoles et al, 2011).

Bowie (2010) noted that, when leaders begin to question what occurred rather than who made the mistake in reaction to failures, the culture of the workplace will begin to shift towards the desired one. He further espoused that; the maturity level of the prevailing safety culture is significantly tied to the leadership commitment to stakeholders' safety within a workplace. Only responsible leaders can establish a "just" culture that allows the whole team to support and enhance workplace safety (Bowie, 2010). Leaders have both the responsibility and the power to guarantee that the focus on enhancing workplace stakeholders' safety remains constant (Bowie, 2010). For leadership

influence on safety culture, Bowie (2010) advanced that, responsible leaders will ensure an open culture, just culture, reporting culture, learning culture and informed culture (Bowie, 2010). A safety culture is built on high-quality work settings with defined roles, rules, and motivation. Workplaces with decent working conditions with visible and supportive leadership are more likely to have a beneficial consequence on safe workplace and safety outcomes. By promoting a quality work environment and a good safety culture, leadership may have an influence on workplace safety outcomes (Squires et al, 2010).

All levels of leadership must establish accountability for activities and actions, which is an important virtue of responsible leadership (Stolzer & Goglia, 2016). Leaders must completely embrace a safety culture before selling it to others (Stolzer & Goglia, 2016). Showcasing the company's commitment to safety allows leadership to call for employee assistance, resulting in a collaborative approach to the safety culture (Samuels, 2022; Ismail et al, 2012). Bayuk (2008) defines leadership commitment to safety as "a strong focus on safety through communication, dedication, participation, allocating resources, and accepting responsibility for addressing safety issues, in addition to establishing policy, offering direction, and setting targets" (Abiodun, 2021). It is the responsibility of leaders to create an environment where no one is reluctant to voice out safety concerns and also know they are accountable for safety behaviours through education and learning process (Leonard & Frankel, 2012). The responsibilities of a leader are to define safety regulations and provide orientation on them for effective compliance. An organization's SC is not something it possesses, but rather something that defines it (Cox & Cox, 1991; Fang & Wu, 2013). The activities that workers



must follow in order to keep themselves and the workplace safe are to be defined by leadership. It means any leader who is responsible will define such activities that will form the safety culture (Idris et al., 2021; Idris et al., 2014; Neal & Griffin, 2006). Thus, the study hypothesised that;

*H5: Responsible leadership has a significant positive relationship with safety culture in the downstream oil marketing companies in Ghana.*

### **Safety Culture and Workplace Safety**

“Beliefs and attitudes of the people working within the organization greatly affect the safety in the workplace” (Ali, Abdullah & Subramaniam, 2009, p. 471). Members of the organization's key attitudes and views about safety issues is what generally reflect the safety culture of an organisation (Weaver, NREMT-P, Wang, Rollin, Fairbanks & Patterson, 2012). This is reflected in the organization's safety policy, regulations, and procedures, as well as its leadership and workforce's attitudes, values, and behavioral norms. The heart of this concept is the shared idea and value that safety comes first (Taufek, Zulkifle & Kadir, 2016).

Through empowerment and belongingness, a SC supports the display of safety adherence and involvement behavior (Hee, 2014; Pater, 2014). Organizations benefit from a safety culture, because it influences safety behavior, fosters trust, and encourages involvement in safety initiatives (Hee, 2014, Hee & Ping, 2014). Again, safety culture reminds employees about safety and empowers them to engage in safe work practices (Hee, 2014). According to Aburumman, Newnam, and Fildes (2019), safety culture plays a critical impact in workplace incidents. A company with a bad SC, for instance, offers an atmosphere where mistakes are more common and infractions are

increasingly condoned. Based on this perspective, an "ideal" SC has been defined as "the 'engine' that propels the system toward the aim of maintaining the highest level of resistance to its operating dangers" (Reason, 1998, p. 294).

When the senior leadership commits to incorporating safety practices into the organization's culture, the result is an effective, long-lasting, and continuous approach to accident prevention and loss reduction (McKinnon, 2013). An improved safety culture has a constant influence on accident prevention (Masood et al, 2012). According to studies by Choudhry, Fang, and Mohamed on construction companies, building a good SC can be an effective approach for enhancing workplace safety. Employees with a positive safety culture not only feel responsible for their own safety, but also for the safety of their co-workers, and the corporate culture encourage them to carry out their responsibilities. The organization's formal management systems and leadership' informal management practices could promote care within a good SC by promoting, recognizing, and reinforcing safe behaviors (Masood et al, 2012).

Guldenmund (2010), Zohar (2010) and Jebb (2015) espoused that, in current approaches to improve safety performance results at the workplace, SC is a key idea. The goal of SC is to develop a self-sustaining environment based on a thorough understanding of the factors that contribute to poor workplace safety performance (Jebb, 2015). Low injury rates are common in organizations with a strong, adaptable SC. A large amount of research has identified quantifiable safety cultural features that have been demonstrated to predict variables indirectly connected to safety at the workplace in addition to predicting safety outcomes. Safety systems will be employed rigorously only

if the safety culture supports it under the demands of day-to-day operations (Dennis, 2014; Glendon, Clarke, & McKenna, 2016). Thus, this study hypothesised that;

*H6: SC has a significant positive influence on WpS in the downstream oil marketing companies in Ghana.*

### **Mediating role Safety Culture on Responsible Leadership and Workplace**

#### **Safety nexus**

Reasoning from the stakeholder theory (Freeman, 1984) and the social learning theory (Bandura, 1977) leadership has a responsibility to consider the interest of all people whose actions has an implication to safety at the workplace when designing a safety culture and must demonstrate positive exemplary behaviours that can be observed and emulated by employees as a credible role model. According to Gordon et al. (2007), if a responsible leadership system exists but there is no true commitment or culture towards safety, the leadership system will be ineffective since choices would not prioritize safety. Similarly, if a decent SC exists but there is no responsible leadership in place, safety may be inconsistent, under-resourced, and not recognized as business-driven. So, safety culture has the potential to influence workplace safety if leaders are responsible in implementing it (Leonard & Frankel, 2012).

Weaver, NREMT-P, Wang, Rollin, Fairbanks and Patterson (2012) revealed that, there is an association between employee's perception of workplace safety culture and safety outcomes. SC ratings have been connected to occupational injuries, accidents, and safety audit measures in high-risk occupations. There are grounds to infer that safety culture has an influence on

workplace safety. Employees have no authority to modify the organization's culture; it is up to the leaders to do so. Responsible leadership influences safety culture which intends affects workplace safety. Thus, this study anticipates that;

*H7: SC mediates the nexus between responsible leadership and WpS in the downstream oil marketing companies in Ghana.*

### **Control Variables**

#### **Safety Compliance and Workplace Safety**

Safety compliance (SCO) is one of the concepts that have also surfaced much in the safety literature that is believed and proven to have great influence on workplace safety. SCO refers to performing tasks in a safe manner in order to maintain workplace safety, such as by wearing PPE and following safety rules (Vinodkumar & Bhasi, 2010). SCO refers to "core activities that individuals need to carry out to maintain workplace safety" (Griffin, & Curcuruto, 2016; Neal & Griffin, 2006, p. 947). To preserve order and a healthy working environment, every firm has a set of rules and regulations that employees and employers must observe (Smith, 2016). Workplace accidents are investigated to know the cause and measures as well as safety regulations are put in place to eliminate or reduce them. Therefore, following workplace safety procedures greatly minimizes the likelihood of these mishaps (Smith & Dyal, 2016). To preserve workplace safety, SCO entails carrying out rule-required safety measures [e.g., wearing protective equipment, following safety procedures] (Beus, McCord, and Zohar, 2016). SCO can be regarded a fundamental activity for an individual's safety at the workplace (Jebb, 2015). Safety compliance is an employee's primary duty, and



adherence to compliance standards is a must (Khan, Ahmad & Ilyas, 2018; Fernandez-Muniz et al., 2017). The aforementioned arguments vindicate the concept to have effect on workplace safety and this study will therefore control for its influence.

### **Ethical Leadership and Workplace Safety**

Ethical leadership (EL) has proven to equally promote workplace safety in organisations. Power sharing, exhibiting care for followers' well-being, and modeling ethical behavior are all characteristics of ethical leadership that can have a major impact on workplace safety (Chughtai, 2015; Inness et al., 2010). Employees' perceptions of job autonomy and self-efficacy will improve as a result of EL behaviours, which will likely foster good behaviour at the workplace toward safety (Chughtai, 2015).

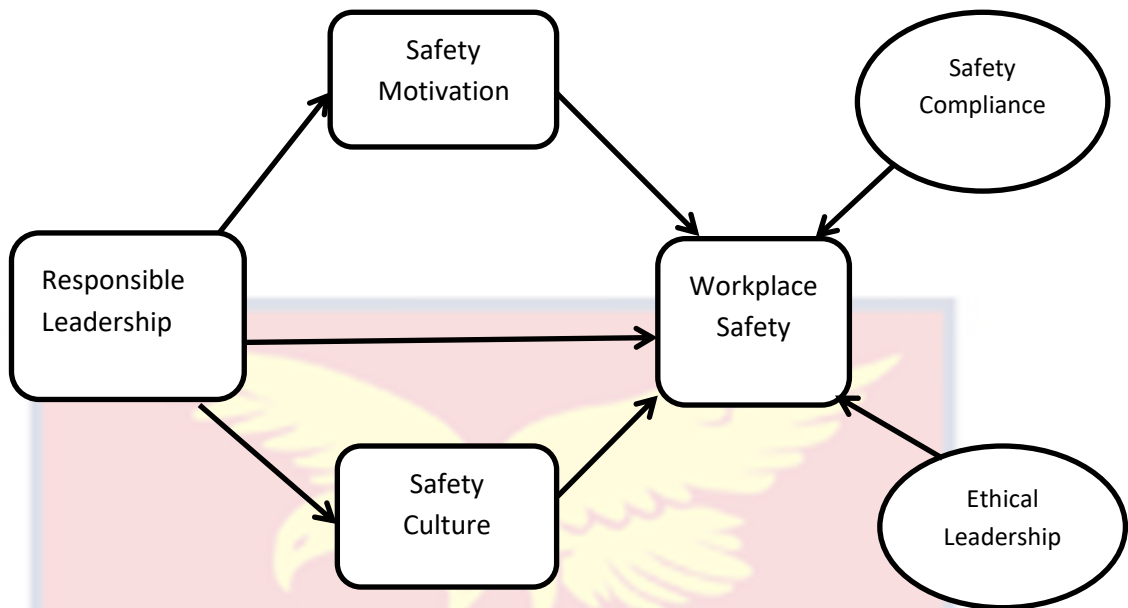
According to the findings of Chughtai's (2015) study, ethical leaders may motivate their subordinates to follow safety laws and go above and beyond to make the workplace safer by empowering them and increasing their self-effectiveness. Research also indicates that, ethical leadership style may have an influence on employee safety performance at the workplace, because of their concern for employee well-being, and maintaining the highest standards of safety at the workplace (Khan, Ahmad, & Ilyas, 2018; Khan, Ahmad & Ilyas, 2018; Chughtai, 2015).

It is suggested that leaders would function as role models for their followers, based on the social learning theory (Bandura, 1986). Employees will be proud to follow in their leader's ethical footsteps and respond in a similar vein by adhering to the appropriate safety norms and regulations. It is also argued that ethical leaders will use their position and power to monitor

and evaluate employees' behaviours with fairness and honesty; they will either motivate and reinforce improved safety performance through reward or discourage poor safety performance with negative consequences (Kapp, 2012). It is therefore evident that ethical leadership can influence workplace safety and this study will control for same.

### **Conceptual Framework**

A vital component of research work is how well one is able to represent his ideas diagrammatically for easy understanding of readers. Kivunja (2018) argued that the conceptual framework serves as a link between the paradigms that describe the research problem and the methods used to solve it. Tamene (2016) noted that a research's conceptual framework helps readers understand why a particular researcher chooses to study a particular topic, the assumptions he or she makes, how he or she conceptualizes his or her approach, the scholars with whom he or she is in dialogue, and with whom he or she agrees and disagrees. Adom et'al says it is the "blueprint" to every study and offers clarity and focus to the constructs examined in the study. For the purpose and guiding objectives of this study, the conceptual framework for same is presented in figure 1.



*Figure 1: The conceptual framework*  
Source: Author's construct (2022)

As represented in the conceptual framework, the study hypothesized that, Responsible leadership (RL) have both direct and indirect relationship with workplace safety (WpS). The direct link is expressed between responsible leadership and workplace safety while the indirect happens when safety motivation (SM) and safety culture (SC) are introduced in the path. Thus, SM and SC are acting as mediating variables in the framework. Again, the study proposes that, there is a direct link between SM and WpS and also a direct link between Safety Culture (SC) and Workplace Safety. In the foregoing grounds making a case for the role of compliance and ethics from employees and leadership respectively, safety compliance (SC) and ethical leadership (EL) were incorporated into the framework to check the extent (direction and strength) of influence responsible leadership has on workplace safety.

## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

The research methodology utilized to execute the study is presented in this chapter. Research methods, according to Rajasekar, Philominathan, and Chinnathambi (2013), offer a systematic and in-depth understanding of a problem and make it easier to derive a logical and scientific explanation for it. It aids in expanding the boundaries of knowledge. As a result, it describes the research's methodology and the justification for each method's selection. Study philosophy, research design, research strategy, research area, population, sample, and sampling procedures, pre-testing and pilot testing, data collecting procedure, reliability, validity, data analysis, and ethical considerations are among the issues emphasized under this section.

#### Research Philosophy

The organization, method, and focus of social science research have all been influenced by different theoretical viewpoints. Thornhill (2016) cited positivism, critical realism, interpretivism, postmodernism, and pragmatism to be the five primary philosophical movements that have shaped social research throughout history. In the view of the writers, each research philosophy has something special and vital to offer the study that is being done. A powerful qualitative, quantitative, or mixed-method approach will therefore frequently be strengthened by the sort of philosophy that motivates particular researchers (Creswell, 2014).

The study is ground on a positivist approach, which associates to the philosophical systems that embraces matters that can scientifically be verified



and thereby provides grounds for extrapolation. It implies that positivist dwell on procedure that leads to the generalisation of “facts uninfluenced by human interpretation” (Saunders et al. 2016).

Additionally, Sekeran and Bougie (2016) highlighted that positivists often hold to the dependability of observations, the completeness and repeatability of study activity. Regarding the aforementioned, positivists frequently use big samples and quantitative methods for data analysis. The advocates of positivism depend on the deductive reasoning to state theories that they can interrogate through “fixed, predetermined research design and objective measures” (Sekaran & Bougie, 2016). Saunders et al (2016: 136) advanced that, positivists paradigm anchors studies which are quantitative in form. The assumption behind the positivist paradigm is that “there is an objective truth existing in the world that can be measured and explained scientifically”. The paradigm is ideal in the study because hypotheses were tested through theories of self-determination, stakeholder and social learning.

### **Research Approach**

Three general research approaches—quantitative, qualitative, and mixed methods—have been identified by Neuman (2014), Creswell (2014), and Saunders, Lewis, and Thornhill (2016). The researcher can explore correlations between variables using a quantitative technique, but a qualitative technique deals with specifics of social reality (Ofori & Dampson, 2011). According to Saunders et al. (2016), the type of data utilized in the study may have an impact on how quantitative and qualitative research methodologies differ from one another. While quantitative research employs numerical data, it also makes use of non-numerical data. According to Neuman (2014), data

collection and analysis method may also be utilized to distinguish between the two techniques.

For instance, although questionnaires are frequently used by researchers in quantitative research methods for data collection and analysis, researchers in qualitative research methods employ interviews for data collection and qualitative analysis. In the views of Sekaran and Bougie (2016) as well as Saunders et al. (2016) the third strategy, known as the mixed method, is just a mixture of the first two ways. The authors went on to say that although the quantitative research approach allows for the generalization of sample results to the general population, the qualitative research method does not allow such generalization.

The current study employs the quantitative research approach. This is as a result of the type and objective of the study in question. The current study requires that the researcher gather numerical data that will be subjected to a quantitative analysis. The present study also requires that the findings be applied to the entire target population. According to Tashakkori and Teddie (2010), quantitative approaches are frequently thought of as deductive in form since conclusions drawn from testing of statistical hypotheses lead to generalizations about population characteristics. Thus, according to Lincoln, Lynham, and Guba (2011), a quantitative approach to research is focused on the creation of generalizable theories and testable hypotheses that may be used in a variety of contexts. The decision to use a quantitative research technique rather than a qualitative research strategy was made for the reasons mentioned above.

## Research Design

A research design, according to Sekaran and Bougie (2016), is a strategy or manual that details how information relevant to a particular research project should be gathered, assessed, and analyzed. As per Kothari (2004), research designs are focused on rendering judgments on the methods used to collect data, the kinds of techniques and tools used for sampling, and the ways in which the time and financial constraints may be overcome. Research design was divided into three major types by Sekaran, Bougie, Saunders, Lewis, and Thornhill (2016): explanatory, descriptive, and casual/experimental designs. The authors claim that authors, researchers use an explanatory design when there is little to no knowledge regarding how study variables have been addressed by prior researchers. Additionally, researchers use a descriptive design when they seek to explain and comprehend the features of the study variables. Finally, when attempting to understand how one variable affects another, researchers utilize a casual or explanatory design.

In order to explain the patterns of interactions between variables, this study used the explanatory design, which chiefly focuses on an investigation of a scenario or a particular problem (Creswell, 2014). The claim that the data are quantitative and nearly always call for the employment of a statistical test to prove the validity of the correlations was another factor that influenced the choice to approach the study quantitatively.

**Table 1: Research Techniques Employed**

Research Technique	Name
Research philosophy	Positivism
Research approach	Quantitative
Data collection instrument	Questionnaire
Research Design	Explanatory
Population	550
Sample Size	226 (Krejcie & Morgan, 1970)
Sampling Technique	Quota/convenience sampling
Study Area	Accra Metropolis

**Source:** Author's construct, Kalvei (2022)

### Study Area

A study area is the particular location where research is situated or conducted. The study will focus on the downstream oil and gas sector in Ghana, specifically in the Accra metropolitan city. In Ghana, the oil and gas industry comprise three streams or three levels in the value chain, the upstream, midstream and the downstream. However, this study is focused on the downstream sector in the Accra metropolitan city in the greater Accra Region of Ghana. A metropolis is a local government entity or region that has at least 250,000 residents (Local Government Act 936 of 2016). The main function of the downstream is to get refined and processed petroleum products to the final consumer.

The downstream oil and gas sector consist of all the outlets that gets petroleum products to the final consumer immediately after gas have been processed and crude oil refined. These outlets include all the filling stations (motor refilling outlets), the bulk distribution companies and, the liquefied



petroleum gas (LPG) stations or gas filling stations, oil refineries, petrochemical plants and natural gas distribution companies. The body in charge of regulating the downstream oil and gas sector in Ghana is The National Petroleum Authority (NPA) established by an Act of Parliament (NPA Act 2005, ACT 691). As a Regulator, the Authority makes sure that the industry is fair, safe, effective, and lucrative while also making sure that customers get value for their money.

The Petroleum (Exploration and Production) (Health, Safety and Environment) Regulations, 2017 (LI 2258) is the law regulating safety issues in the industry. For economic reasons, the metropolis is where most of the downstream companies operate because of population and hence a source of market. Accra metropolis also as the administrative capital of the country hosts the headquarters of most of these oil marketing companies where their safety issues and regulations emanate. The sector is dealing with flammable products and heavy machinery which calls for serious safety issues at workplace, and hence will require a responsible leadership and highly qualified safety motivated worker to implement safety regulation in accordance with the Health and Safety Manual 2019. It is the above reasons that informed the researcher's choice in falling for the Accra Metropolitan city in Ghana for the study.

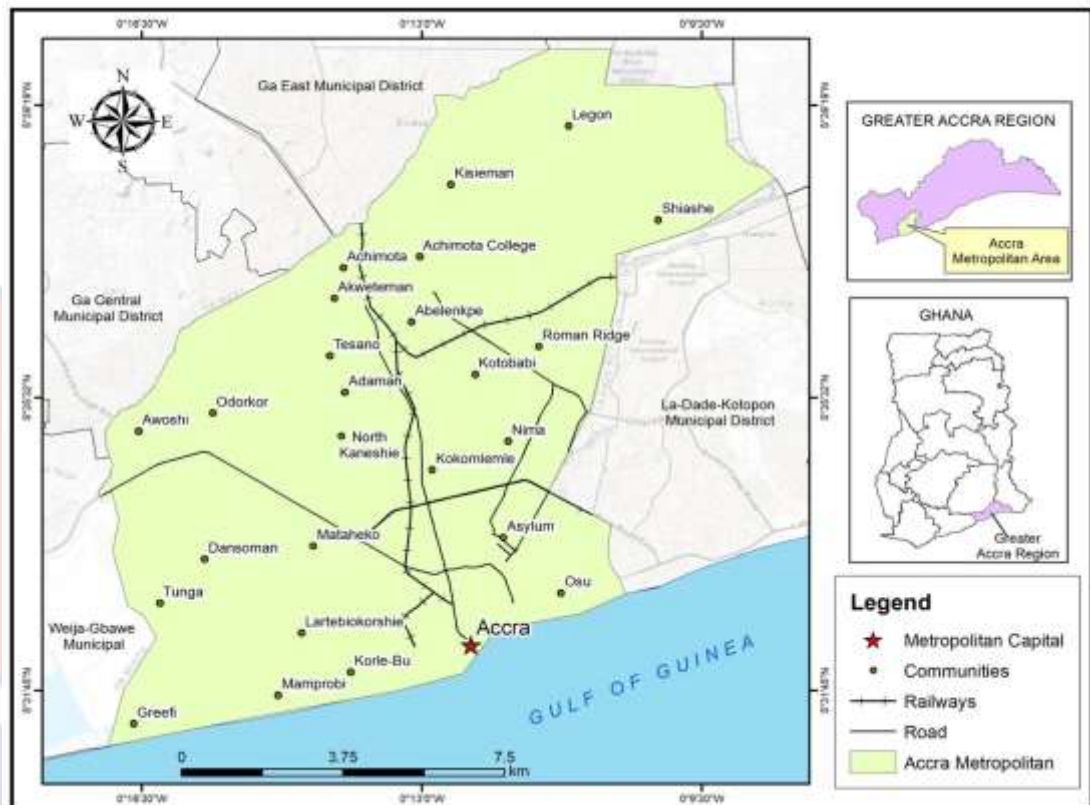


Figure 2: Map showing the Greater Accra Metropolitan City of Ghana.

Source: Authors construct (2022).

The Greater Accra Metropolitan Area (GAMA) is a metropolitan region centred in Ghana's capital Accra. With around five million inhabitants, the metropolitan area is one of the 90 largest agglomerations in the world. The GAMA is largely continuous, but not identical with the Greater Accra Region. The metropolitan region comprises 25 of the total 29 districts within the Greater Accra Region. It borders the Central Region to the west, the Eastern Region to the north, the Shai Osudoku District to the northeast and the Ningo Prampram District to the east.

### Study Population

The population of a study according to Saunders et al., (2020) refers to a group of individuals with similar or the same features over some time. Population is the entire collection of cases that meet a designed set of criteria.

Population is the whole collection of cases that satisfy a set of predetermined criteria (Graneheim & Lundman, 2004). Ngechu (2004) defined population as a group of individuals, events, or objects that are the subject of a research-based examination. The population can be thought of as the target group that the researcher has interest in learning about in order to gather data and draw conclusions (Leedy & Ormrod's, 2010). For this research, the population constituted all employees (pump attendants) in the downstream oil and gas sector of the marketing outlets in the Accra Metropolitan city of Ghana.

The target population comprised the employees (pump attendants) of all filling stations in the Accra Metropolis who have worked for at least one (1) year in the station and have had some knowledge of the organisational culture selected based on their vast significance on workplace safety. The National Petroleum Authority recognises 3500 petrol and gas station across the country. Among these are 2900 petroleum filling stations and 600 Liquefied Petroleum Gas (LPG) dispensing stations. 273 of these petroleum filling stations are in the Accra Metropolis. A census was conducted to ascertain the number of pump attendants in the Metropolis. The census revealed 550 pump attendance in the Metropolis as the total population. With recourse to Krejcie and Morgan (1970) approach to determining sample from a population, a sample of 226 was chosen for the study. The study population comprised of a total of 273 and 550 filling stations and pump attendants respectively as shown in Table 2 and Table 3.

**Table 2: Number of Filling Stations in the Accra Metropolitan City**

Name of Sector	Number of Filling Stations
Government	54
Private	219
<b>Total</b>	<b>273</b>

Source: National Petroleum Authority (2021)

A census was conducted to find out the number of pump attendants in the 273 filling stations in the Accra Metropolis. The census revealed 206 pump attendants in the government owned filling stations (GOIL) as there are 344 pump attendants in the private owned filling stations as shown in table 3.

**Table 3: Number of Pump Attendants in Accra Metropolitan City**

Name of Sector	Number of Pump Attendants
Government	206
Private	344
<b>Total</b>	<b>550</b>

Source: Field Survey (2022)

### Sample selection and Sampling Procedure

A sample is a selection made from a population with a small number of members and representative in nature which is done for research purposes (Oribhabor & Anyanwu, 2019), which will guarantee that we can extrapolate the study sample's findings to the entire population (Mujere, 2016). It is advanced that the notion behind sample survey instead of census by researchers is that a total coverage of the entire population is tiring, time and resource constrain, accessibility and the accuracy in samples (Mujere, 2016; Saunders et al, 2016). It means that sampling aid researchers to conduct studies in a most effective way when large population is in use. Premised on



the Krejcie and Morgan (1970) criteria in sample determination from a population, a sample size of 226 employees at the government and private filling stations took part in this study through convenient participation.

The two main categories of sampling techniques are non-probability sampling techniques and probability sampling techniques (Majure, 2016; Sekaran and Bougie, 2016). In the authors' opinion, probability sampling techniques provide each member of the population a known, non-zero chance of being chosen to be included in the sample, but non-probability sampling techniques do not provide each member of the population with a known chance of being chosen. Furthermore, since probability sampling designs are impartial in the sample selection process and allow for the generalization of study outcomes, they are frequently used in rigorous quantitative investigations. In contrast, non-probability sampling designs are frequently used in qualitative investigations due to the subjectivity involved in the selection of sampling units for a study (Saunders et al, 2016).

In view of the purpose of this study, non-probability sampling design was deemed appropriate and was employed for the study. Quota and convenience sampling was adopted sampling. They were seen appropriate because it gives the researcher the opportunity to obtain a sample population that is best representative of the entire population of pump attendants in the downstream oil and gas sector in the Accra Metropolis of Ghana. Quota sampling was first employed since filling stations were government or private owned. This is to reduce the potential of human bias in the selection of cases (pump attendants) to be included in the sample, in this case pump attendants from the stratum of private and government owned filling stations (Sharma,

2017). Furthermore, convenience sampling technique was employed to get the actual sample for the study. This technique was deemed best because it offered the researcher the opportunity to administer questions to any employee at the downstream sector in the Accra metropolitan city without special interest or consideration after quota sampling since most workers are casual and mostly run shifts. Again, the respondents from the same company in the downstream oil and gas sector have similar characteristics.

**Table 4: Population and sample size**

<b>Name of Sector</b>	<b>Population</b>	<b>Sample Size</b>
Government	206	85
Private	344	141
<b>Total</b>	<b>550</b>	<b>226</b>

**Source:** author's computation (2022)

#### **Data Collection Instrument**

There are specific research tools and methods that must be used while gathering data for a study. An instrument for data gathering denotes a tool that researcher uses to congregate data in social science research (Baydas, Kucuk, Yilmaz, Aydemir & Goktas, 2015). In this study, information on respondents' understanding of responsible leadership, safety motivation, safety culture, safety compliance, ethical leadership, and how these factors impact workplace safety was gathered using a structured questionnaire.. In survey research, a questionnaire is a written document with a list of questions that are provided to research participants or used by an interviewer to query and record the responses (Neuman & Kreuger, 2003). The individual whose information is requested on a questionnaire may respond directly or an interpreter having an interpreter assisting .

Neelankavil (2015) claims that surveys guarantee more uniformity, consistency, and impartiality. Additionally, they ensure better anonymity while providing participants with ease and secrecy throughout completion (Neelankavil, 2015). There are several advantages to employing questionnaires instead of interview methods (Groves et al, 2011). One of these benefits is that questionnaires are less expensive and simpler to conduct than in-person interviews.

Both closed-ended and open-ended questions are included in the questionnaire. Closed-ended questions only allow for specific replies, such as "yes" or "no," or the Likert scale to choose from alternatives given in the questionnaire. The questionnaire was divided into seven sections, numbered A to G. The majority of the questions in Section A were closed-ended. According to Becker and Watts (1999), closed-ended questions provide precise, one-dimensional, exhaustive, and mutually exclusive replies. They also reduce the amount of time needed to complete, code, and analyze surveys (Becker & Watts, 1999). Section A concentrated on respondents demographics characteristics, sex, age, level of education, downstream company, work experience and the number of years each respondent worked with their present boss.

Sections B collected data on responsible leadership in the downstream sector within the Accra Metropolis using Agarwal and Bhal (2020) 20-item responsible leadership scale. Likert-scale questions were used in measuring the variables. Yates (2004) defined a scale as a measurement tool that relates qualitative concepts to quantitative metric units. The most accurate and widely used measure for gauging people's attitudes, views, and beliefs is the Likert

scale (Yates, 2004). They are simple to create and work by simply adding respondents' scores on a variety of items to create a single index. Making sure that high-scoring and low-scoring individuals respond differently to each of the things chosen to be included in the index allows for scaling (Scheuren, 2004).

Section C collected information on respondents safety motivation, which measured the safety motivation using Mariani et al.'s (2015) 14-item scale built on the Self-Determination Theory. The measure is based on two basic features of Safety motivation: intrinsic motivation and extrinsic motivation. Both were measured collectively using the scale. A seven-point Likert scale is used for the answer choice, with 1 denoting 'strongly disagree' and 7 denoting 'strongly agree'. Section D measured safety culture, employing Tomei and Russo (2019) 37-item safety culture measure. The measure is made up of the ten basic features of safety culture: Leadership, feedback, infrastructure, efficiency, communication, work pressure, learning, teamwork, management system and commitment. Section E gathered data on workplace safety using Hayes et al. (1998) 43-item measure seeking information on five basic workplace safety dimensions, that is: job safety, co-worker safety, leadership safety, leadership safety practices and workplace safety program.

### **Control variables**

The study also controlled for the influence of safety compliance (SCO) and ethical leadership (EL) on workplace safety. Studies have shown that they could as well have some influence on workplace safety, hence this study controlled for them.



Any variable that is maintained constant or restricted in a research study is referred to be a control variable. Although it has no effect on the study's precise goals, this variable is nonetheless watched since it might have an impact on the findings. It is possible to directly control a variable by maintaining it constant during a study or indirectly by employing techniques like randomization or statistical control (Bernerth & Aguinis, 2016). The control variables were measured using Vinodkumar and Bhasi (2010) 7-item measure for SCO and Yukl et'al. (2013) 15-item measure validated constructs for EL. Participants were asked to indicate on a seven-point Likert scale, diversifying from '1' indicating 'strongly disagree' to '7' denoting 'strongly agree' (see Appendix A).

### **Pre-Testing`**

In the views of Pallant (2016) and Saunders & Townsend (2016) pre-tests are necessary before the real survey is conducted for the following reasons. First of all, they make sure that the scale items, directions, and questions are clear. They also aid potential responders in comprehending the questions and giving appropriate answers. The last thing they do is assist researchers in eliminating any queries that would offend potential responders. In this regard, a pre-test was conducted by the researcher on ten (10) employees in the Cape Coast Metropolis following the supervisor's clearance of the questionnaire. The pre-test location was selected due to its proximity to the researcher. Given that it meets the minimal requirement of 10 for student pilot studies set out by Saunders & Townsend (2016), this sample size was judged adequate. Results from the pre-testing indicated that the participants

understood the guidelines and the items on the scale. As a result every scale component was kept.

### **Reliability and Validity**

Reliability was also ascertained in the pre-test. Because reliability evidence is unavoidably the first step in determining the scientific validity and use of a measurement since dependability is of utmost importance. According to Bornstein (2018) reliability is concerned with stability or consistency of a measurement. If no other unrelated variables alter the score, a instrument with high reliability guarantees that the same result will be obtained upon repeat administration. For an instrument to be reliable, it must be consistent or dependable (Neuman & Kreuger, 2003; Creswell, 2014). It makes notice of the propensity for a certain measuring method to consistently produce the same description of a particular phenomena. The goal of reliability is to minimize the chance of errors as well as biases and improve measure dependability with acknowledgment that a perfectly reliable measure is rarely achievable in a study (Bornstein, 2018). Based on this grounding, Cronbach's Alpha coefficient, as shown in Table 5, was obtained from pre-test data to confirm the internal consistency of the study constructs. It is espoused in previous studies that reliable scales are those with 0.70 Cronbach's Alpha coefficient or beyond (Pallant, 2016). Premised on this threshold, it can be reasoned that all the study's constructs have good internal consistency.

**Table 5: Computed Reliability Coefficient for the Pre-Test Data Collected Variable**

Variable	No. of items	Cronbach Alpha
Responsible Leadership	20	.942
Safety Motivation	14	.944
Safety culture	36	.933
Workplace Safety	43	.932

Source: Filed Data, Kalvei (2022)

More so, validity of an instrument also, refers to the extent to which an instrument accurately measures what it intends or supposed to measure (Sürücü, & MASLAKÇI, 2020). They also claimed that in order for an instrument to be valid, it must first be dependable, which implies that it must be consistently reproducible. Once this has been accomplished, the instrument may then be examined to determine whether it is what it claims to be. As advised by Bryman (2016), the researcher studied pertinent literature to find out how earlier researchers measured the study's constructs in order to assure the validity of the questionnaires. In addition, the responsible leadership, Safety motivation and Safety culture were also regressed on workplace safety (through partial least squares structural equation modelling) to ascertain if there were any significant relationships among them to determine criterion validity of the instrument (Ofori & Dampson, 2011). Lastly, via evaluation of the measurement model as outlined in the fourth chapter, construct validity—which denotes the strength of association between related measures (Babbie, 2011)—was also assessed.

## Data Collection Procedures

This study made use of primary data. Primary data are new, original data sources that are obtained for the first time and are therefore original in nature. The survey approach was used to gather the main data. This involves giving out surveys and gathering information from responders. Closed-ended questionnaires with a well-defined framework were utilized to collect data for the study's objectives.. The researcher began the process with face-to-face contact with managers of the filling stations and those at headquarters in the Accra Metropolis with an official introductory letter from the Institute for Oil and Gas Studies to seek permission and to verify the oil marketing companies' willingness to participate in the research. Out of the 273 recognised oil marketing outlets in the Accra metropolis, 103 participated in this study. The employees (participants) who were identified as pump attendance were contacted through the filling stations managers. The researcher distributed the surveys among the employees. This empirical research was undertaken each day from 1<sup>st</sup> May 2022 to 30<sup>th</sup> June 2022. Employees were readily available because, their product is in persistent demand and must be provided at all time.

The researcher and a trained colleague of his distributed the questionnaires to the respondents. The preferred time for collecting the completed surveys was agreed upon both the researcher and the respondents. The schedule agreed upon was precisely followed and this resulted to the successful completion of data collection. Despite the fact that a total number of 226 respondents were earmarked to take part randomly in the study, 213 of them indeed participated resulting in a response rate of 94.2 percent. The 5.8



percent who did not respond was as a result of incomplete record, and the incapability of the researcher to show up for them due to cost constraints. Regardless, the rate has been approved by scholars such as Mugenda and Mugenda (2003) to be excellent for analysis in social science research.

Regardless the major challenge that is, locating some of the filling stations and halting the pump attendance to talk with them, another problem was in collecting the data, such as finding a convenient time to collect the data simultaneously from participants. Follow-up calls were placed to the filling managers to send reminders to participants to fill in the survey. After 31<sup>st</sup> June, those who did not fill the questionnaire were excluded from the research. Surveys from participants who completed surveys were collected later by the researcher.

#### **Data Processing and Analysis**

The WarpPLS (version 7.0) and IBM SPSS (version 26) softwares were used as the study's statistical tools. The study's objectives were addressed using inferential statistics (i.e; regression analysis and T-test) and partial least squares structural equation modeling (PLS-SEM). The efficiency of the tools in investigating the correlations between the variables established in this study guided the selection of the instruments. In particular, the seven objectives were examined using inferential statistics using PLS, whereas percentages were employed to report on the demographic variables. The researcher used SPSS software to assist with data coding, input, cleaning, and inspection for outliers in the data to ensure there were no missing values.

The survey items were coded by giving each item of the constructs in the SPSS file a distinct set of codes. For responsible leadership (RL), the 20-

items were noted as RLQ1, RLQ2, RLQ3, ..., RLQ20; the 14-items of the safety motivation (SM) constructs were named uniquely as SM1, SM2, SM3, ..., SM14, while those of safety culture (SC) of about 36-items comprising other sub-constructs were uniquely labelled as SC1, SC2, SC3, ..., SC36, and for workplace safety which equally have sub-constructs indications such as WpS1, WpS2, WpS3, ..., WpS36. The control variables measures were equally coded uniquely. Safety compliance have codes like SC1, SC2, SC3 ... SC7 and that of ethical leadership have codes such as EL1, EL2, EL3 ... EL15. Following these checks, the SPSS document was saved as a "comma delimited" document so that the SMARTPLS application could accept it and create the data that were essential to address the study's seven objectives.

### **Partial Least Square-Structural Equation Modelling (PLS-SEM)**

Partial Least Square Structural Equation Modelling (PLS-SEM) technique using WarpPLS version 7.0 (Kock, 2020) was employed to test the hypotheses. PLS-SEM is a second-generation statistical technique that "enables researchers to incorporate unobservable variables measured indirectly by indicator variables. It is made of a family of statistical techniques that has become very popular in business and social sciences due to its ability to model latent variables, to take into account various forms of measurement error, and to test entire theories which are useful for a excessive amount of research questions (Henseler, Hubona & Ray, 2016). PLS-SEM uses available data to estimate the nexuses of the path in the model to minimize the residual variance of the endogenous constructs. PLS path models are formally defined by two sets of linear equations: the measurement model (also called outer model) and the structural model (also called inner model). According to

Henseler et al. (2016) and Hair, Risher, Sarstedt and Ringle (2019), whereas, the measurement model specifies the relations between a construct and its observed indicators (also called manifest variables), the structural model specifies the relationships between the study's constructs.

Hair, Hult, Ringle and Sarstedt (2017) postulated that the first step in evaluating PLS-SEM results involves examining the measurement models and if the measurement models meet all the required criteria, researchers then need to assess the structural model. As with most statistical methods, PLS-SEM has rules of thumb that serve as guidelines to evaluate model results (Roldà & Sánchez-Franco, 2012; Hair et al., 2017). Rules of thumb by their very nature are broad guidelines that suggest how to interpret the results, and they typically vary depending on the context.

### **Measurement Model Assessment**

The first step in reflective measurement model assessment involves examining the indicator loadings. Loadings above 0.78 are recommended, as they indicate that the construct explains more than 50 percent of the indicator's variance, thus providing acceptable item reliability. Thus, indicators with loadings below the 0.48 threshold were deleted in the model unless retaining those indicators did not affect the overall reliability of the constructs.

The second step is assessing internal consistency reliability, most often using Jöreskog's (1971) composite reliability. Higher values generally indicate higher levels of reliability. For example, reliability values between 0.60 and 0.70 are considered "acceptable in exploratory research," values between 0.70 and 0.90 range from "satisfactory to good" (Hair et al., 2017, p. 112).

Cronbach's alpha is another measure of internal consistency reliability that assumes similar thresholds, but produces lower values than composite reliability (Diamantopoulos, Sarstedt, Fuchs, Wilczynski & Kaise, 2012; Sarstedt, Ringle & Hair, 2021). Specifically, Cronbach's alpha is a less precise measure of reliability, as the items are unweighted. In contrast, with composite reliability, the items are weighted based on the construct indicators' individual loadings and, hence, this reliability is higher than Cronbach's alpha. While Cronbach's alpha may be too conservative, the composite reliability may be too liberal, and the construct's true reliability is typically viewed as within these two extreme values (Hair et al., 2017). As an alternative, Dijkstra and Henseler (2015) proposed  $\rho_A$  as an approximately exact measure of construct reliability, which usually lies between Cronbach's alpha and the composite reliability. Hence,  $\rho_A$  may represent a good compromise if one assumes that the factor model is correct. In this study, the researcher relied on values of all the measures of internal consistency because they all met the satisfactory criteria of 0.70.

The third step of the reflective measurement model assessment addresses the convergent validity of each construct measure. Convergent validity is the extent to which the construct converges to explain the variance of its items (Hair et al., 2019). The metric used for evaluating a construct's convergent validity is the average variance extracted (AVE) for all items on each construct. To calculate the AVE, one has to square the loading of each indicator on a construct and compute the mean value. An acceptable AVE is 0.50 or higher indicating that the construct explains at least 50 percent of the variance of its items (Henseler et al., 2016).



The fourth step is to assess discriminant validity, which is the extent to which a construct is empirically different or distinct from other constructs in the structural model. Fornell and Larcker (1981) proposed the traditional metric and suggested that each construct's AVE should be compared to the squared inter-construct correlation (as a measure of shared variance) of that same construct and all other reflectively measured constructs in the structural model. The shared variance for all model constructs should not be large than their AVEs. However, recent research indicates that this metric is not suitable for discriminant validity assessment, thus, Henseler et al. (2015) show that the Fornell-Larcker criterion does not perform well, particularly when the indicator loadings on a construct differ only slightly (eg., all the indicator loadings are between 0.65 and 0.85). As a replacement, Henseler et al. (2015) proposed the heterotrait-monotrait (HTMT) ratio of the correlations. The HTMT is defined as the mean value of the item correlations across construct relative to the (geometric) mean of the average correlations for the items measuring the same construct. Discriminant validity problems are present when HTMT values are high and as rule of thumb value of HTMT ratio less than 0.85 connotes nonexistence of discriminant validity problems (Henseler et al., 2015).

### **Structural Equation Model**

A significant level of 5% or less or a t- statistic of 1.96 or higher is appropriate for a structural model. The hypotheses were tested using WarpPLS Version 7.0 (Kock, 2017) and the partial least squares structural equation modelling (SEM) approach. Because PLS-SEM is a latent variable-based multivariate statistical method that enables a concurrent estimate of

measurement and structural models under nonparametric assumptions, it was chosen (Kock, 2017; Moqbel, Nevo & Kock, 2013). Covariance-based SEM is a multivariate analytic methodology that is similar to variation-based SEM but varies from it in that it is built on methods like resampling that do not need the fulfilment in assumptions (Kock, 2017; Moqbel, Nevo & Kock, 2013). As a result, variance-based SEM is better suited when the criteria of multivariate normality are not satisfied in a data set, which is the situation in this study (Chin, 1998; Kock, 2017).

### **Mediation Procedure in PLS-SEM**

Mediation considers the presence of an intermediate variable or mechanism that transmit the effect of an antecedent variable to an outcome (Aguinis, Edward & Bradley, 2016; Carrión, Nitzl & Roldàn, 2017). Thus, mediation model seeks to identify and explain the process that triggers and observed nexus between an independent and dependent variable. “Mediator variables absorb part of the relationship between an exogenous and an endogenous construct in the” Partial least squares path model. The mediation effect tested for in this study is based on the procedure developed by Nitzl et al. (2016) to test mediation effects on PSL-SEM. The mediation analyses begin with testing the indirect effect (through the mediator) to assess the significance. Nitzl et al (2016) propose that it is not necessary to conduct separate tests for direct and indirect paths by applying PLS-SEM. A significant indirect effect is the only prerequisite for establishing a mediation effect. The significance of the direct effect determines the type of effect and or mediation. Hair et al. (2017) and Ramayah, Cheah, Chuah, Ting and Memon (2018) emphasized two different types of mediation, full and partial

mediation. Partial mediation can be subdivided into complementary and competitive partial mediation.

Carrión et al. (2017) posited that a full mediation occurs when a direct effect is not significant, whereas the indirect effect is significant. Indicating that effect of the exogenous variable on the endogenous variable is completely transmitted with the help of the mediating variable. In a complementary partial mediation, the direct effect and indirect effect point in the same (positive or negative) direction (Baron & Kenny, 1986). In a competitive partial mediation, the direct effect and indirect effect point in a different direction (Zhao, Lynch & Chen, 2010). There is no mediation when the indirect effect is not significant. Additionally, Hair et al. (2017) argued that researchers may rely on the value of the Variance Accounted For (VAF, i.e. calculated as;  $\text{total indirect effect} / \text{total effect} * 100$ ) to interpret the types of mediation. The rule of thumb is, if the VAF is less than 20 percent, one should conclude that nearly zero mediation or no mediation occurs. A situation in which the VAF is large than 20 percent and less than 80 percent could be characterized as a typical partial mediation and a VAF above 80 percent indicates a full mediation (Hair et al., 2017). The researcher for the analysis of mediation in this study followed the aforementioned procedure for mediation analysis.

### **Scale Validity and Reliability**

A confirmatory factor analysis (CFA) with WarpPLS version 6.0 was ran to ascertain the validity and reliability of the items used to measure the constructs of the study. Tests were carried out to check for: (1) convergent validity, (2) reliability, and (3) discriminant validity. The results of the CFA,

Cronbach's alpha ( $\alpha$ ), composite reliability (CR), and the average variance extracted (AVE) are presented in Table 6.

### **Convergent Validity and Reliability**

In accordance with Bagozzi and Yi (1988), three essential measures of internal consistency were examined: Cronbach's alpha, composite reliability and average variance extracted. According to the findings in Table 6, all composite reliability coefficients and Cronbach's alpha coefficients are higher than 0.7 except, few which did not have effect on the outcome of findings making the results fit (Nunnally, 1978). The average full collinearity VIF (AFVIF), which is 3.063 and the variance inflation factors (VIFs), all of which are less than 3, show that, collinearity is not a problem in the models under test.

According to Kock (2011) and Kock (2015), average  $R^2$  (ARS) and average path coefficient are two fit indices that have significance in the context of variance-based SEM (APC). Their results indicate strong agreement with the data, which show statistically significant APC and ARS as well as minimal overall collinearity  $AVIF < 5$ . Table 6 displays the loadings and cross-loadings produced by the CFA for the latent variables utilized in this investigation. The findings show that the items had strong loadings (more than 0.5) on their respective constructs and were significant at the  $p < 0.001$  level, indicating that the instrument's convergent validity and reliability are satisfactory (Hair, Black, Balin & Anderson, 2010).



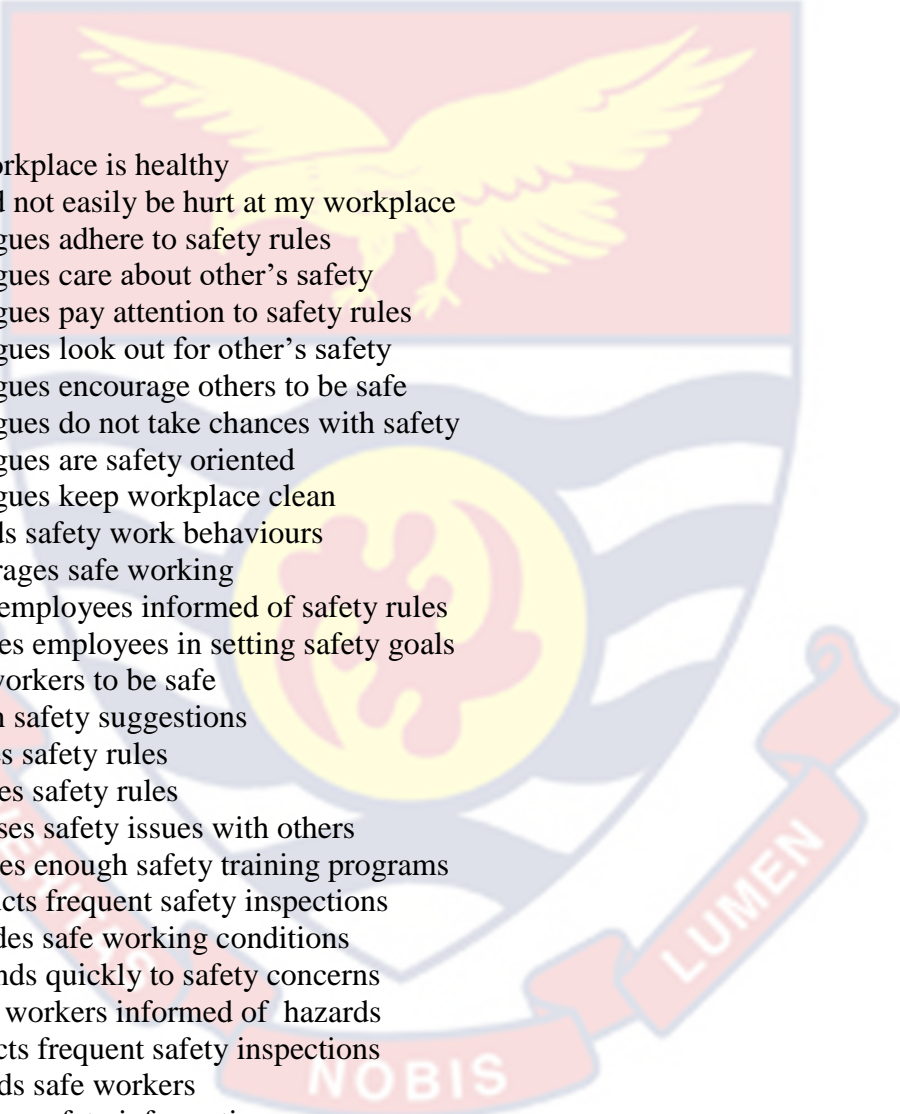
**Table 6: Scale validity and reliability**

Variable	Items	Loadings
Responsible Leadership $\alpha=0.89$ ; CR=0.90; AVE=0.61	makes fair and balanced decisions	0.46
	takes ownership for own actions	0.94
	when making decisions, asks “what is the right thing to do?”	0.92
	shows consistency in words and action	0.90
	does not blame others for own mistakes	0.98
	has subordinates’ best interests in mind	0.86
	explains what comprises of ethical and unethical behaviours	0.95
	disciplines followers who violate organization’s ethical standards	0.88
	sets an example of achieving results ethically	0.96
	defines success not by results but the way they are obtained	0.95
	listens to what subordinates have to say	0.54
	considers stakeholder well-being as important business outcome	0.93
	tries to assess impact on stakeholders before making business decisions	0.61
	makes sure that stakeholders are treated with dignity and respect by all subordinates	0.70
	ensures that stakeholders receive relevant, correct, and timely information	0.58
	promotes personal connections with stakeholders for better business development	0.89
	shows concern for availability or conservation of resources when planning for future business demands	0.79
	links present business tasks with long term organizational goals	0.84
	communicates a vision of long-term growth for the organization	0.92
Safety motivation $\alpha=0.86$ ; CR=0.88; AVE= 0.55	encourages business activities beneficial for team/organization in long term	0.72
	in other to get approval from leadership	0.87
	in other to avoid been criticized by leadership and colleagues because I risk loosing my job	0.88 0.85

	in other to get a reward	0.65
	because I take pride in working safely	0.64
	because otherwise I will feel guilty	0.86
	because I feel bad about myself when I don't work safely	0.92
	because I feel good about myself when I work safely	0.82
	because I personally value safety	0.93
	because putting effort in to working safely is important to me	0.67
	because I have fun while working safely	0.74
	because it makes me happy	0.65
	because safety interest me	0.87
	because I enjoy working safely	0.87
	in the operating zones, leaders are frequently seen.	0.57
	leaders are considered role models.	0.64
	when leaders become aware of insecure practices, they promptly take remedial action	0.89
	leaders acknowledge and honor accomplishments in work safety (WS)	0.88
	leaders consider WS a priority	0.89
	employee ideas to enhance WS are taken into account by managers	0.90
	when workplace accidents occur, supervisors provide feedback to individuals involved	0.67
	good suggestions for improvement WS are implemented.	0.65
	employee comments for bettering WS procedures are welcomed by managers	0.67
	to complement the task, personal protective equipment (PPE) are always available.	0.63
		0.68
	before they begin working together, collaborators are aware of the PPE's purpose	0.83
	the usage of PPE is strictly regulated	0.90
	at least every two years, workers get WS training	0.78
	employees know the safety indicators	0.97

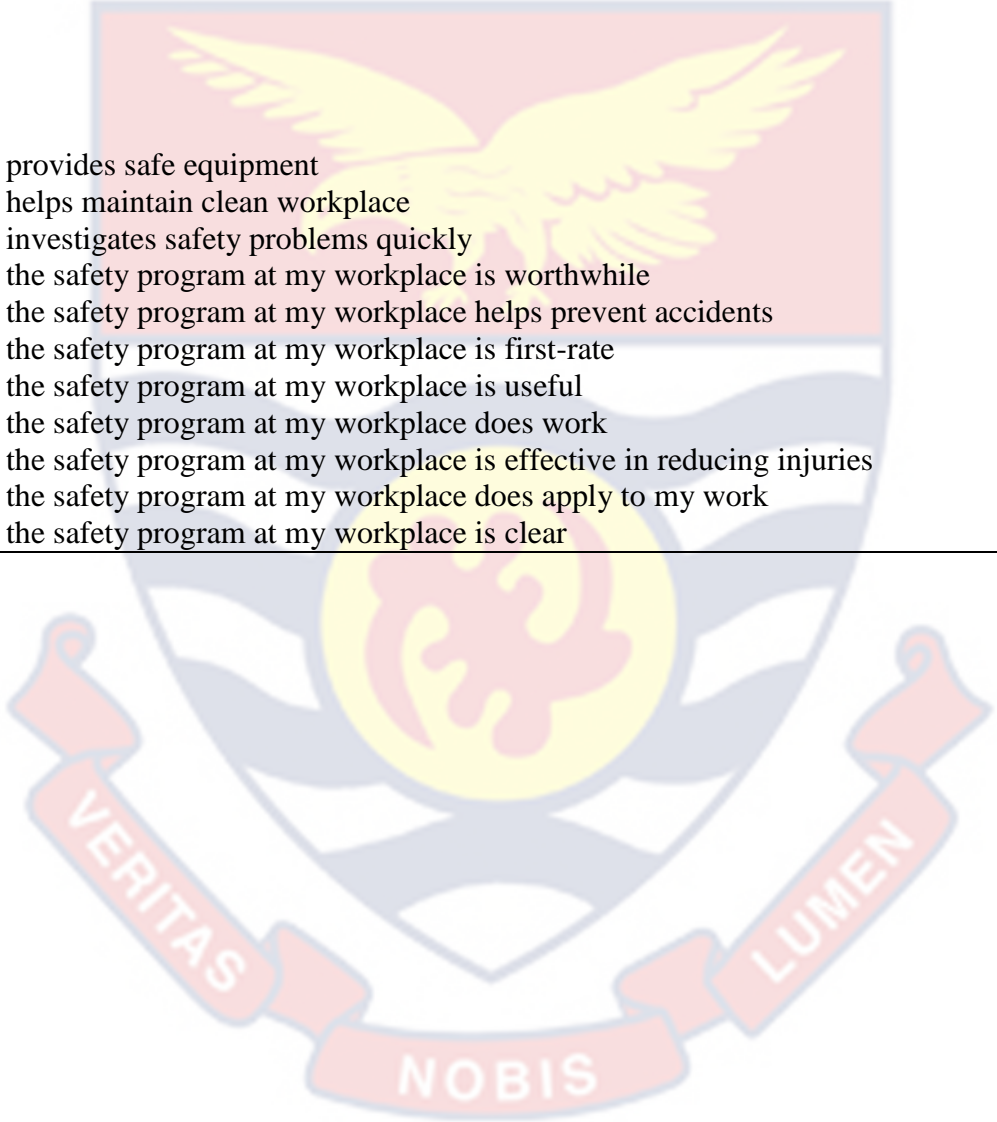
Safety Culture  
 $\alpha=0.92$ ;  $CR=0.93$ ;  $AVE=0.58$

	indicators are sufficient to locate and quantify WS nonconformities	0.92
	the objectives and monthly WS indicator results are known to the employees	0.67
	When managers see actions that hurt WS, they provide guidance	0.80
	there is information accessible about WS regulations and practices	0.86
	employees are kept informed on WS policies, practices, and guidelines by managers	0.85
	the managers communicate to the collaborators the WS goals and indicators	0.90
	there is internal communication about WS everywhere (posters, banners, internet, etc.)	0.94
	the Daily Safety Dialogues are used for WS communication (DDS)	0.85
	the number of staff is sufficient to complete tasks using WS	0.93
	rules and procedures of the WS are unaffected by the productivity charge	0.88
	the practices of the workers towards WS are unaffected by results-based pressure	0.78
	Instead of focusing on the guilty, accident investigations are used to find weaknesses in WS systems	0.85
	the causes of accident occurrences are utilized to learn about and enhance WS systems	0.67
	information on the causes of workplace accidents is provided to the employees	0.71
	Employees are urged by managers to assist coworkers to prevent workplace accidents	0.81
	The management take action to address issues that might endanger WS	0.86
	Employees assist colleagues in avoiding work-related accidents	0.84
	Employees are alert to the safety of colleagues and interfere whenever necessary.	0.60
	if workers feel that their WS may be harmed, they have the option to stop working.	0.68
	when workers disregard the WS, managers take disciplinary action	0.69
	managers are aware of work that adheres to WS standards when they see it	0.63
	there are no chances of death at my workplace	0.66
	my workplace is not dangerous	0.98
	my job is not hazardous	0.93
	my workplace is safe	0.76
	my job at workplace is not scary	0.89
Workplace Safety		
$\alpha= 0.94$ ; CR=0.95; AVE=0.60		



my workplace is healthy	0.64
I could not easily be hurt at my workplace	0.91
colleagues adhere to safety rules	0.66
colleagues care about other's safety	0.70
colleagues pay attention to safety rules	0.53
colleagues look out for other's safety	0.66
colleagues encourage others to be safe	0.68
colleagues do not take chances with safety	0.94
colleagues are safety oriented	0.62
colleagues keep workplace clean	0.72
rewards safety work behaviours	0.75
encourages safe working	0.78
keeps employees informed of safety rules	0.82
involves employees in setting safety goals	0.77
train workers to be safe	0.80
acts on safety suggestions	0.93
updates safety rules	0.75
enforces safety rules	0.81
discusses safety issues with others	0.83
provides enough safety training programs	0.85
conducts frequent safety inspections	0.91
provides safe working conditions	0.92
responds quickly to safety concerns	0.80
keeps workers informed of hazards	0.96
conducts frequent safety inspections	0.98
rewards safe workers	0.66
provides safety information	0.84





provides safe equipment	0.76
helps maintain clean workplace	0.89
investigates safety problems quickly	0.95
the safety program at my workplace is worthwhile	0.87
the safety program at my workplace helps prevent accidents	0.83
the safety program at my workplace is first-rate	0.81
the safety program at my workplace is useful	0.73
the safety program at my workplace does work	0.68
the safety program at my workplace is effective in reducing injuries	0.69
the safety program at my workplace does apply to my work	0.75
the safety program at my workplace is clear	0.66

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Source: Field data, Kalvei (2022)

## Ethical Issues

According to Brei and Bohm (2011), ethics is mostly associated with morality and deals with issues of right and wrong among groups, society or communities. It is therefore important that everyone who is engaged in research should be aware of the ethical concerns (Rubin & Babbie, 2016). The researcher employed every effort as far as possible to avoid transgression of ethical principles. Edginton et al. (2012) have identified the basic ethical consideration for research as; respondents being fully informed about the aims, methods and benefits of the research, granting voluntary consent and maintaining the right of withdrawal. Babbie and Mouton (2012) assert that by ethical guidelines, researchers must avoid subjecting respondents to circumstances that might put them at risk of injury as a result of their involvement. Kara (2015) stressed the need of ensuring that the design of the research is both methodologically sound and ethically justifiable to all parties involved.

In line with this claim, the rationale for the study, assurance of confidentiality and the right of withdrawal was explained to the participants. To be sure of this, the researcher first sorted clearance from The University of Cape Coast Ethical Review Board, ID (UCCIRB/CHLS/2022/65) and Also, a letter of introduction clarifying the intent and authenticity of the study was sought from the Institute for Oil and Gas Studies (see Appendix B) to establish authority. This letter was introduced to the respondents who want to establish the authenticity of the study. Managers and respondents at the filling stations received assurances from the researcher that the study was conducted only for

academic purposes and that it partially satisfied the requirements for the Master of Philosophy Oil and Gas Resource Management degree.

Respondents were reminded of their responsibility for giving useful information as well as the intended use of the material by the researcher. The researcher guaranteed the respondents' privacy, anonymity, and secrecy, and their participation was voluntary. The questionnaire's content did not need personal identification to guarantee anonymity, secrecy, and privacy. The study's results were then processed impartially and published as such in the final report, with no individual replies from the researcher made.

### **Chapter Summary**

This chapter explains how the study's primary data was gathered, arranged, analyzed, and presented in an understandable manner. This chapter also included information on the study's design and scientific approach to data demands, statistical tools, and methodical research into the investigation under discussion as well as the WarpPLS-SEM results.

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

#### Introduction

Considering the purpose of the study, which examines the influence of responsible leadership on workplace safety in the downstream oil and gas sector in Ghana through the mediating role of safety motivation and safety culture, this chapter, was configured into three sections. It commenced with the background characteristics of the respondents in the Accra metropolitan city, followed by evaluation of the measurement and structural models of WarpPLS-SEM results which were generated to treat the objectives which underpinned the study. The last part discussed findings of the objectives.

#### Background Characteristics of Respondents

The study focused on some information relevant about the respondents to aid comprehension of the nature and characteristics of the respondents who took part in the survey. These characteristics of the respondents illustrated in Table 7 reflects the gender of respondents, age, educational level, sector of work, number of years working with the company and how long pump attendants worked under current boss.



**Table: 7 Socio-demographic characteristics of pump attendants**

Socio-demographic characteristics	Option	Frequency	Percentage (%)
Gender	Male	111	52.1
	Female	102	47.8
Age	21-30 years	162	75.6
	31-40 years	49	23.5
	41-50 years	2	0.9
	51-60years	0	0
	Above 60 years	0	0
Educational Level	postgraduate	8	3.8
	First degree	5	2.3
	HND	24	11.3
	SHS	77	36.2
	Professional certificate	40	18.8
	Others	59	27.7
Sector	Government	76	35.7
	Private	137	64.3
Number of years working within the company	1-5 years	162	76.1
	6-10years	49	23
	11-15 years	2	0.9
	16 years and above	0	0
Number of years working with current boss		<b>Mean</b>	<b>Standard deviation</b>
		1.25	0.46

Source: Field Data (2022)

From Table 7, it is revealing that varied socio-demographic characteristics of pump attendants existed in the Accra metropolitan city. Gender disparity revealed 52.1% males and 47.8% females showing a male dominant sector probably because of the volatility of the petroleum products that they deal with; however one cannot dispute the fact that the females are equally risk takers looking at the percentage. Also, as seen in Table 7, 75.6%

of the respondents fall within the age range of 21-30years and 23.5% fall within the range of 31-40years while, 0.9% fall within 41-50years, demonstrating a young labour force, that will give oil marketing firms competitive advantage because they will exhibit exuberance and also will be agile in case of safety emergency. Also shown in table 7 is the age bracket with the least number of pump attendants, which is 41-50years which recorded 0.9% demonstrating the industry's distaste for personnel of higher age to be pump attendants.

The table equally show the highest level of education of pump attendants who took part in the survey revealing that most are people who have Senior High School education represented by 36.2%, followed by those who have other certificates such as safety training certificates and certificates in marketing represented by 27.7%, then, 18.8, 11.3%, 3.8% and 2.3%, for professional certificate, Highest National Diploma, postgraduate and first-degree holders respectively. It is also revealing from the table that the oil sector is dominated by private players which accounted for 64.3% of pump attendants and 35.7% represented the government sector. This implies that the government may not be able to pool much weight in controlling aspects of the sector, such as, price determination and supply quota, except for legislative regulations. The table also accounted for how long the pump attendants have been working for their sectors and it revealed that most fall within the period range of 1-5years which accounted for 76.1% demonstrating that the pump attendants are not permanent staff because most of these companies are older than five (5) years. It was followed by those who worked in their sector for about 6-10 years which was represented 23% and lastly 11-15years

represented with 0.9%. The last item illustrated in the table was to find out how long the pump attendants have been with their current boss to ascertain how well they could know them. Mean and standard deviation was employed since the actual number of years were the data collected from respondents. The table showed that 1.21 was the average number of years each pump attendant served under their current boss (SD=0.46).

### Results

Table 8 and Figure 2, as shown below presented the results of path coefficients, p-values and the relationship among the study variable. The results revealed that there was a positive and significant relationship between responsible leadership and workplace safety ( $\beta = 0.30$ ,  $p < 0.01$ ), providing justification for H<sub>1</sub>. It implies that leaders can employ their responsible ability to motivate pump attendance to promote safety at the workplace. The relationship between responsible leadership and safety motivation was positive and significant ( $\beta = 0.76$ ,  $p < 0.01$ ), thereby supported H<sub>2</sub>. This agrees with previous studies (eg. Chikono, 2017; Peterson, 2005, Jebb, 2015) that responsible leadership promotes safety motivation through safety participation, safety training, and representation that will make employees feel belonged, autonomous and competent that in the long run will instigate and foster employee volition to safety in the workplace.

Again, from Table 8 and Figure 2, it is evident that safety motivation did not influence workplace safety ( $\beta = 0.06$ ,  $p > 0.17$ ). Thus, H<sub>3</sub> was not validated. This means that safety motivation does not automatically influence employee's attitude towards safety at the workplace though responsible leadership influenced both workplace safety and safety motivation. It rather

allows leadership to use their social interactional ability to drive positive attitude towards safety at the workplace. The results demonstrate that safety motivation did mediate the relationship between responsible leadership and workplace safety as a mediating variable since the results were positive and moderately significant as well ( $\beta = 0.05$ ,  $p = 0.01$ ), hence  $H_4$  was supported. The results indicate that safety motivation among leaders and pump attendants does influence employee's attitude towards safety at the workplace. The results also revealed that, responsible leadership has a statistical positive and significant relationship with safety culture ( $\beta = 0.63$ ,  $p < 0.01$ ), which confirmed  $H_5$ . This supports literature that responsible leadership has a critical role in improving organizational safety culture through safety policies backed by actions and decisions that reflect commitment, which will eventually result to safety in the workplace.

The results equally show that there is a positive and significant relationship between safety culture and workplace safety ( $\beta = 0.28$ ,  $p > 0.01$ ), this confirmed  $H_6$ . This resonates with earlier studies that, the use of authority by leadership to outline the safety norms and regulations that serve as the organisation's safety culture that informs what personnel must follow in order to accomplish safe performance at the workplace is vital and must be consistent and on a regular basis. Finally, safety culture as a mediating variable between relationship between responsible leadership and workplace safety showed a positive and significant impact ( $\beta = 0.28$ ,  $p > 0.01$ ), hence  $H_7$  was supported. This means that responsible leaders could leverage on incorporating into the organizations safety policy a vibrant safety culture that is capable of influencing employee's safety attitude at the workplace.



**Table 8: Summary of results**

Variables	Co-efficient	P-values
<i>Control variable</i>		
Safety compliance	0.12	0.033
Ethical leadership	0.22	0.001***
<i>Direct effect</i>		
Responsible leadership (RL) → Workplace Safety (WpS)	0.30	0.001***
Responsible leadership (RL) → Safety Motivation (SM)	0.76	0.001***
Safety motivation (SM) → Workplace Safety (WpS)	0.06	0.171
Responsible leadership (RL) → Safety Culture (SC)	0.78	0.001***
Safety culture (SC) → Workplace Safety (WpS)	0.28	0.001***
<i>Mediating effect</i>		
Responsible leadership → Safety motivation → Workplace safety	0.04	0.008***
Responsible Leadership → Safety Culture → Workplace Safety	0.22	0.001***

\*Significance at 0.10, \*\*significance at 0.05, \*\*\*significance at 0.01.

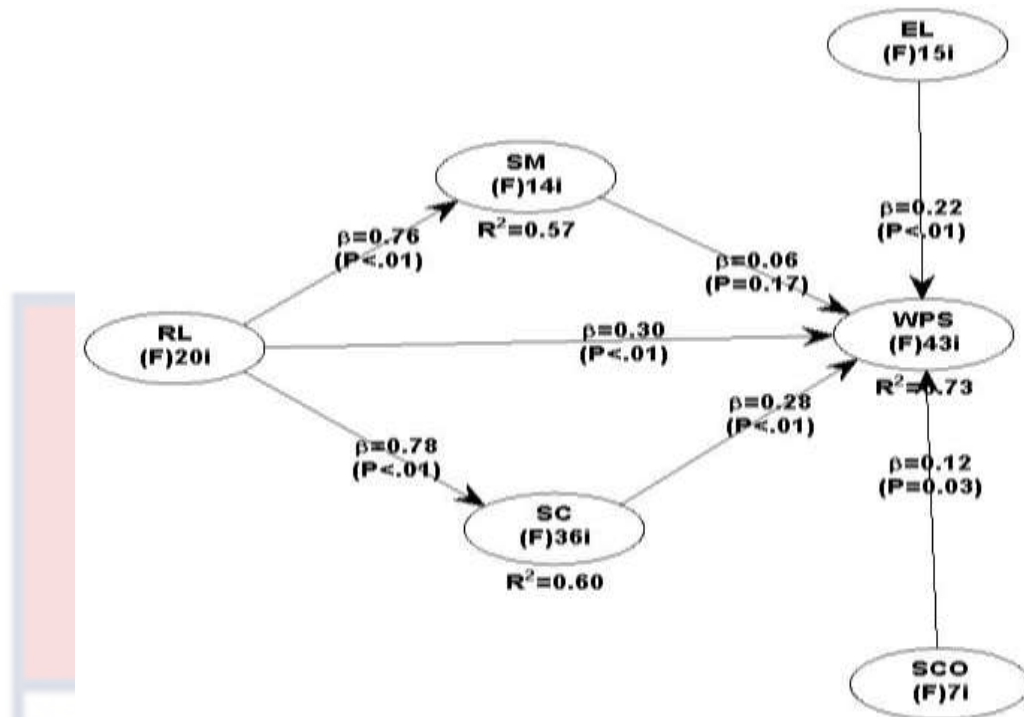


Figure 3: Mediating effects of safety motivation and safety culture on the impact of responsible leadership on workplace safety.

Source: Author's Construct (2022).

### Discussion

This study was motivated by the projection that responsible leadership could influence workplace safety, safety motivation and safety culture. Also, safety motivation and safety culture could mediate the relationship between responsible leadership and workplace safety. Hence, it was hypothesised that responsible leadership has a significant positive relationship with workplace safety, and also has a significant positive relationship with safety motivation as well as safety culture. Similarly, it was hypothesised that safety motivation has a significant positive relationship with workplace safety and safety culture has a significant positive relationship with workplace safety. Also, it was hypothesised that safety motivation and safety culture could mediate the nexus between responsible leadership and workplace safety.

### **Assess the Influence of Responsible Leadership on Workplace Safety**

Objective one of the study sought to assess the influence of responsible leadership on workplace safety in the downstream oil and gas sector in Ghana. The results of the findings revealed that there is a relationship between responsible leadership and workplace safety based on the co-efficient and P-value results ( $\beta=0.30$ ,  $p=0.001$ ), which show significance. It implies that responsible leadership accounted for 30 per cent of the change in workplace safety. This resonates with previous studies and their revealing findings that gave backing to the link between responsible leadership and workplace safety (Abiodun, 2021; Basahel, 2017, 2021; DeCamp & Herskovitz, 2015; Fruhen, et'al 2013; Hammer, et'al 2019; Lu & Yang, 2010; Shen, et'al, 2017; Zohar & Polachek, 2014). Considering the positive effect of responsible leadership on workplace safety, the findings showed that responsible leadership (Moral person, Moral manager, Multistakeholder interest, Sustainable growth focus) is positively related to workplace safety. Its inference could relate to the Stakeholder theory where when leaders' respects stakeholders' opinions and considers their welfare as integral to organizational success they gain stakeholder's cooperation and legitimacy (Agarwal & Bhal, 2020; Voegtlin et'al 2012). The multistakeholder interest dimension of responsible leadership rooted in the stakeholder theory ropes in the interest of all who matter (whose action and inactions) and their activities affect the fortunes of the organisation. To create a favourable relationship with employees, leaders must treat employees as stakeholder (of safety at the workplace) with respect and dignity and ensure that stakeholders are updated on safety issues at the workplace (Agarwal & Bhal, 2020). Considering the stakeholder welfare as a moral duty

of an organisation, responsible leaders should take stakeholder inclusion as a smart opportunity that allows them to tap into knowledge and information about the organisation (Agarwal & Bhal, 2020; Maak, 2007). It implies that employees will be willing to cooperate and participate in safety at the workplace if they are involved as stakeholders at the workplace and also if their safety needs are catered for at the workplace, since, safety is a shared responsibility for all stakeholders of a workplace spearheaded by leadership (Graco, 1995). The main variation between other leadership theories and responsible leadership is that it emphasizes sustainable values and positive changes, environmentally and socially, (Pless and Maak, 2006).

#### **Analyse the Influence of Responsible Leadership on Safety Motivation**

Similarly, the hypothesis that responsible leadership would influence safety motivation in the downstream oil and gas sector in Ghana has been confirmed. The findings ( $\beta=0.76$ ,  $p=0.001$ ) support previous studies that there is a relationship between responsible leader (as a moral person, one who has stakeholder interest) and safety motivation (Carleton, 2021; Chikono, 2017; Hofmann, Burke, & Zohar, 2017; McGonagle, Walsh, Kath, & Morrow, 2014; Peterson, 2005; Fell-Carlson, 2004; Barling et al., 2002; Pless, 2007). Regarding the positive effect of responsible leadership, the findings showed that responsible leadership is positively linked to safety motivation and that 76 per cent of the safety motivation in the downstream oil and gas sector is influenced by responsible leadership. Its reasoning relates to the Self-Determination theory where individuals are motivated by a desire to learn and improve (Cherry, 2021) work behaviours either for intrinsic or extrinsic reasons (Scott, Fleming & Kelloway, 2014; Cherry, 2021). Also, Neal and



Griffin (2006) found that safety motivation predicted future participation in discretionary safety activities and individual's willingness to uphold safety culture that promotes workplace safety. The measure of motivation used by Rahlin, et'al (2022), Neal and Griffin (2006) and Mariani et' al (2015) reflected how important employees regarded safety through sustainable motivation which can only thrive when it is intrinsic.

Therefore, the three basic universal psychological requirements (i.e; competence, relatedness/connection and autonomy) must be provided by responsible leaders at the workplace. Employees should be acknowledged for their abilities and output. Their urge to associate within a working group should be fulfilled, and they must be given opportunity to have a complete control over their work schedule and how task is completed (Breiteneder, 2016; Cherry, 2021; Thoroughgood, 2021). Apparently, instead of leadership being irritated over employee lack of engagement and motivation, they should leverage on the numerous possibilities to improve safety engagement and performance that are not dependent on extrinsic motivators only. Individuals that are intrinsically driven participate in activities that they are interested in and enjoy. Several people in a variety of workplaces, performing multiple tasks, and at various levels of responsibility have been studied, and what motivates, and equally important, what "de-motivates" workers in terms of long-term commitment and involvement has been discovered with remarkable consistency (Aikina, & Bolsunovskaya, 2020; Smithers, & Walker, 2000). Therefore, responsible leaders should focus on building sustainable motivation of employees towards safety, but not forgetting short term motivation which is a fast boost to morale (Singh, 2017).

It could also be reasoned from the social learning theory perspective, thus, If the employees see the leaders to be credible and has positive safety behaviours as well as demonstrate care for the interest of employees as a responsible leader will do, it motivates the employees to equally put-up same behaviours as safety is concern and will equally want to reciprocate care in leader safety interest at the workplace, hence leading to workplace safety.

### **Analyse the effect of Safety Motivation on Workplace Safety**

Also, objective three of the study hypothesized that there is a positive and significant effect of safety motivation on workplace safety. This however was not completely the case because findings from the results showed that, the relationship was positive ( $\beta = 0.06$ ), with no significance ( $p > 0.17$ ). It implies that safety motivation in itself did not influence workplace safety in this study, which does not resonate with previous studies such as (Chen & Chen, 2014; Jang & Jiang, 2010; Panuwatwanich, Al-Haadir & Stewart, 2017; Pordanjani & Ebrahimi, 2015; Vinodkumar & Bhasi, 2010). This revealed that, though leadership actions motivated employees it did not translate into improving workplace safety. This disagreement could be explained by the Self-Determination theory. Thus, when social events promote feelings of been compelled, innate motivation for executing activities is compromised. Greater research shows that when leadership use coercive techniques to influence employees' behaviour, desire, involvement and persistence in target activities are reduced (Burstyn, Jonasi & Wild, 2010). It implies leaders' motivation of employees towards safety are not just automatic drivers of replica effect on workplace safety, but the right forms of motivation such as autonomy-support social influence techniques should be employed.

The findings also resonate with the views of Friend & Kohn (2018), that both leaders or employers and employees are accountable for safety at the workplace and by accepting that responsibility employees are making the workplace a safer place for themselves and co-workers. They also share accountability to encourage co-workers to cherish safe work procedures and safety programs in a positive and proactive manner. It could then be inferred that; employees know they have a share responsibility and does not need to be influenced or motivated to put up safety behaviours since they are part of the job descriptions which they are liable for as enshrined in the organization's safety culture. However, since there was an overall improvement in workplace safety, responsible leaders should focus more on other factors such as viable safety culture, safety training, among others than safety motivation in the downstream oil and gas sector in Ghana.

The findings in also in consonance with the findings of Panuwatwanich, Al-Haadir & Stewart (2017), which research also revealed inconsistencies in the findings on the influence of safety motivation on safety behavior. Safety motivation was found to be unrelated to later changes in safety adherence towards safety at the workplace in a longitudinal research that examined perceptions of motivation, and behavior twice over a five-year period. They also noted that "Intrinsic motivation theory has led to the belief that incentives of an extrinsic nature, coupled with pressures can deteriorate a person's motivation for an activity, even when it is one that the person is interested in". Thus safety motivation does not always produce the anticipated results regarding safety and should be harness appropriately to yield a positive

outcome at the workplace by deploying effective responsible leadership techniques.

Again, this disconnection could be reasoned from the stakeholder theory, where responsible leaders who rope in the safety interest of all stakeholders such as employees are already motivated to put up safety behaviours. Hence, any other form of motivation will therefore be a positive addition but will not have an actual significant effect on safety outcomes. This is what the results of the study probably have revealed. Thus, positive results but insignificant influence as showed in table 7 and figure 2.

#### **Assess the Mediating Role of Safety Motivation on Responsible Leadership and Workplace Safety Nexus**

Then again, the hypothesis that safety motivation mediates the responsible leadership and workplace nexus was equally confirmed. This was because findings from the results showed slightly significant bonding created by safety motivation between responsible leadership and workplace safety ( $\beta=0.04$ ,  $p=0.008$ ). This resonates with previous findings (Lue & Yang, 2010; Basahel, 2021; Pordanjani & Ibrahimi, 2015) where motivation was found to have substantial connection with safety motivation and how that impact safety results. Individual safety satisfaction is as a result of good leadership safety attitudes.

The cause of this connection could also be inspired by the underpinning implications of SDT. Thus, individuals are motivated by several reasons among the basic ones, autonomy, competence and relatedness, and these reasons determine whether their behaviours will be positive and negative. So, if there is a deliberate appraisal of employees safety behaviours



and the outcome turns positive may provoke a positive emotional reaction and this reinforces their competence. Therefore, responsible leaders should look out for those desires that inspire employees' interest towards safety at the workplace.

### **Analyse the Influence of Responsible Leadership on Safety Culture**

Objective five of the study equally sought to analyse the influence of responsible leadership on workplace safety in the downstream oil and gas sector in Ghana. The hypothesis that responsible leadership has a positive and significant influence on safety culture was validated by the results ( $\beta=0.78$ , 0.001). Indicating that 78 per cent positive change in safety culture was caused by responsible leadership. This finding is in line with past research (Jebb, 2015; Khan, Ahmad, & Ilyas, 2018; Leonard & Frankel, 2012; Lun & Wahab, 2011; Mohd Ariff, Anuary Sham, & Jasni, 2022; Martnez-Córcoles, et'al, 2011; Zohar, 2010) which suggested this connection. Khan, Ahmad, and Ilyas (2018) and Zohar (2010) in their studies found that, leaders at all levels have a critical role in improving the organization's safety culture and performance. Noted in the works of Masood, et'al (2012) was the finding that organization's formal management systems and leadership' informal management practices could promote care within a good safety culture by promoting, recognizing, and reinforcing safe behaviours.

Again, Skeepers and Mbohwa, (2015) in their study concluded that building a positive safety culture in a business starts with leadership. Leadership must cultivate a culture that results in safe behaviours on a consistent basis. Safety policies must be supported by actions and decisions that reflect the commitment of leadership to improve the culture of safety at

the workplace. Stolzer and Goglia (2016) concur that a strong positive safety culture requires senior leadership commitment. Using empowering attitudes, leaders may promote employee safety involvement and performance, as well as develop a safety culture (Jebb, 2015).

### **Examine the Influence of Safety Culture on Workplace Safety**

With regards to objective six, which sought to examine the influence of safety culture on workplace safety in the downstream oil and gas sector in Ghana, the results of the findings ( $\beta=0.28$ ,  $p=0.001$ ) of this study confirmed the hypothesis that there is a positive and significant relationship between safety culture and workplace safety. This concurs with previous studies such as Dennis (2014), who noted that, quantifiable safety cultural features have demonstrated to predict variables indirectly connected to safety at the workplace in addition to predicting safety outcomes. Again, the work of Naji, et al (2021) in research conducted in Malaysia's upstream oil and gas sector confirmed the impact of safety culture on safety performance that imperatively yields safe workplace. Their results concluded that there are strong relationships between safety culture and safety performance at the workplace.

More so, according to studies by Choudhry, Fang, and Mohamed on construction companies, building a good safety culture can be an effective approach for enhancing workplace safety. This is because, employees with a positive safety culture not only feel responsible for their own safety, but also for the safety of their co-workers, and the corporate culture encourages them to carry out their responsibilities safely (Masood et'al, 2012). Therefore, responsible leaders should incorporate a viable safety culture into their organisational policy because the goal of safety culture is to develop a self-

sustaining workplace based on a thorough comprehension of factors that contribute to poor workplace safety performance (jebb, 2015).

### **Assess the Mediating Role of Safety Culture on Responsible Leadership and Workplace Safety Nexus**

Lastly, objective seven of the study assesses the mediating role of safety culture on workplace nexus in the downstream oil and gas sector in Ghana. Regarding this mediating role, the results revealed a positive and significant relationship in the bond created by safety culture and workplace safety. From the results there is about 60 per cent bonding to ensuring responsible leadership promoted workplace safety by safety culture. This resonates as well with previous studies such as Gordon et al. (2007), who noted that, if a responsible leadership system is present but there is no real commitment or culture towards safety, the leadership system will be ineffective since choices would not prioritize safety. Similarly, if a true safety culture exists but there is no responsible leadership in place, safety may be inconsistent, under-resourced, and not recognized as business-driven. So, safety culture has the potential to influence workplace safety if leaders are responsible in implementing it (Leonard & Frankel, 2012).

#### **Chapter summary**

Chapter four provided a discussion of the data regarding the principal objectives of the study. The chapter started with a provision of results, discussion on the influence of responsible leadership on workplace safety, influence of responsible leadership on safety motivation, influence of safety motivation on workplace safety, the mediating role of safety motivation on the nexus between responsible leadership and workplace safety, the influence of

responsible leadership on safety culture, the influence of safety culture on workplace safety, and lastly, the mediating role of safety culture on the nexus between responsible leadership and workplace safety.





## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

This chapter presents a synopsis of the major findings and the general conclusions of the study. These findings and conclusions were based on the results as they revealed. The chapter equally made recommendations on how to improve responsible leadership to ensure workplace safety and also recommendations for further studies by future researchers in the field of safety.

#### Summary of the Study

The study purposefully was conducted to examine the relationship between responsible leadership and workplace safety and whether safety motivation and safety culture mediate the nexus between responsible leadership and workplace safety at the downstream oil and gas sector in the Accra metropolitan city of Ghana. The objectives that informed the researcher's interest to the study were to:

- i. assess the influence of responsible leadership on workplace safety in the downstream oil marketing companies in Ghana.
- ii. analyse the influence of responsible leadership on safety motivation in the downstream oil marketing companies Ghana.
- iii. analyse the influence of safety motivation on workplace safety in the downstream oil marketing companies in Ghana.
- iv. assess the mediating role of safety motivation on nexus between Responsible leadership and workplace safety in the downstream oil marketing companies in Ghana.

- v. analyse the influence of responsible leadership on safety culture in the downstream oil marketing companies in Ghana.
- vi. examine the influence of safety culture on workplace safety in the downstream oil marketing companies in Ghana.
- vii. assess the mediating role of safety culture on the nexus between Responsible Leadership and workplace safety in the downstream oil marketing companies in Ghana.

The aforementioned objectives were examined and the resulting hypotheses from the objectives were tested. The Warp partial least squares structural equation model version seven was adopted in hypotheses testing. A sample size based on convenience sampling of 226 pump attendants from a total population of 550 pump attendants in Accra metropolitan city in Ghana was used for the study based on Krejcie and Morgan (1970) criteria. Out of the sample 213 participants filled and successfully returned survey out of the 226. These pump attendants were differentiated based on the sector they work for, either government or private sector using stratified sampling technique. 84 and 142 sample for government and private sectors respectively were arrived at. Preceding the main study, a pre-test was conducted using 10 pump attendants in the cape Coast metropolitan city to assess the reliability and how applicable the scale would be in the Ghanaian context. Following the achievement of the desirable threshold for reliability, survey instruments were administered to respondents with the aid of two trained colleagues. The data was then collected and processed using IBM SPSS Statistics (version 26) and WarpPLS (version 7.0) softwares.

## Key Findings

Regarding the first objective which assessed how responsible leadership could influence workplace safety, it was revealed in the study that there was positive and statistical significant influence of responsible leadership on workplace safety. The study aptly noted that, when leadership within the sector demonstrate stakeholders' interest in safety, morality, sustained growth focus and safety commitment employees will be motivated to demonstrate safety behaviours towards safety and there will be a safe working environment. This is in line with the findings of Chughtai (2015) and Williams, Purdy and Storey (2005) who noted that responsible leadership has a major impact on workplace safety, and there is nothing that can improve safety at the workplace unless leadership wants it, originates it and keep supporting it.

Another revealing finding was that on objective two which basically analysed how responsible leadership influence safety motivation in the downstream oil and gas sector in Accra metropolitan city of Ghana. The study reported that responsible leadership characteristic towards safety such as safety involvement, safety training, autonomy to work, and safety commitment move a long way to inspire employees to voluntarily engage in safety at the workplace. This resonates with the findings of Andersson and Paqarazi (2016) who found out that safety standards conducted by responsible leadership have a large impact on safety motivation.

Objective three assessed the influence of responsible leadership on workplace safety. The results were however revealing, with safety motivation unable to influence workplace safety significantly though positive. The results

did not support the hypotheses that emated from this objective. This is in contradiction with several previous studies (such as, Pordanjani & Ibrahimi, 2015; Vinodkumar & Bhasi, 2010, 2011, etc) where safety motivation has always influence safety outcomes positively and significantly.

Finding for objective four which assessed the mediating role of safety motivation on the nexus between responsible leadership and workplace safety showed that, there is a moderate positive bonding bonding between responsible leadership and workplace safety in this study. This confirms findings of Chen and Chen (2014) and Basahel (2017) that responsible leadership was substantially connected to safety motivation and affected safety involvement at the workplace. It implied introduction of safety incentives by responsible leaders should be relooked at.

Objective five analyse the influence of responsible leadership on safety culture in the downstream oil and gas sector in Ghana. Findings showed that there is a positive and statistical significant relationship amongst them. This resonates with previous studies conducted by Zohar (2010) and Nielson (2014) that responsible leaders have a greater role in ensuring a robust safety culture that shapes the safety attitude at workplace. So if responsible leaders incorporate a viable and a robust safety culture into the organisation's policies it will impact significantly in ensuring a safe workplace.

The sixth objective examined how safety culture influenced workplace safety in the downstream oil and gas sector. Findings showed that there is a positive and significant influence of safety culture on workplace safety in the downstream oil and gas sector in Ghana. This is in line with the finding of Hee (2014) and Pater (2014) who noted that organisations benefit from safety



culture because it influence safety behaviour, foster thrust, and encourages safety involvement at the workplace. If the safety culture is robust and reflect appropriate safety practices, with commitment and share practices from both leadership and employees it will improve workplace safety.

Lastly, objective seven assessed the mediating role of safety culture on the nexus between responsible leadership and workplace safety. There was a positive and significant indication that safety culture mediated significantly and positively between responsible leadership and workplace safety. This confirmed the findings of Leonard and Frankel (2012) that safety culture has the potential of influencing workplace safety if leaders are responsible in implementing it. Implying that if responsible leaders provide a viable safety culture there will be an improvement in safety at the workplace, and at the same time safety culture will produce its intended effects when leadership is responsible at providing an all-inclusive safety culture where all stakeholders are well informed with it.

### **Conclusions**

The study assessed the influence of responsible leadership on workplace safety and whether the relationship is mediated by safety motivation and safety culture in the downstream oil and gas sector in Ghana. The results revealed that leadership can capitalise on their responsible abilities such as been ethical behaviours, positive social interaction, multi-stakeholder interest, exemplary safety practices and sustainable growth focus to instigate employees to put up positive safety practices that will create a safe workplace. Responsible leadership could also influence the safety attitude of employees in the downstream oil and gas sector by leading the charge towards safety at the

workplace through exemplary safety practices and modelling safety procedures which will create an impression of desired safety practices in the sector that will be observed, imitated and performed by employees.

Again, the study concludes that safety motivation in the downstream oil and gas sector in Ghana is paramount and should be approached in a multi-faceted perspective. Because, if it is wrongly applied creating a perception of coercion, safety will be ruined. Whatever the results maybe in this study several previous studies recognised the importance of safety motivation in safety outcomes in environments such the oil and gas sector. Hence, results from this study's should not downplay its relevance.

Subsequently the study concludes that workplace safety should be held in high esteem in every organisation especially in a volatile environment like that of the oil and gas sector. This will save the organisation from losses in terms of finances through compensations, corporate social relations and also safe employees from injuries and deaths. Employees have the right to a healthy working environment and should not pay for safety with their lives.

Lastly, the study concludes that responsible leadership in the downstream oil and gas sector should incorporate into their organisation's policy a vibrant and a robust safety culture that satisfies the safety needs of all stakeholders. And also demonstrate that safety at the workplace is a share responsibility and all are accountable for it through their responsible leadership abilities.

### **Recommendations**

Dependant on the findings and conclusions drawn on the study, the following are recommended.

Stakeholders in the energy sector, specifically those that have a direct deal with the oil and gas downstream marketing companies such as Filling station managers, Petroleum Commission, National Petroleum Authority (NPA), and the Ministry of Energy should insist on recruiting, encouraging, and promoting responsible leaders into the sector where workplace safety is important and valuable. This should or be done through the recruitment process where responsible leadership qualities should be looked for from the prospective leaders.

Also, responsible leadership workshops and training should be organised frequently for leaders and all stakeholders who hold top positions and can influence decisions to abreast them with updated leadership techniques such as motivation which are driving the business world and how it is important to incorporate safety into policy to promote business longevity. The NPA should make it a point that all filling stations have a safety protocol where motivation towards achieving it is central and should also train leaders on the Health and Safety guidelines for all extractive industries where the workplace by nature is risky.

Stakeholders especially filling station owners should insist on recruiting and encouraging employees who are easily motivated to prioritise safety at workplace safety is as important as it is valuable. Employees should be trainable and intrinsically motivated to observe safety protocols at the workplace.

The Managers of filling stations should ensure there is a robust safety culture at the workplace that is promoted by leadership. This safety culture should be updated regularly to meet current standards. Safety protocols should

explicitly be spelt out, and involve and seek the safety concerns of pump attendants at the workplace.

### **Suggestions for Future Studies**

Studies should be conducted to cover other metropolitan cities in Ghana regardless of the fact that this study location, that is Accra Metropolis hosts the headquarters of almost all the oil marketing companies where all their safety policies emanate and hence could be generalised to the entire country. This notion could be somewhat misleading.

Further studies should be conducted using other leadership techniques such as transactional leadership rather than responsible leadership to investigate the nexus between safety motivation and workplace safety in the same sector so as to find a best leadership technique that elicits employee motivation in the sector.

Also, studies should also be conducted on other aspects of the downstream sector such as the Bulk Distribution Companies and The Liquefied Petroleum Gas stations so as to be able to draw a comprehensive conclusion on the workplace safety dynamics. Same studies could as well be conducted in different fields aside the energy sector which equally have workplace safety challenges such as mining, agriculture, transport, among others.



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**APPENDICES****APPENDIX A****UNIVERSITY OF CAPE COAST****COLLAGE OF HUMANITIES AND LEGAL STUDIES****FACULTY OF SOCIAL SCIENCES****INSTITUTE FOR OIL AND GAS STUDIES****QUESTIONNAIRE ON RESPONSIBLE LEADERSHIP**

Dear Sir/Madam,

This research instrument is designed to assess the influence of Responsible leadership on Workplace safety in the downstream oil and gas sector. Any information provided will be handled with outmost secrecy. Please choose the appropriate options for the questions by checking their corresponding boxes.

**SECTION A: BACKGROUND OF RESPONDENTS**

Please check (✓) the appropriate column

1. Sex of respondent

Male  female

2. Age(years) of respondent

21-30  31-40  41-50  51-60  Above 60

3. Educational level

Postgraduate Degree  First Degree  HND  SHS  Professional

Certificate  Others

4. Which sector do you work?

Government  Private

5. How many years have you working with the company

1-5 years  6-10  11-15 years  16 years and above

6. How long have you been working with your present boss .....

**KEY:** the numbers against each question in the table shows the level of agreement as shown below.

- 1. Strongly disagree, 2. Disagree, 3. somewhat disagree, 4. Neutral, 5. Somewhat agree. 6. Agree 7. Strongly agree.**

**SECTION B: RESPONSIBLE LEADERSHIP**

Please show the extent to which you agree with the following statements about your direct supervisor on a 7-point scale, where 1=least form of agreement and 7=highest form of agreement. Please tick (✓ or X) your answer.

MORAL PERSON								
S/N	ITEMS	LEVEL OF AGREEMENT						
	<b>My supervisor;</b>							
1	decides things in a fair and balanced way	1	2	3	4	5	6	7
2	takes ownership for own actions	1	2	3	4	5	6	7
3	inquires "what is the correct thing to do?" before making decisions.	1	2	3	4	5	6	7
4	shows consistency in words and action	1	2	3	4	5	6	7
5	does not blame others for own mistakes	1	2	3	4	5	6	7
6	has subordinates' best interests in mind	1	2	3	4	5	6	7
7	explains what comprises of ethical and unethical behaviours	1	2	3	4	5	6	7

8	disciplines followers who violate organization's ethical standards	1	2	3	4	5	6	7
9	sets an example of achieving results ethically	1	2	3	4	5	6	7
10	defines success in terms of methods rather than outcomes	1	2	3	4	5	6	7
11	listens to what subordinates have to say	1	2	3	4	5	6	7
12	views stakeholder satisfaction as a crucial business result	1	2	3	4	5	6	7
13	prior to making business decisions, one tries to consider the influence on stakeholders	1	2	3	4	5	6	7
14	makes sure that stakeholders are treated with dignity and respect by all subordinates	1	2	3	4	5	6	7
15	ensures that stakeholders receive relevant, correct, and timely information	1	2	3	4	5	6	7
16	promotes personal connections with stakeholders for better business development	1	2	3	4	5	6	7
17	demonstrates consideration for resource availability or conservation while making plans for future business demands	1	2	3	4	5	6	7
18	links present business tasks with long term organizational goals	1	2	3	4	5	6	7
19	communicates a vision of long-term growth for the organization	1	2	3	4	5	6	7
20	encourages business activities beneficial for team/organization in long term	1	2	3	4	5	6	7

**SECTION C: SAFETY MOTIVATION**

Please show the extent to which you agree with the following statements with respect to your motivation to ensure safety at the workplace on a 7-point scale, where 1=least form of agreement and 7=highest form of agreement. Please tick ( $\surd$  or X) your answer.

S/N	Items	Level of agreement						
	<b>I work safely;</b>							
1	in other to get acknowledgement from leadership	1	2	3	4	5	6	7
2	in other to avoid been criticized by leadership and colleagues	1	2	3	4	5	6	7
3	because I risk losing my job	1	2	3	4	5	6	7
4	in other to get a reward	1	2	3	4	5	6	7
5	because I take pride in working safely	1	2	3	4	5	6	7
6	because otherwise I will feel guilty	1	2	3	4	5	6	7
7	as working unsafely makes me feel horrible about me	1	2	3	4	5	6	7
8	because working safely makes me feel good about myself	1	2	3	4	5	6	7
9	because I personally value safety	1	2	3	4	5	6	7
10	because I value working safely and I make an effort to do so	1	2	3	4	5	6	7
11	because I have fun while working safely	1	2	3	4	5	6	7
12	because it makes me happy	1	2	3	4	5	6	7
13	because safety interest me	1	2	3	4	5	6	7
14	because I take delight in working safely	1	2	3	4	5	6	7



**SECTION D: SAFETY CULTURE**

Please show the extent to which you agree with the following statements with regards to the safety culture of your company on a 7-point scale, where 1=least form of agreement and 7=highest form of agreement. Please tick (✓ or X) your answer.

S/N	ITEMS	LEVEL OF AGREEMENT						
		1	2	3	4	5	6	7
1	in the operating zones, leaders are frequently seen.							
2	leaders are considered role models.							
3	when leaders become aware of insecure practices, they promptly take remedial action							
4	leaders acknowledge and honor accomplishments in work safety (WS)							
5	leaders consider WS a priority							
6	employee ideas to enhance WS are taken into account by managers							
7	when workplace accidents occur, supervisors provide feedback to individuals involved							
8	good suggestions for improvement WS are implemented.							
9	employee comments for bettering WS procedures are welcomed by managers							
10	to complement the task, personal protective equipment (PPE) are always available.							
11	before they begin working together, collaborators are aware of the PPE's purpose							
12	the usage of PPE is strictly regulated							
13	at least every two years, workers get WS training							
14	employees know the safety indicators							
15	indicators are sufficient to locate and quantify WS nonconformities							
16	the objectives and monthly WS indicator results are known to the employees							
17	When managers see actions that hurt WS, they provide guidance							
18	there is information accessible about WS regulations and practices							
19	employees are kept informed on WS policies, practices, and guidelines by managers							
20	the managers communicate to the collaborators the WS goals and indicators							

21	there is internal communication about WS everywhere (posters, banners, internet, etc.)	1	2	3	4	5	6	7
22	the Daily Safety Dialogues are used for WS communication (DDS)	1	2	3	4	5	6	7
23	the number of staff is sufficient to complete tasks using WS	1	2	3	4	5	6	7
24	rules and procedures of the WS are unaffected by the productivity charge	1	2	3	4	5	6	7
25	the practices of the workers towards WS are unaffected by results-based pressure	1	2	3	4	5	6	7
26	Instead of focusing on the guilty, accident investigations are used to find weaknesses in WS systems	1	2	3	4	5	6	7
27	the causes of accident occurrences are utilized to learn about and enhance WS systems	1	2	3	4	5	6	7
28	information on the causes of workplace accidents is provided to the employees	1	2	3	4	5	6	7
29	Employees are urged by managers to assist coworkers to prevent workplace accidents	1	2	3	4	5	6	7
30	The management take action to address issues that might endanger WS	1	2	3	4	5	6	7
31	Employees assist colleagues in avoiding work-related accidents	1	2	3	4	5	6	7
32	Employees are alert to the safety of colleagues and interfere whenever necessary.	1	2	3	4	5	6	7
33	if workers feel that their WS may be harmed, they have the option to stop working.	1	2	3	4	5	6	7
34	when workers disregard the WS, managers take disciplinary action	1	2	3	4	5	6	7
35	managers are aware of work that adheres to WS standards when they see it	1	2	3	4	5	6	7
36.	managers view reported WS faults as a chance for learning	1	2	3	4	5	6	7

**SECTION E: WORKPLACE SAFETY**

Please show the extent to which you agree with the following statements with regards to how safe your workplace is on a 7-point scale, where 1=least form of agreement and 7=highest form of agreement. Please tick (✓ or X) your answer

S/N	ITEMS	LEVEL OF AGREEMENT						
	<b>Job Safety</b>							
1	there are no chances of death at my workplace	1	2	3	4	5	6	7
2	my workplace is not dangerous	1	2	3	4	5	6	7
3	my job is not hazardous	1	2	3	4	5	6	7
4	my workplace is safe	1	2	3	4	5	6	7
5	my job at workplace is not scary	1	2	3	4	5	6	7
6	my workplace is healthy	1	2	3	4	5	6	7
7	I could not easily be hurt at my workplace	1	2	3	4	5	6	7
8	colleagues adhere to safety rules	1	2	3	4	5	6	7
9	colleagues care about other's safety	1	2	3	4	5	6	7
10	colleagues pay attention to safety rules	1	2	3	4	5	6	7
11	colleagues look out for other's safety	1	2	3	4	5	6	7
12	colleagues urge others to practice safety	1	2	3	4	5	6	7
13	colleagues do not take chances with safety	1	2	3	4	5	6	7
14	colleagues are safety oriented	1	2	3	4	5	6	7
15	coworkers maintain a tidy workplace	1	2	3	4	5	6	7
	<b>My immediate supervisor;</b>							
16	rewards safety work attitude	1	2	3	4	5	6	7
17	encourages safe working	1	2	3	4	5	6	7
18	keeps personnel informed about safety rules	1	2	3	4	5	6	7
19	includes workers in establishing safety objectives	1	2	3	4	5	6	7
20	Offers employee safety training	1	2	3	4	5	6	7
21	takes action on safety recommendations	1	2	3	4	5	6	7

22	revises safety regulations to meet current demand	1	2	3	4	5	6	7
23	enforces safety guidelines	1	2	3	4	5	6	7
24	talks with others about safety problems	1	2	3	4	5	6	7
	<b>My immediate supervisor;</b>							
25	offers sufficient safety training sessions	1	2	3	4	5	6	7
26	regularly inspects for safety	1	2	3	4	5	6	7
27	ensures a safe working environment	1	2	3	4	5	6	7
28	rapidly reacts to safety issues	1	2	3	4	5	6	7
29	keeps personnel informed of dangers	1	2	3	4	5	6	7
30	carries out routine safety assessments	1	2	3	4	5	6	7
31	rewards safe workers	1	2	3	4	5	6	7
32	gives information on safety	1	2	3	4	5	6	7
33	offers secure equipment	1	2	3	4	5	6	7
34	helps keep the workplace tidy	1	2	3	4	5	6	7
35	examines safety issues immediately	1	2	3	4	5	6	7
36	The safety program at my workplace is beneficial.	1	2	3	4	5	6	7
37	my workplace's safety program aids in preventing accidents.	1	2	3	4	5	6	7
38	my workplace has an excellent safety program.	1	2	3	4	5	6	7
39	my workplace's safety program is helpful.	1	2	3	4	5	6	7
40	the safety program at my place of work is effective	1	2	3	4	5	6	7
41	the safety program at my workplace successfully lowers injuries	1	2	3	4	5	6	7
41	the safety program at my workplace does pertain to my job	1	2	3	4	5	6	7
43	the safety policy at my workplace is explicit.	1	2	3	4	5	6	7



**SAFETY COMPLIANCE**

Please show the extent to which you agree with the following statements with respect to safety compliance on a 7-point scale, where 1=least form of agreement and 7=highest form of agreement. Please tick (√ or X) your answer.

S/ N	ITEMS	LEVEL OF AGREEMENT						
		1	2	3	4	5	6	7
1	I carry out my work with the appropriate safety gear							
2	I complete my task in a secure manner							
3	I perform my job in accordance with the appropriate safety rules and procedures							
4	When I do my job, I make the utmost possible efforts to maintain safety							
5	I do not periodically stray from proper and safe work standards out of a lack of time							
6	I do not periodically stray from right and safe work practices because I am too used to my job.							
7	while performing a work, it is always practicable to adhere to all safety regulations and guidelines							



**ETHICAL LEADERSHIP**

Please show the extent to which you agree with the following statements on a 7-point scale, where 1=least form of agreement and 7=highest form of agreement. Please tick (✓ or X) your answer.

S/N	ITEM	LEVEL OF AGREEMENT						
	<b>My boss;</b>							
1	demonstrates a deep interest for moral and ethical principles	1	2	3	4	5	6	7
2	establishes explicit ethical guidelines for members	1	2	3	4	5	6	7
3	sets an example of moral behavior via his or her choices and deeds	1	2	3	4	5	6	7
4	is truthful and trustworthy, as well being honest	1	2	3	4	5	6	7
5	maintains a constant action-to-values ratio ("walks the talk").	1	2	3	4	5	6	7
6	is impartial and fair when distributing duties to members	1	2	3	4	5	6	7
7	can be trusted to carry out promises and commitments	1	2	3	4	5	6	7
8	accepts responsibility for errors made and admits them	1	2	3	4	5	6	7
9	even when it is difficult, persists on acting in a just and moral manner	1	2	3	4	5	6	7
10	considers integrity and honesty to be essential personal values	1	2	3	4	5	6	7
11	provides a good example of commitment and selflessness for the company	1	2	3	4	5	6	7
12	rejects using immoral methods to boost performance	1	2	3	4	5	6	7
13	when assessing member achievement and awarding awards, is impartial and fair.	1	2	3	4	5	6	7
14	prioritizes the needs of others before one's own interests	1	2	3	4	5	6	7
15	my supervisor expects members to conduct themselves ethically at all times	1	2	3	4	5	6	7

**THANK YOU FOR YOUR TIME AND COOPERATION.**

APPENDIX B

INTRDOCTORY LETTER

**UNIVERSITY OF CAPE COAST**

**COLLEGE OF HUMANITIES AND LEGAL STUDIES**

**FACULTY OF SOCIAL SCIENCES**

**INSTITUTE FOR OIL AND GAS STUDIES**

Telephone: +233 206608458  
Email: [oil-gas.studies@ucc.edu.gh](mailto:oil-gas.studies@ucc.edu.gh)



UNIVERSITY POST OFFICE  
CAPE COAST, GHANA

Our Ref:  
Your Ref: IOG/M4/122

3<sup>rd</sup> August, 2022.

**TO WHOM IT MAY CONCERN**

Dear Sir/Madam,

**INTRODUCTORY LETTER: MR. MUSTAPHA KALVEI**

The bearer of this letter, Mr. Mustapha Kalvei with registration number SS/ORM/20/0006, contact 0542280360, and email address: [Mustapha.kalvei@stu.ucc.edu.gh](mailto:Mustapha.kalvei@stu.ucc.edu.gh), is an M.Phil Oil and Gas Resource Management student of the Institute for Oil and Gas Studies, Faculty of Social Sciences, College of Humanities and Legal Studies, University of Cape Coast. He is conducting a research on the topic: **"The Influence of Responsible Leadership on Workplace Safety in the Downstream Oil and Gas Sector in Ghana: The Role of Safety Motivation and Safety Culture"**.

As part of this research, he is required to collect data from some Organisations. The Institute would be very grateful if you could assist him with the relevant data to facilitate his research work.

Thank you.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Simon Mariwah'.

Prof. Simon Mariwah  
Director.

## APPENDIX C

## ETHICAL CLEARANCE

## UNIVERSITY OF CAPE COAST

## INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143 / 0508878309

E-MAIL: [irb@ucc.edu.gh](mailto:irb@ucc.edu.gh)

OUR REF: UCC/IRB/C1.1/V1/0002

YOUR REF:

OMB NO: 0990-0279

IORG #: IORG0011497

10<sup>TH</sup> JANUARY, 2023

Mr Mustapha Kalvei  
 Institute for Oil and Gas Studies  
 University of Cape Coast

Dear Mr Kalvei,

**ETHICAL CLEARANCE – ID (UCCIRB/CHLS/2022/65)**

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research on **The Influence of Responsible Leadership on Workplace Safety in The Downstream Oil and Gas Sector in Ghana; The Mediating Role Of Safety Motivation and Safety Culture**. This approval is valid from 10th January, 2023 to 9th January, 2024. You may apply for a renewal subject to the submission of all the required documents that will be prescribed by the UCCIRB.

Please note that any modification to the project must be submitted to the UCCIRB for review and approval before its implementation. You are required to submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Kofi F. Amuquandoh'.

Kofi F. Amuquandoh

Ag. UCCIRB Administrator

ADMINISTRATOR  
 INSTITUTIONAL REVIEW BOARD  
 UNIVERSITY OF CAPE COAST